

Climate Change and Local Governance

Alternative approaches to
influencing household energy consumption

A comparative study of five European regions

Edited by Nick Gotts and Imre Kovách

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Alternative approaches to influencing household energy consumption
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Preface

This anthology focuses on households' energy demand, energy use and governance in the context of climate change management. The subject of this book is part of a European Union Framework Programme Seven research project "Governance, Infrastructure, Lifestyle Dynamics and Energy Demand: European Post-Carbon Communities" (GILDED – see <http://www.gildedeu.org/>) running December 2008 – November 2011. GILDED is led by the Macaulay Institute in Aberdeen, Scotland, in partnership with the Potsdam Institute for Climate Impact Research (Germany), the Institute for Political Science, Hungarian Academy of Sciences, the University of Groningen (the Netherlands), and the University of South Bohemia in České Budějovice (Czech Republic).

The main goal of GILDED is to identify social, economic, cultural and political changes which help European households to reduce energy consumption. This collection of papers presents studies about energy governance systems related to households' energy uses and infrastructure and a comparative paper. The empirical work was conducted in five European countries; each has rural and urban study areas: Potsdam and Potsdam Mittelmark in Germany; Aberdeen City and Aberdeenshire in Scotland, Assen and Drenthe province in the Netherlands, České Budějovice and its region in the Czech Republic, Debrecen and Hajdú Bihar County in Hungary.

By comparing case studies we have found three energy governance models with relevant differences and yet with considerable consistency in terms of energy saving policy: the local hierarchical model, the formal democratic decision making model and the cooperative decision making model. No one has an absolute advantage regarding an effective energy saving policy, or the impact on household energy use behavior. The outcomes of comparative work underline that the type of (local) governance should be considered when designing policy mechanisms to influence household behaviour, and that emerging activity of civil associations and entrepreneurs in managing 'green issues' is a necessary condition for addressing climate change, so such new governance methods and tools as stakeholder involvement, consensus building, and participatory planning (using context dependent policy tools such as financial incentives, regulatory elements and awareness raising) should be encouraged in order to induce households to reduce their energy demand.

Anyone who aims to contribute to the management of climate change should find the descriptive material, and positive examples in this book helpful in dealing with problems associated with reducing energy demand. The emphasis is on the information, knowledge and skills that are needed for scientists, politicians, and civil society activists to work in the field of energy use, including the ability to reduce conflicts, to harmonize interests, to motivate institutions, individuals and households, and to increase efficiency of communication on a global as much as a local issue.

Nick Gotts and Imre Kovách

Energy demand, governance and infrastructure Comparative Report of five European Countries

Bernadett Csurgó – Imre Kovách – Anna Légmán – Boldizsár Megyesi

1. Introduction

1.1. The structure of the comparative paper

This comparative paper is based on the comparison and analysis of the five participant countries' national reports (Germany, Scotland/UK, the Netherlands, the Czech Republic and Hungary). It consists of two main parts: the description and comparative analysis of the infrastructure and the governance system of the case study areas, related to energy issues in the five countries.

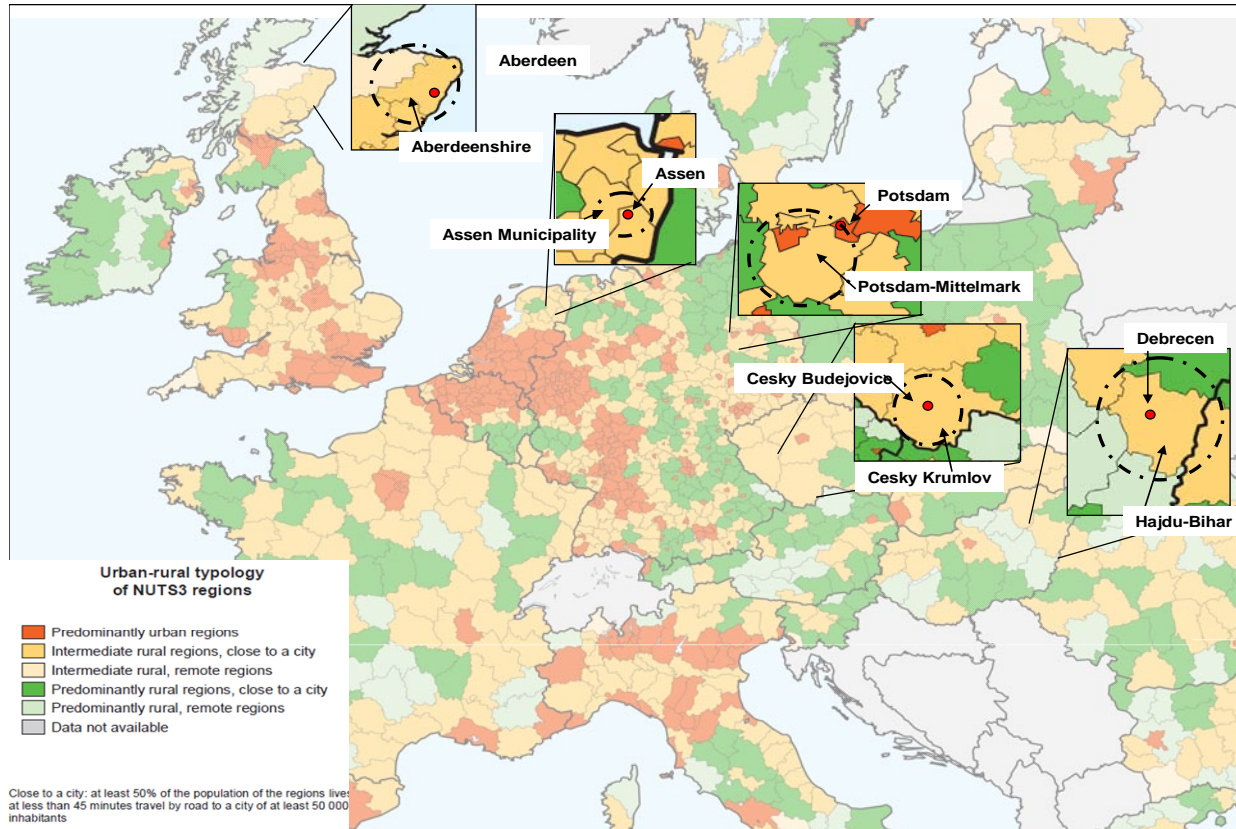
By way of introduction, we present the structure of the paper and brief general characteristics of the participant countries' case-study areas. With the help of these characteristics, we can gain an insight into the different areas.

First, the paper describes the main characteristics of study areas. Annex I contains detailed information on infrastructural parameters, paying special attention to climatic conditions, socio-demographics, and data on possible low-carbon energy sources. Annex I also presents the settlement structure and transportation in the case-study areas. Here, general consumption habits are presented. In the main part of the comparative report, we analyze the structural factors of governance: power relations, networks and methods of decision-making that shape current energy demands and energy use of the household sector.

1.2 Methods

This report is based on document analysis and 15 interviews conducted in each country's case-study areas with local decision-makers, local entrepreneurs and members of local civic associations.

1.3 The case-study areas



Each of the countries has two case-study areas: a rural and an urban one.

In Germany, the case-study areas are Potsdam and Potsdam-Mittelmark. After German re-unification in 1990, Potsdam (as an independent city) and the county of Potsdam-Mittelmark became parts of the state of Brandenburg, including 14 counties and four independent cities. Besides tourism, Potsdam's economy is characterized by only a few industries: media/communications, biotechnology/life sciences, automotive and administrative sectors. Potsdam is part of the Metropolitan Area of Berlin/Brandenburg and situated on the river Havel. Alongside the historical city centre, various neighbouring quarters and large green spaces, the residential areas built since the 1960s in the former GDR characterize many parts of the city. Besides being a cultural centre in Brandenburg, Potsdam is also known for its leading science institutes and universities, and seems to have developed as a promising location for green industries. Potsdam-Mittelmark (PM) is located in the southwest of the Brandenburg area, where 80% of the land is used for agriculture or is forested, with farmers playing an important role. The region is highly differentiated, with the more urbanized municipalities in the north and east, and the more rural areas in the south and west. (Reusswig et al 2010)

In Scotland, the case study-areas of Aberdeen City and county, which are located in the north-east of the country, incorporate the predominantly rural local authority of Aberdeenshire Council and the mainly urban Aberdeen City Council. Aberdeen was founded in the 8th century AD as a fishing settlement, and by the early 12th century it was an established town and harbour. The city sits at the mouths of the Rivers Dee and Don on the North Sea Coast, and is the third largest in Scotland. (Aberdeen City and Shire Report 2010)

In the Netherlands, the case-study areas are the city and the municipality of Assen. Assen only became a city in 1809, but has existed for 750 years. It is the capital of Drenthe province, situated in the north-east of the Netherlands. Of Dutch provinces, Drenth has the smallest number of inhabitants and is the most thinly populated. Assen is the fastest growing city in the northern part of the Netherlands and is part of the municipality of Assen. (WP 2 Country Report the Netherlands 2010)

In the Czech Republic, the case-study areas are the city and county of České Budějovice, located in the South Bohemia region, bordering Austria. From the state administrative point of view, the Czech study area involves two former districts, České Budějovice and Český Krumlov. České Budějovice represents an area of mostly urban parameters; Český Krumlov district represents an area with a more rural character. As regards natural patterns, both are represented by relatively large natural and semi-natural ecosystems like forests, lakes, fish ponds, meadows, crop fields and small towns and villages. (WP 2 Country Report the Czech Republic 2010)

In Hungary the case-study areas are Debrecen and Hajdú-Bihar County. Hajdú-Bihar lies in the south-eastern part of Hungary, right at the border of Romania, which is somewhat underdeveloped. The topography of Hajdú-Bihar County is characterized by the Great Plain (arable land, meadows and settlements can be seen as one travels through the countryside). The Hajdúság region, along with Debrecen city, has bourgeois traditions – people in the area have been used to living in towns for centuries – while in the Bihar region people are used to living in villages. Although Hajdú-Bihar County has been an agricultural region for centuries, the food, pharmaceutical and other industries are important. This is especially so in Debrecen, while smaller industrial sectors can be found in smaller towns. Educational institutions are also an important sector in the county, while tourism is developing steadily (Csurgó at all 2010).

1.4 Possible low-carbon energy sources

In this section, we aim to compare the low-carbon energy sources used and potentially available in the countries under survey. The identification of (possible) low-carbon energy sources can determine how and to what extent fossil fuels can be replaced by low-energy sources, and hence how far CO₂ emissions can be reduced by switching from fossil fuels.

The region of Potsdam and Potsdam-Mittelmark is characterized by many remnants of the ice age. There are no stocks of oil, gas or coal in the region. There is a source of thermal water, which for the moment is only used for therapeutic bathing, but could be used as a renewable energy source (LBGR 2009). This region is known for its many arid areas, and also for its water scarcity. The Havelland, however, located in the north of the county, is known for its enormous water reserves, its lakes and rivers. The whole county lies in a moderate climatic zone, but the transition to a continental climate – found in Germany east of the river Elbe – is clear in some areas. The share of renewable energies (wind energy, solar energy, water energy, and biomass/biogas) in total electricity production rose from 4.2% in 2000 to 34.4% in 2006. Wind power is the most important renewable energy source in Potsdam-Mittelmark: more than 90.2% of all renewable energy is sourced from wind power. This share has sharply increased since 2003. In 2006, it accounted for 205.7 GWh; in that year, about 21 GWh was produced by district heating power plants. This was thus the second largest renewable energy source

in the area. Much less (i.e. 930 kWh) was produced by photo-voltaic plants, or hydro-electrical plants (130 kWh). Overall, energy production of block-heating power plants and PV plants has increased steadily since 2000. It is evident that due to the weather conditions in the region, wind energy is absolutely essential for any attempts to reduce emissions. However, the space for new wind-energy plants is becoming scarce. Furthermore, the acceptance of wind farms is decreasing, since people fear that having more of them will have a negative effect on the landscape and will decrease the value of properties. Apart from large wind farms, which are mainly constructed and owned by companies outside of the county (e.g. Enercon), there are some municipalities which are effectively engaged in the region's climate protection and energy issues. The main primary energy source in Potsdam is gas. In GDR times, the dominant fuel was coal (lignite), and most households used one or more individual ovens. The dominant modernization trend after 1990 was to substitute individual coal ovens with a single gas unit per flat, if district heating was either unavailable or unfeasible. In 2008, 2,062 GWh of gas were used, imported mainly from Russia. Due to the high share of wind farms in the county, Potsdam-Mittelmark has already attained a high proportion of green electricity. Further options include installing new biogas plants, solar plants and geothermal stations. Hence, although the current share of renewable energies is fairly high in Potsdam-Mittelmark (47%, Lorenz 2009), the further development of fossil and renewable resources is connected to the strategic decisions of Eon.edis. This is because the company has the resources to either strengthen or impede de-centralized renewable energy options by making it easier or more difficult for renewable energy developers to connect to the electricity grid. (Reusswig et al 2010)

Aberdeenshire Council sees wood fuel, particularly pellets, as being a key source of affordable heating in areas without access to mains gas, and a major weapon in combating fuel shortages. Since 2007, over 5 megawatts of biomass boiler installations have been commissioned, and two wood pellet production plants entered production in 2008. The council also has 200 megawatts of onshore wind power with planning consent, and some 70 megawatts in production. Across Aberdeenshire, there are some 600 old water mill sites, many of which offer the potential for small-scale hydro-electricity generation; this is being explored by the council and some community groups. In addition, there are several old turbine sites that have generated electricity in the past and have the potential to be re-commissioned. (Aberdeen City and Shire Report 2010)

In the Netherlands, every household can choose their own gas and electricity provider. Some of these providers offer renewable as well as non-renewable energy; some offer only renewable energy; and some offer only non-renewable energy. Overall, renewable energy is no more expensive than non-renewable energy. At the moment, renewable energy use by the inhabitants of Assen is only 0.3% of the total energy consumption. Biomass and waste makes up 3.6%. The most used energy source is gas: 60.8% (CO₂ neutral KNN). There are several ways in which Dutch households can generate their own sustainable energy: they can do so by installing sun boilers or solar panels; they can place a small windmill on their house or participate in a windmill park at sea. Another option is to generate energy by using heat, either with a heat pump or heat-cold storage. In addition, farmers can use agricultural waste to generate energy (biogas). (WP 2 Country Report the Netherlands 2010)

In the Czech case-study areas, solar energy, water energy use and biomass combustion have already appeared, but the use of renewable sources of energy is just beginning. The main goal of current Czech energy policy is to increase the share of renewable energy sources in the overall consumption of primary energy sources

to 8.9% in 2010, and 15.7% by 2030. Biomass sources should cover about three-quarters of these shares. The share of energy from renewable sources was only 4.3% in 2006, with biomass currently accounting for a quarter.

Most regions are under some level of protection, so it is very difficult to find a location for new wind farms. With hydro-electric power, most potential sites for new plants are already occupied. Solar power is a source of renewable energy with great potential in the study area. We may mention several firms specializing in this branch of solar technique distribution / production, with many successful installations providing proof of this fact. No doubt, the most important renewable source of energy in the region concerns biomass. Sources used for energy production are specially cultivated plants, or the by-products of agriculture, or the food or timber industries. Electric power and natural gas supplies are provided by E.On in the study area. Since January 1, 2006 households became the last group of consumers to gain the right to choose their energy providers and the market became fully liberalized. The annual balance of electric power consumption is only monitored at the level of the whole of the Czech Republic (data from ERU). (WP 2 Country Report the Czech Republic 2010)

There are several possible low-carbon energy sources in Hajdú Bihar county: wind-energy, solar-energy, thermal water, and biomass and straw-power plants. There are plans to establish new wind-power plants, and these could potentially be one of the most important low-carbon energy sources. This is evidenced by the several windmills which located there in the 19th century. 95% of Hungarian windmills were located in the Great Plain, which includes Hajdú-Bihar county. Another important alternative energy source could be the thermal water supplies which can be found in almost all villages, which are nowadays used for the tourist industry. In addition, several scientific and innovative projects aim to discover possible uses of thermal waters as an energy source. The relatively high importance of agriculture in the region provides good opportunities for using biomass as an energy source. (Csurgó at all 2010)

We summarize the main elements of different study areas relating to possible low carbon energy sources in the following table.

Countries / dimensions	Low-carbon energy sources (at present)	Possible low- carbon energy sources (in the future)
Germany	Wind power, block-power plant	Wind power, biogas, solar plant, geothermal energy
Scotland	Wind power, wood fuel	Wood-pellet, biomass, hydro-energy
Netherlands	Biomass and waste, solar plant, wind energy, biogas	
Czech Republic	Not significant	Biomass, solar plants, hydro-energy
Hungary	Not significant	Wind energy, solar plant, geothermal energy, biomass, straw-power plant

Table 1.1. Comparison of (Possible) low-carbon energy sources in the case-study areas

There are significant differences between study areas in the use of renewable energy sources. In Scotland, the Netherlands and in Germany, the use of renewable energy sources at present is much more significant than in

Hungary or the Czech Republic. It is an important similarity, meanwhile, that in all the study areas, there are several possible resources for low-carbon energy use.

1.5. Main elements of infrastructure

The complexity and size of the selected study areas are very different. The Scottish and the Dutch study areas are smaller regions with one or two main cities and some villages, while the German, Czech and Hungarian study areas are more complex with different micro-regions consisting of more settlements with different sizes. Because of the different size and complexity of the areas, the population structures are very different. In addition, each area consists of rural and urban regions, so we are able to analyze rural-urban differences in all cases.

The household structures in the selected study areas are very similar. The average number of persons per households ranges from 2.2 to 2.5. Each area is characterized by a decreasing number of people per household. There are similarities also in housing features. The average house size is bigger, and the significance of family houses is high in all areas.

Each study area has a high consumption of products with high climate impact: meat consumption is high mostly everywhere. Development of the transport system varies between study areas. In Assen, Potsdam and Potsdam-Mittelmark, and Hajdú-Bihar County, it is well developed, as it is in Aberdeen city. In the case of the Czech study area, it is much more under-developed, and in the case of Aberdeenshire, limited in convenience. The number of cars and the significance of car use are increasing in all the study areas. The most important public transport vehicle everywhere is the bus. Bicycle use is significant in the German, Dutch and in the Hungarian study areas. (See detailed information on infrastructure of study areas in Annex I.)

From the overall description of the areas, some issues arise for further analysis: settlement structure can influence energy use, as can size of families and age structure. There can be significant differences between the structure of a household and its energy demands in urban and rural areas. A densely concentrated population needs more state activity in energy policy, while in rural areas, NGOs can more easily launch projects. This overview of the main infrastructural characteristics of the study areas is the root to understanding how governance structures can condition national and urban/rural differences in energy use.

The following section describes and analyzes the governance structure of the selected study areas.

2. Governance structure

2.1 Theoretical background

The aim of this chapter is to explain relevant concepts from the sociological literature, the results of environmental and political studies, ecology and elsewhere) and also to develop a common understanding of key ideas.

2.1.1 Power

Certain theories attribute a key role to power in social structures and processes. They perceive democracy as the construction of political institutions that establish, control and facilitate the development of a particular kind and distribution of power. In their overview, Goverde et al. (2000) regard Parsons and Foucault as the founders of classic power theory. Parsons (1986) understood the notion of political power as the increased capacity for action that members of a political regime have. Accordingly, Giddens (1984) argues that social structures give individuals a capacity for action as agents. Actors in such a system not only have a mutual understanding of rules and constraints, but are also aware of an existing distribution of power. This knowledge not only affects their potential range of action, but also enables them to act reflexively. Hence, Giddens draws our attention to the fact that power is structurally embedded.

According to Foucault, power exists at two levels (Foucault, 2000). On one hand there are local power conflicts whose actors are part of the same 'system of thought'; on the other there are the systems of thought themselves, therefore power relations and conflicts must also be considered in their own context.

Foucault's interpretation of power has also influenced the work of Stewart Clegg. According to Clegg, there are three distinct 'circuits of power' (Clegg, 1989). As in Foucault's level of local power conflicts, in Clegg's case the first circuit is episodic power. This is the agency (micro-) level where actors create power by reproducing common structures of meaning. This is the most autonomous level of decision-making due to the agents' earlier mentioned reflexivity. In theory, Clegg's first circuit of power is equivalent to Giddens' notion of creating power by reproducing structures. The first level of power already presupposes the existence of meso-level structures whose systems of meaning individuals are able to reproduce on the micro-level. On the meso-level, meanings are not only created, but also debated, therefore this is the level where relations of empowerment and disempowerment are defined. However, at the same time, these power relations merely reflect systemic forms. This deep systemic level is the third circuit of power that can be perceived as globalisation.

Power makes it possible for certain meanings to be reproduced, while the reproduction of others is hindered. It enables certain ways of thinking, while contradicting others. Nevertheless, a number of social scientists still continue to perceive and interpret power as a form of oppression. Others argue that one must distinguish between 'power over' and 'power to'. According to Arendt, a pre-eminent defendant of the latter view, power cannot be understood strictly in terms of conflict per se, rather it is a capacity for action that individuals obtain by participating in the social system (Arendt, 1970). Based on Arendt and Foucault, Goehler distinguishes transitive (power over) and intransitive (power to) categories of power (Goehler, 2000).

Dahl suggests that it is essential to make a conceptual distinction between power and power resources (Dahl, 1989). While local or national elites may have considerably greater resources than other actors of society, this does not automatically imply the dimension of their power. The distribution of power resources is not equivalent to the distribution of power; therefore the key issue is who is actually exercising power, not who has the potential to exercise power. According to Dahl, power is none other than the act of exercising power, manifested in decision-making processes where certain actors are observed to prevail over others. Or, as Dahl's critics have pointed out, there are actors who endeavour from the start to prevent the interests of others from reaching the decision-making forum. In the context of policy network analysis, Goverde & van Tatenhove

(2000) suggest a three-layer model of power: power as a capacity; power as a relational phenomenon; and structural power. According to the authors, power has several, not necessarily closely connected layers, thus present-day power networks may not show a clearly hierarchical structure. Regarding the impact that this government to governance change has on power, the two latter interpretations may prove useful, as they specifically emphasise that power today is a multi-layered and multi-dimensional concept. In this way, it is very important to examine the transition of government into governance which facilitates the appearance of new actors.

2.1.2 Government and Governance

The logic of this chapter is that first we need to provide basic information about the governance structure of studied areas to understand the frame of power relations and governance as far as energy use is concerned. The aim of this chapter is to work out models of governance and to develop an energy governance/energy consumption typology that will be used in the comparative paper analysis.

Defining ‘governance’ is a rather complex task. As Stoker (1998, p.17) argues:

“Reviews of the literature generally conclude that the term – governance – is used in a variety of ways and has a variety of meanings (Rhodes, 1996; Stoker, 1997). There is, however, a baseline agreement that governance refers to the development of governing styles in which boundaries between and within public and private sectors become blurred. The essence of governance is its focus on governing mechanisms which do not rest on recourse to the authority and sanction of government. ‘The governance concept points to the creation of a structure or an order which cannot be externally imposed but is the result of the interaction of a multiplicity of governing and each other influencing actors’ (Kooiman & Van Vliet, 1993, p.64).”

Stoker offers five theoretical, complementary propositions to consider – a number of aspects of governance that we suggest using as a theoretical base:

- governance refers to a set of institutions and actors who are drawn from and also beyond government;
- governance identifies the blurring of boundaries and responsibility for tackling social and economic issues;
- governance identifies the power dependence involved in the relationship between institutions involved in collective actions;
- governance is about autonomous self-governing networks of actors;
- governance recognises the capacity to get things done, not relying on the power of government to use its authority or command. It sees government as being able to use “new tools and techniques to steer and guide” (Stoker, 1998 p.18).

Applying these theoretical considerations, we argue that one of the most important aims of defining governance (reflecting back to a multi-layer concept of power (in 2.1) and accepting the above considerations) was to include in it the growing number of actors which may have an impact on household energy-related behaviour. From this perspective of multi-level and multi-actor governance, we must underline that:

- governance is a continuously changing complex of structures, institutions and actors (and their networks, values and interests)
- a majority of authors argue that it is necessary to involve local stakeholders and actors in governance.

As the continuously emerging literature on the shift from government to governance emphasises:

- while in government, most frequently, one stakeholder plays a decisive role – in governance many stakeholders are invited to express their interests (Viola, 2006; Kooiman, 1993);
- government is a vertically organised way of governing, while governance is a horizontally working system (Viola, 2006; Murdoch, 2004);
- replacing the hierarchical government by a multi-level, multi-centre regime, the notion and practice of partnership has a key role in disseminating the culture of new governance;
- contrary to uni-centre, hierarchical state-dependent government, multi-centre systems in pluri-centre governance, public institutions and actors co-operate with a multitude of interested organisations in well-organised social and political subsystems which interweave policy arenas and administration levels;
- governments and local governments are losing influence and therefore actively search for new techniques and methods of governance (Rhodes 1997, 2000, Kooiman 1993);
- complexity, interaction and bilateral dependency are present on each level of governance, resulting in continuously changing competency and responsibility;
- governance includes networks as a primary means of social coordination;
- network-based social coordination can efficiently assist government bodies in managing complexity that derives from bilateral dependence (Klijn et al., 1997; Rhodes, 2000; Murdoch, 2006);
- power relations, interests and pressure groups are more clearly manifested in governance, while in democratic regimes, government can be more transparent.

The shift from government to governance evidently reevaluates the civic sphere, the local stakeholders and actors.

2.1.3. Stakeholders and networks

The key question is who the actors are and the role of their activity in two layers of power related to the linkage of governance mode and household energy demand and use.

Administrative leaders

Administrative leaders play a central role in the governance system. In the non-local hierarchical model they have an autocratic power. Even in this model, administration without legitimacy cannot exist. Legitimacy is to be interpreted as a contract between people and state. The principles of this contract are: traditional, charismatic and legal authority. Parsons has added professional authority to this typology. “Professional authority is defined by its claims of substantive rationality, in contrast to formal rationality, which sustains legal authority”. (Lembecke, 2007) The legitimacy of formal rationality includes the elected politicians and the state

officials. The elected politicians are similar to mayors and delegates. State officials are members of an administrative hierarchical system which is responsible for specific energy questions. In Hungary for example, the Ministry of Environment and Water has a regional network. This local centre collects data and coordinates state projects. The formal bureaucratic regime has an international, an EU, a national, a regional and a local level. The EU and national level is interesting here specifically because the general directions of policy are formulated by the European Council of Ministers and Parliament, and the National Parliament. Local administration has to adapt to these directives (for example the 2008 EU package on climate and energy).

Professional authority includes institutional experts such as university professors, researchers, etc. The project takes into account only those administrative leaders who influence the energy policy of the region. In spite of the influence of politicians and state officials, professional authority does not depend directly on state hierarchy. The experts are members of other such organisations as universities and research centres. This position allows having critical ideas towards government energy policies.

Intermediate actors

The importance of partnerships in new governance (Jones & Little, 2000) and networks as principal tools of coordination (Rhodes, 2000) has led to the growing significance of new stakeholders who mediate between actors, and of the role of intermediate actors which are becoming cardinal in professionalised and project-driven developmental work (Sjöblom et al. 2006; Kovách & Kristóf, 2009). The transformation of policy from hierarchical policy networks to multi-level policy-making also underlines newly emerging roles of intermediating institutions and of intermediate actors between policy levels (Goodwin, 1998; Greer, 2005).

To define who the intermediate actors in governance sectors are, and to define their impact on household energy use is a complex task. Energy policy in most European countries is regulated on the EU and the national level and related intermediation has a top-down character. Intermediate actors and their institutions (foundations, agencies, associations) play an emerging role in transmitting the values and norms of alternative energy use between households, governing bodies, intellectual centres and movements, in educating people to identify and accept new approaches to low-carbon issues, in training in techniques and methods of using alternative energy sources, and in assisting in formulating demands for new energy sources and policy. The identification of intermediate actors with activities related to alternative energy use, the role of intermediation in household behaviour is a pre-eminent task for this workpackage.

Intermediate actors are powerful stakeholders as they mediate between households and different policy levels, and as they impact on household values and decisions over energy use. A specific group of intermediate actors is the project class.

The project class

The project class is a new social formation in Europe (Kováč & Kucerova, 2006). The project form of management and organisation has emerged into a prevalent type of development, and project proliferation in European economies and societies is well under way (Sjöblom et al., 2006). There are three driving forces for the emergence of the new class: (i) reforms within administrative structures; (ii) change in the nature of

developmental policies both on the EU and national levels; (iii) the increasing importance of the cultural and cognitive elements of territorial development (Kováč & Kucerova, 2006). There is an obvious link between administrative reforms and the increase of actors involved in development (including complex management of energy use) – mainly bureaucratic staff both in governmental regional, local offices and a civic sector that has resulted in a growing number of project actors who are capable of planning and designing projects (Anderson, 2006). The project-based outsourcing of the implementation of European administrative reforms to temporary institutions leads directly to an extension of involved actors (Sjöblom, 2006). The simultaneous decentralisation and neo-bureaucratisation of recent decades – the shift from government to governance – evidently supports the rise of the project class. The required documentation of development projects – the preparation, submission, selection, financial controlling and monitoring of ongoing and completed development projects – induces the involvement of expertise and consulting groups, agencies and individuals. The general function of the project class within the ‘projectified’ European development regime is their mediatory role in the redistribution of public, and particularly private, development funds, and in the transfer of materials, ideas, knowledge and power and the managing of projects. The emergence of the project class leads to a transformation of the local power structure. According to studies of cognitive approaches to rural sustainable development the project class’s power position is based on knowledge use (Tovey, 2008; Csurgó et al., 2008). The increasing activity of new elites can be destabilising to older structures. The project class may be identified as a mediator which is ready to replace powerless local actors in the projectification process. Experts, managers, counsellors, planners, practitioners, researchers and teaching staff, other intellectuals, representatives of civic society institutions and bureaucratic staff on varying levels of governments from the European Union to local administrations whose economic, societal and symbolic position and livelihood is linked to short- or long-term projects must be seen to be members of the new cognitive class. The project class (and its institutions) is a powerful stakeholder actor group which can have a decisive impact on household behaviour as regards alternative energy use. Basic questions for workpackage 2 are: who the project class members are in the study areas related to alternative energy use; what their role is in transferring (and in creating) ideas, knowledge and materials about alternative (or even conventional) energy use to households; what their (institutionalised or occasional) position is in the shift from government to governance, and in power relations linked to low-carbon issues; what the function is of the specific project form of management and organisation in using alternative energy sources.

Civic organisations

According to the most general criteria of non-governmental, non-profit organisations, we emphasise the following: no profit distribution; independence from government (local or national); officially registered; has autonomous legal existence; main goals are for the common good; it is based on voluntarism; and a significant part of revenue comes from the private sector. Although political organisations are non-governmental, we do not include them in the list of civic organisations (Salamon- Sokolowski -List 2003, O’Connell-Hodgkinson 1991, Bartal)

Civic society can be an equal or a subordinate (state dominant) partner of the state. As a result of which, the relationship between the civic sphere and the state alters, and the role of developed and well-organised NGOs may increase in the activities of the cooperative state.

The interdisciplinary theories of the non-profit sector are related to a new definition of the welfare state. According to Salamon (1987) the crisis of the welfare state has revealed the non-profit sector's strong dependence on the state. The starting point is the recognition that the private, non-profit sector is the first to respond to perceived 'market failures'. Non-profit organisations are much more capable of making services more personal and to adapt flexibly to demands than is the state. But the failure of voluntarism makes state intervention necessary.

According to Evers, non-profit organisations are located between the state and households, and between formal and informal organisations.

The welfare pluralist concept (Evers & Olk, 1996) has already distinguished four sectors: state, market, household and non-profit organisation. Accordingly, collaboration is very important; well-being is not the result of a single sector.

Walcher (1997) says that the non-profit sector has a bi-directional role. On one hand the non-profit sector complements the state's and the market's deficiencies, on the other hand it provides ballast to the civic society, and activates and involves citizens.

NGOs have the capacity to convey new issues, interests and concerns from stakeholders. In addition, civic society monitors policy-making and comments critically on it. But civic society actors see their first role in making the general public more aware of (and more sensitive to), for example environment-related issues.

Government actions and the performance of market sectors are not sufficient to reach the goals of sustainable development; there is also a huge need to shape consumer consciousness, and to form an environmental consciousness.

Although civic organisations mostly focus their attention on national and local problems, these issues are becoming increasingly internationalised. There are nowadays an increasing number of global collaborations between environmental organisations of different nations.

At the same time, local communities should develop their own alternatives to global challenges, such as pollution or energy use. One of the features of ecological thinking is decentralisation.

A large number of civic organisations offer more and more opportunities for social self-organisation. Spontaneously organised communities and civic society can be an important forum for dialogues and discussions about energy emission.

Types of environmental organizations (Gyenes 1999):

1. Organisations which represent general environmental interests. These organisations primarily have the function of civic control (Greenwood 2003, Badelt 2002). Members of these organisations have the possibility to overview the process of decision-making, at least to a certain degree, and are thus able to influence it.

2. Organisations which represent special environmental interests and have a well-defined field of interest. For example, nature conservation, or the issues of recycling.
3. Large national organisations in Hungary are typically organised thematically: for example issues of lighting, recycling, energy policy and climate protection. The majority of these organisations are linked to global networks.
4. Movements and civic action groups are established for a special purpose (for example, the solution of individual environmental conflicts such as protests against a road or a petrol station). Usually such organisations do not have a legal form, and cease after the members have reached or failed to reach their goal.
5. As we see, civic organisation plays a significant role in influencing policy decisions and household behaviour, thus we need to analyse them in this workpackage.

Enterprises

According to the ‘four-sector model’, the macro-economy has these main sectors: households, enterprises, the state and the banking system. The model differentiates the four sectors according to their role in the national economy. Enterprises have an important role in disseminating methods of renewable energy production with the support of the state. Because of globalisation, the world’s economies’ energy infrastructures are linked: by pipelines and electricity transmission grids; by physical flows of energy commodities, such as oil, gas, coal and uranium; by flows of investment in energy industries; and by financial flows that are the life-blood of global markets for energy commodities and services. This dependence also encourages alternative energy production and consumption.

Households

A ‘household’ refers to the totality of people who – independent of their relatives – constitute one consumer and income community, thus sharing their living costs. As ‘household’ is an economic concept, it is not equal to the concept of ‘family’, which is a legal expression.

Energy use appears in most human activities (travel, cooking, heating, refrigeration, lighting, etc.). Household energy consumption is influenced significantly by living conditions and life styles. The eco-lifestyle can be affected by personal beliefs, which can be affected by others.

However, it is not just social and family background that defines the relation between locals and the environment, but also the environmental strategies of local and state governance. The key determinants of energy demand in the household sector include: the price of fuels and appliances; disposable income of households; availability of fuels and appliances; and cultural preferences.

Media

Mass media is also an important actor of changing local societies and governance structures. Although we will not have resources to make a deep analysis of low-carbon energy issues and consumption patterns in the mass media, we cannot forget about its relevance in agenda formulation, thus in decision-making.

According to framing theory (Entman 1993, Semetko, Valkenburg 2000, Tankard 2001), the political and economic elites control the media, while people and households are only the recipients. The media reflect the interests of different elites, and do not transmit objective messages (Gerbner 2002). According to many scholars, the media – particularly news media – do not have a special impact on what we think, but do have an impact on what we think about. The media have a major influence on the conformation of issues which appear in public, but do not have a significant role in the interpretation of topics. The media can attract attention to the question of energy consumption, can report the alternative initiatives (for example, local newspapers characteristically report on the local operation of alternative energy uses and inform about civic activity), although this does not necessarily result in raising environmental awareness. Although the media can reach a wider range of households than civic organisations, civic society can better involve households and their activity has greater impact.

Networks

For GILDED research, papers on policy network analysis are important. These network studies break with the traditional interpretation of independent stakeholders' action; instead, they focus on the mechanisms of governance processes (Knocke, 1990; Laumann & Pappi, 1976; Laumann, Knoke & Kim, 1985; Marin & Mayntz 1991). Based on empirical data and other network theories, F. U. Pappi has created a comparative model. The research will use this model, as it integrates the networks between stakeholders and other actors such as households. (For more details see Appendix 3.)

2.1.4 Governance models

Our analysis of governance should include all possible actors and stakeholders involved in planning, decision-making and management of local affairs. Using the broad term of governance does not mean that we ignore cases which are closer to the conventional way of governing affairs. In the following part, we present a typology, in which all the above-described stakeholders and actors appear. The typology also helps to better understand the above-presented processes and the dynamics of change.; On the one hand we present examples of autocratic government and classical democracy, while on the other we also present examples which show similarities with theories of deliberative democracy or discourse ethics (Ringen, 2007). Thus the typology also shows the government to governance shift; we do not evaluate different models as the typology does not represent any hierarchy. Its main goal is to help in describing the different level of government/governance structures and the organisational structure of different policies. The models are described in four main dimensions: (i) source of power and legitimacy; (ii) power relations; (iii) general patterns of decision-making; and (iv) territorial authority. Although the analysis of institutional roles and competences are not included in the following typology, these questions are also highly important in the case studies. The typology also allows us to discuss the most important hypothesis of the working package on infrastructure and governance (the impacts of different governance structures and the role of the different stakeholders) in order to better understand which policy measures are the most suitable and influential in energy use issues.

Based on results of contemporary research into local governments, local governance (Marsden), new institutions of rural governance (Murdoch), the challenge of environmental hazards and risks to governance structures, and also using the relevant literature of comparative political science and global ecological regimes (Jacquet et al., 2002) we have developed the following typology of governance models:

- non-local hierarchical model
- Dominating power positions – Local hierarchical model
- Formal democratic decision-making model
- Cooperative decision making: the local partnership model
- independent authorities;
- self-regulated cooperation.

These six different types can be characterised on the above-mentioned dimensions. The legitimacy of a certain institution is based on the laws (decrees) of the country, of local authorities or by international agreements. Also, the method of selecting the leader of the institution is an important distinguishing factor: they can be nominated (by the central government), delegated or elected by a group of stake-holders or at free elections. With regard to power relations, the role of the leader can be different: the leader can be a champion and lead the institution without inner control and with as little consultation as possible; or can be inclusive. In this case the leader builds strategic partnerships with other members of the organisation and communication is based on dialogues and disputes.

Power relations are mirrored by the general patterns of decision-making. In this dimension, we focus on all of the elements and phases of decision-making, starting from defining different agendas, through brainstorming, planning and project management to implementation. The role of the leader influences, or defines the nature of decision-making. Although it is often prescribed which stakeholders have to be involved in decision-making, the way they are present in the process of decision-making is also characteristic of the organisation. The relevance of formal and informal decisions can be a distinguishing feature. Analysing the models of decision-making, some general methods can be described: negotiations, consultations, commands or instructions.

We included the territorial level in our analysis to make it more understandable and clearer. To understand the competence of institutions on energy policy, one also has to describe its territorial competence.

In the following we present the six types. We start the characterisation with the most characteristic features of the described model, and finally we give an example of it.

The first type (*non-local hierarchical model*) is a typical government model. The leader of the organisation is not elected, but nominated by a central organisation (for example the central government), thus the leader is responsible for these institutions and follows their instructions. The organisation has rule-making power and executive power as well. As consequence of this, very few actors are involved in decision-making. Top-down processes and vertical hierarchy are typical; decision-making is centralised, subsidiarity is unlikely, and stakeholders can hardly participate in local processes. The typical method of interaction is through instructions and decrees. Although few stakeholders are involved formally, the hidden role of different pressure and interest groups can be important. It means that decisions are sometimes not transparent (Eckersly, 2004). It is quite unlikely to find this model at the local level, a typical example would be the nomination of the leader of a national UN mission (Smith, 2004).

In the *dominating power positions – local hierarchical model*, the leader is elected by locals or by a locally elected board. The leader of the organisation has executive power. Although this power is controlled by a general assembly, or an elected committee, as power relations are hierarchical within the organisation, the power of the leader can be very strong, thus management and leadership model can be autocratic (the leader is a champion). The leader is very influential: consequently negotiations and attempts to reconcile views and interests are not typical, although directions and instructions are not the only method of decision-making. Local and non-local entrepreneurs and civic organisations are rarely involved in policy-making, and sometimes transparency of decision-making is not guaranteed. The role and possibility of different stakeholders to influence decisions is unequal. (Eckersly, 1992, 2004; Peter, 2002)

In the *formal democratic decision-making model* democratic decision-making model the leader of the organisation is elected by locals; his or her power stems from the legitimacy of elections. Although she/he is quite influential, conditions force him/her to be conciliatory about policy-decisions . (These conditions may be strong opposition, or strong local civic organisations, entrepreneurs, media, etc.). Sometimes the participation of different stakeholders has an established and well-organised forum, where different interests and ideas about the relevant agenda of the local community can be expressed. The elected leader involves not only the general assembly, but also other actors in planning and decision-making. Democratic decision-making can be understood at the institutional level and among institutions as well – the cooperation of local-governments, civic organisations, entrepreneurs in maintaining educational institutions, health care, social care programs (Beck, 1992; Backstrand, 2003). This type of governance is usually found at the local or regional level.

In the *cooperative decision making / local partnership model* the leader can be elected by locals in general elections similarly to the previous types. In organisations of this kind of governance model, leaders can alternatively be elected by other members of the organisation, or by a board of trustees. Although this governance type does occur within organisations, it is more typical of the cooperation of different stakeholders and interest groups, which sometimes create a temporary association to provide services (usually obligatory public services). In that case, several local governments cooperate with entrepreneurs and civic organisations to reach certain specific goals. These alliances can change, according to the interests and ideas of the actors. A subsidiarity approach is highly important in decision-making as well as a horizontal approach. Decisions are typically a result of mutual agreements, through long negotiations. The leader has managing role, and the organisation does not have rule-making power. Such partnerships are regionally bound. Typical examples of the local partnership model are the LEADER initiatives of the EU (Kovach, 1998; Geddes, 2008).

Self regulated cooperation is typical of a non-governmental organisation, which operates temporally, to provide services, sometimes public services (Sjöblom 2006). Although decision-making inside the institution is democratic, the leader of the organisation is not freely elected, but nominated by the local governance or by other organisations (foundations, enterprises, etc.), or elected by members of the organisation, which may cause a lack of democracy. Despite decision-making being horizontal, the different participants are independent and decide to cooperate freely, according to their interests. Power relations are horizontal; the leader also has a managing role in this model, as in the previous one. A typical example of this model would be an initiative of

different non-governmental organisations, like Hungary's Climate Patrol, or Germany's Energieforum (Jacquet, 2002; Weale et al., 2003).

The independent institution type is typical for national agencies controlling an area such as cultural or energy policies. Usually these institutions operate at the national level (sometimes the supra-national level), and have local or regional branches. These organisations have no right to establish new rules or decrees; the leader is nominated by central institutions, decision-making is bureaucratic, decrees and statements are typical instead of negotiations. Typical examples in Hungary are the National Parks, Nature Protection Authorities and the Energy Agency (Wenman, 2003; Bache and Flinders, 2005).

General governance/government models

Dimension Type	Legitimacy, source of power		Power relations		General patterns of decision-making		Territorial dimension	Example
	Election of leader	The source of their power	Role of leader	Involved stakeholders	Nature	Methods		
Non-local hierarchical model	Nominated	Central state, laws	Autocratic leader	None	Vertical	Instructions	Supra-national	Leader of a UN's Mission (non-local)
Dominating power positions – Local hierarchical model	Elected	Local elections, administrative system	Autocratic leader / Facilitator	None	Vertical	Instructions, negotiations	National/local	Local-governments (H)
Formal democratic decision-making model	Elected	Local elections, administrative system	Management, Facilitator	Civic organisations, entrepreneurs	Vertical/Horizontal	Negotiations	Local/national	Regional Association of local governments (H)
Cooperative decision making: the local partnership model	Elected	Institutions, negotiations	Management, Facilitator	Other local governments; civic organisations, entrepreneurs	Horizontal	Negotiations, agreements	Local	LEADER Initiative (EU)
Independent authorities	Nominated	Central state, law	Civic servant	-	Vertical	Instructions, decrees, statements, central decisions,	Cross-territorial	Nature Conservation Authorities (H)
Self-regulated cooperation.	Self-organised	Local networks, personal relationship	Management, Facilitator	Non-governmental organisations, local governments	Horizontal	negotiations, agreements, community forum	Local	Energieforum, Potsdam; Climate Patrol (H)

2.2. *Research questions*

Here, we analyze the structural factors of governance: power relations, networks and methods of decision-making that shape current energy demands and energy use in the household sector. We aim to identify the economic and political factors and actors which either facilitate or obstruct the reduction of carbon-intensive energy use by (urban and rural) individuals and households. We aim to do this through the analysis of the government–governance shift across and within case-study areas, and by contrasting case-study areas with other parts of their countries. The comparative analysis focuses on past or present community or policy initiatives seeking to reduce the carbon-intensive demands of governance structures, and power relations within the case-study areas, paying special attention to areas relevant to energy use. We also analyze the kinds of incentive for households that these structures imply.

Governance structures (for example, the administrative levels at which energy policies are formulated and implemented) evidently condition national and urban/rural differences in energy use; a comparative analysis will give an insight into these questions. An analysis of infrastructural and environmental circumstances, together with governance structure, helps us to understand the relevant governance models for any future reduction in demand for carbon-intensive energy; it promises to lead us to identify national and European boundary conditions for local energy-policy making.

We aim to:

- Analyse the structural factors (governance, power relations, physical infrastructure) shaping current and recent energy demand and use in a target set of energy consumption categories (drawn from the household sector, broadly defined to include consumer behaviour and personal transport) in five case study areas, each consisting of a city and its functionally associated rural areas.
- Identify the socio-economic, cultural and political factors and actors which are either facilitating or obstructing the reduction of carbon-intensive energy use across urban and rural individuals and households, through the analysis of lifestyle patterns and characteristics across and within case study areas, and in parts of each country contrasting with the case study areas.
- In close cooperation with stakeholders in each case study area, investigate past and current trends in energy demand and use, in order to identify political, socioeconomic and cultural drivers and interaction with local lifestyles. Focus will be on one or more past or present community or policy initiatives to reduce carbon-intensive energy use and demand.

2.3. *Analysis of the governance systems, the case-study areas, and energy-governance*

Comparison of the governance systems

In this part of the report, we present the government systems, and governance methods found in the study areas. We will present the main characteristics of study areas in order to understand and analyze our analytical models of governance. We focus on three actors: (i) local government, including the leader of the local council,

the Local Council, and the local administration; (ii) local NGOs working on the issues of climate change; and (iii) concerned enterprises.

2.3.1 The Czech case: the administrative system of the Czech study area

The Czech Republic is divided successively into regions, districts and municipalities. The region is a territorial unit of citizens; it is authorized to self-govern and has its own property and own incomes defined by law; it manages and controls its own financial budget.

There have been district authorities in the Czech Republic since December 31, 2002. In 2003, particular competencies from the district authorities were taken over partially by regional authorities and partially by municipal authorities with extended competence. In general, administration and competences have been decentralized: a significant shift in the governance system from the level of the state to regions or municipalities. The municipality's main roles are the management of its own property and independent matters. What is especially important is that it has its own legal identity. However, there is a hierarchical division among municipalities: (1st level) municipalities; (2nd level) municipalities with commissioned local authority; and (3rd and highest level) municipalities with extended competences. The power and capacity of municipalities are determined by their status, which is based on size and territorial position.

The Czech study area consists of two different districts: České Budějovice and Český Krumlov. The former consists of 109 municipalities, including three with extended delegated powers, four with delegated a municipal office, and 102 of the 1st level mentioned above. Český Krumlov consists of 46 municipalities: two have municipality status with extended delegated powers; four have the status of municipality with delegated municipal office; the rest have the 1st level status.

In this spatially based administrative system, urban areas have greater power because most municipalities of the 2nd and 3rd levels are located in urban areas. They have a professional staff for figuring out problems (i.e. environmental protection or social care). Municipalities of the 1st level mostly have only a mayor and his or her representatives, but no council.

The shift from formal democracy to a partnership model in the Czech case-study area originated from the emerging role and position of NGOs. These were perceived as rivals and troublemakers for the state administration during the 1990s. Nowadays, NGOs have become partners in negotiation, being invited to comment on the steps of state administration, and they have become an important actor in local decision-making.

The role of non-governmental actors became significant in the agreement processes of local development strategies. NGOs, or representatives of the local population, are often members on advisory panels. Their role in decision-making has also become more emphasized; their participation is not just informal, they can also participate administratively.

The most typical example of partnership in local governance in the Czech Republic is the case of LEADER. The LAG (Local Action Group) as the main actor of local development is represented by a partnership between the public and private sectors. LAGs are responsible for the implementation of the

LEADER strategic plan. The role of a LAG is to choose projects consistent with the LEADER strategic plan, to be financed within the framework of a rural development program. Decision-making in environmental matters is dependent on the hierarchy of 1st, 2nd and 3rd-level municipalities. (WP 2 Country Report the Czech Republic 2010)

2.3.2 The German case: the administrative system of the German study area

As a federal state, the salient characteristic in the political system of Germany is the range of competencies at the federal state (Bundesland, Land/Länder) and municipal levels; in Article 28 GG of the constitution, municipalities are given the right to handle their own public affairs independently. This includes direct responsibility for financial matters, especially the right to independently set local business taxes (Heinz, 2000: 176).

Even though municipalities have the right to handle their own matters, they are constricted by laws and regulations within this multi-level system. The governments at the provincial and the national level have certain rights of supervision and authorization.

The two main areas of municipal duties are: (i) duties assigned from higher hierarchical levels (Auftragsangelegenheiten); and (ii) duties according to self-regulation (Selbstverwaltungsangelegenheiten). The first leave municipalities with almost no room for manoeuvre. These duties comprise tasks such as civil services, passport- and citizen services, and foreigner-related policies. The second group of municipal tasks can be split into mandatory and optional tasks. Mandatory tasks of the municipalities include, among others, land-use plans, infrastructure, youth and social welfare affairs, and housing construction. The range of optional tasks of a community can, to some degree, be freely determined by the local government, but is defined by financial constraints.

Neither legally nor financially are there hierarchical connections or dependencies between Potsdam and Potsdam-Mittelmark. Both are legally independent entities belonging to the same regional planning association and belonging to the same federal state of Brandenburg. Political leaders of both regions do know each other, but they do not depend on common decision-making procedures. The exception to this is the regional planning association; it serves as an administrative institution to bridge the planning gap between the federal state authorities and the counties. Potsdam and Potsdam-Mittelmark both belong to the same regional planning association of Havelland-Fläming. Its foremost responsibility lies with the setting-up of regional (i.e. beyond- and cross-county) land-development plans. These plans are the most important basis for the development of renewable energy sources such as wind farms and solar power plants. The main institution of the regional planning association is the regional council. The council directly includes all mayors and chief councillors of municipalities with a population over 10,000 citizens; city and county councils can elect additional representatives. In practice, negotiations between the 40 members of the regional planning association are often difficult, because the members are again bound to their municipal level and to decisions regarding construction planning at the city or town levels. Hence, it has occurred in the past that a wind farm was approved at the regional level, but was voted against at the municipal level. As a result, many investment plans for wind energy are still pending.

In Potsdam the mayor is the head of the city administration and represents the city internally and externally. In recent years, he supported many climate-related actions, which was considered to be crucial for their success by many local stakeholders.

The heads of departments are, at the same time, deputy mayors and elected by the city council for an eight-year period. Following an administrative tradition in Potsdam, deputy mayors are normally elected because of their expert knowledge, but political party affiliation also plays an important role. The most powerful department is Department IV: Urban Planning. The reason for this is probably that urban planning is concerned with larger city-development projects which have a strong financial impact, and require local regulation. Other departments are regarded as 'soft' administrative powers (except for the first department, which is responsible for overall budgeting and financial planning). (Reusswig et al 2010)

2.3.3 The Scottish case: the administrative system of the Scottish study area

In 1996, Aberdeenshire Council, and Aberdeen City Council were created; this was part of a national-level shift from the previous two-layer system (with a regional and district structure)¹ to a system of 32 local government areas which are further subdivided into 'unitary regions'. Local governments are elected by a 'single transferable vote'. Both councils have leaders elected from local councilors, with the city also having a lord provost as convener (equivalent to a mayor); in Aberdeenshire Council, a provost. These offices act as figureheads for the administrations.

In the councils, both territorial and professional interests are represented. The councils are divided into service departments across geographical areas. The council has some primary functions, such as transport, economic development, property, operations, roads and education, all of which have a direct influence on energy issues. The city council owns over 23,500 accommodation units which it maintains and rents out. The two local councils have special policies related to housing, and to some extent transport, but not on food issues.

In Scotland, the *UK Government* retains the right to legislate on reserved issues, including two of relevance to climate-change mitigation: (i) energy (electricity, coal, gas and nuclear energy); and (ii) some aspects of transport (including railways, transport safety and regulation). The UK government created the Department of Energy and Climate Change (DECC) to address energy issues and develop climate-change mitigation policies. This new department has several stated objectives: to ensure that energy is secure, affordable and efficient; to bring about the transition to a low-carbon Britain; and to achieve an international agreement on climate change. Initial proposals for achieving this are set out in *The UK Low Carbon Transition Plan*,² which describes how the UK will meet its targeted 34% cut in emissions on 1990 levels by 2020. DECC oversees both the implementation of the UK Energy Act 2008, which relates primarily to energy supply, and the UK Climate Change Act 2008. It is also responsible for the Community Energy Savings Programme (CESP),³ which seeks partnerships between utility suppliers or generators to provide cost and energy efficiency measures (e.g. external

¹ For further information see http://en.wikipedia.org/wiki/Regions_and_districts_of_Scotland

² http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx

³ <http://www.decc.gov.uk/en/content/cms/consultations/open/cesp/cesp.aspx>

cladding, not just loft and cavity wall insulation). The Department for Environment, Food and Rural Affairs⁴ (DEFRA) has some overlap with DECC, and its priorities include addressing environmental risks, promoting a sustainable, low-carbon and resource-efficient economy, and maintaining a sustainable, healthy and secure food supply. The Energy Efficiency Commitment (EEC) was an obligation on fuel suppliers to deliver energy efficiency improvements in housing, and offers householders the opportunity to install these at a reduced cost.

The Scottish government is responsible for several issues, focusing on climate change and energy policy, their main task being to define tools to target CO₂ emission reduction at the national level (Climate Change Bill 2009). Local authorities, including both Aberdeenshire and Aberdeen City have to commit themselves to these targets. As later follows, the Scottish Government has several initiatives and funds to subsidy the targets. (Aberdeen City and Shire Report 2010)

2.3.4. The Hungarian case: administrative system of the Hungarian study area

Hungary, from the perspective of energy-governance is a centralized state. Major decisions are made in the Hungarian Energy Office, controlled by the central government. There are two elected levels of self-government: municipalities and counties. There are two levels where council members are nominated (by central government) and delegated (from the elected councils): the regions and the micro-regions (those have tasks in development, planning and administration). As counties are continuously losing assignments and financial resources, municipalities have become the most important actors of local government. Members of municipal councils and lord mayors are elected by local citizens, with municipalities providing several public services. Independent local-government authorities have their own budget, and are interested in energy issues mainly as consumers, aiming to reduce energy bills. Legal supervision over the municipalities is exercised by public (state and regional) administration.

Parallel to the decline of the counties' role in local government, the association of smaller local governments is becoming more and more relevant: these organizations provide different services and manage development projects. Beside local governments, offices of central authorities and regional development councils are institutional actors within governance structures

In Debrecen, the city council establishes a conciliation committee to prepare and harmonize co-operation with the county municipality regarding common tasks. The city council elects members of this committee, which consists of delegates from civic organizations and local citizens. This indicates that the local government has established its own civic sphere. The mayor's office is quite influential (Debrecen has the largest mayor's office in Hungary). According to our analysis, the local government of Debrecen operates and maintains its system efficiently. Although the mayor of the city defines the most important development pathways for Debrecen and for the county, this requires a high level of organization and professionalism, and continuous co-operation and communication between different departments. These consultations are dominated by the agendas of Debrecen's leader. The organization of the office is hierarchical.

⁴ <http://www.defra.gov.uk/corporate/index.htm>

The administration of Berettyóújfalu, a small town in Hajdú-Bihar County, is similar, but power relations and local networks are quite different. Although the mayor is quite influential, he cooperates with local enterprises, local NGOs, involving them in different decisions; his power is mainly based on its network position.

A third part of the Hungarian Hajdú-Bihar County case study was conducted in the Hajdúság, which covers more or less the area of the Hajdúböszörmény micro-region within Hajdú-Bihar County. It has four municipalities and a development association (the Hajdúsági Multi-functional Micro-region Association). After some historical distrust, this became the first cooperation between the two towns as a result of new system of regional development. The association's office is located in the smallest town, at the geographic centre. In the Association, decisions are made by consensus. In the towns, both the mayor and the majority belong to a right-wing party, but the majority are unstable, meaning that continuous negotiations and ad hoc coalitions ensure a majority. NGOs have a minor role, whilst entrepreneurs and political actors work in close cooperation. (Csurgó at all 2010)

2.3.5 The Dutch case: administrative system of the Dutch study area

The city of Assen and the villages in the municipality of Assen have one government: the municipality of Assen. The council of the municipality consists of 33 persons. Every four years, the inhabitants of Assen can choose council members; everyone above 18 years of age is allowed to vote.

The council is the general governing board of the municipality of Assen. Its main tasks are to determine policies and supervise the execution of policies. It is authorized by law to determine binding rules for the inhabitants of Assen. The council meeting is held twice a month, wherein policies are discussed. During these meetings, inhabitants of Assen can voice their opinions, although with regard to energy policies, there are hardly any citizens who take the chance to do so during these meetings. Sometimes, organizations such as the Environmental Federation take the chance to express their opinion.

The council is the general governing board of the municipality. The administration is the daily board. The administration consists of the mayor and aldermen, of which Assen has four. There is also one administrative secretary. Before 2002, aldermen could only be nominated, chosen and appointed from inside the city council. Now, people from outside the city council can also be appointed. However, at the moment, only members from the city council are appointed to be aldermen in Assen. When council members are appointed, they lose they right to vote in the city council.

The city administration is responsible for the execution of policy and the preparation of new or amended policy.

The council also nominates a mayor, who then has to be appointed by the council of ministers and the queen. The mayor is chair of the council and president of the administration. In some municipalities in the Netherlands, a mayoral referendum is held, in which inhabitants are asked to choose between two candidates.

However, this was officially just a recommendation rather than an obligation. Experiences with referenda have not been very positive, and now they are hardly ever used.

The government of Assen is best described as exemplifying the local hierarchical model. The locally elected board elects the leader (the mayor), who is quite influential. When it comes to voting, the aldermen and the mayor each have one vote. If voting is cancelled, then the vote of the mayor is decisive.

One of the aldermen is responsible for environmental policy. The topics that he or she focuses on are: land management; public provision of services, such as the city desk; and digital government, including automation. Other topics are: district policies including greenery management; play facilities; district facilities; streets and roads; well-being including elderly policy and social work; and waste management. The aldermen are responsible for a number of districts in Assen, and for village consultation. (WP 2 Country Report the Netherlands 2010)

In table 3.1 we summarize the most important dimensions used to compare the government system of the five countries participating in the GILDED research.

2.3.1. Comparison of governance systems

We analyze here the two main dimensions (form of the state, responsibilities of local governments) which characterise the functioning of government systems.

Country	Form of the state	Actors of national energy policy	Green-energy portfolio	Responsibilities of local governments (specifically GILDED issues: housing, transport and food)	Aggregated power of local actors
Czech Republic	Centralized republic	???			
Germany	Federal republic	Energy providers	yes	Social services; education Planning housing; transport	Mayor and local councils; local energy supplier; governmental councillor
Hungary	Centralized republic	Hungarian Energy Office (governmental institution); energy providers	no	Education, social and health care; transport and distance heating	Mayor; entrepreneurs, local council;
The Netherlands	Kingdom – centralized		?	Education; social services client’s council Transport	Council mayor; aldermen
Scotland	Kingdom (federal state)	DECC and DEFRA to a certain extent; energy providers	no	Housing (23% of homes)	Local council (city and county); civic organizations, locals

Table 3.1 Governments

Form of the state

Although there are two kingdoms, two republics and a federal republic, the important differences are not to be found between the kingdoms and the republics, but among the federal and the centralized states. In the United Kingdom and in the German Federal Republic there are highly independent regions: 16 states (Länder) in Germany and four countries in the United Kingdom. In these regions, the central state has limited rights; many decisions are made in the states or countries which have an elected assembly (parliaments in the German states, devolved national administrations in the UK). Despite this, in both federal states, energy policy belongs under the responsibility of the central government. In the UK, the *government* retains the right to legislate on both energy (electricity, coal, gas and nuclear energy) and on transport (railways, transport safety and regulation). The Department of Energy and Climate Change (DECC) is the main actor of the issues. This department creates the documents which define the long-term goals to reduce energy consumption and CO₂ emissions. Countries like Scotland and its municipalities define their own goals according to the documents of the DECC.

In the centralized states, there are no strong or sizeable sub-national legal entities between the central governments and municipalities. Although regions exist, they do not have elected leaders, nor sufficient responsibilities to become a powerful stakeholder. In Hungary, regional councils are important in development activities, but municipalities have to provide public services. We have detailed data on energy governance of Hungary – it is also centralized, as in Germany and the UK.

Responsibilities of local governments

Our next focus is on the responsibilities of local governments, and their involvement in different issues analyzed for GILDED: food-supply, house-hold energy-consumption and transport. We have already mentioned that, in the Hungarian case, the municipalities provide several public services. Although it is not under the focus of this research, it is worth mentioning that local administrations are concerned with energy consumption (first of all, as owners of several real-estates, secondly as providers of public transport, and thirdly as owners of district heating companies). The second and the third cases directly influence GILDED research issues. As we presented in the case of Debrecen, local public transport underwent developments to reduce emissions on the one hand, and on the other to reduce costs. In addition, the planned modernization of the district heating company there is led by the local government. Housing is a first priority in all three Hungarian cases, in the Aberdeen case and to some extent also in the German cases. In Assen, transport is very important, as with Aberdeen. Food supply is outside the responsibility of local government in all analyzed cases.

According to the typology introduced previously, the governance of Potsdam shows characteristics of the local partnership model; Debrecen and Assen are examples of dominating power positions, and hierarchical models; Aberdeen and Berettyóújfalu are formal democratic models. All government types offer a possibility to influence household energy consumption through influential stakeholders. To better understand the inner structure of the different governance models, we present and analyze the cases more deeply in the following section.

2.4. Governance structures in energy policy

2.4.1. Elements of the analysis

The analysis focuses on three stakeholders: local government; local NGOs interested in issues of energy, or energy consumption, food-supply or transport; and enterprises engaged in the topics under research. For analytical purposes, we divided local governments into two parts: elected political members (council members, council leaders, mayors, etc.) and local administration.

First, consider the source of legitimacy of the different stakeholders: this may be election, or professional education (in case of the administration for example), or roots in the local community or economy. The legitimacy of a certain institution is based on the laws (or decrees) of the country, of local authorities or on international agreement, and also on the degree of local acceptance of them. The method of selecting the leader of a particular institution is an important distinguishing factor: he or she can be nominated (by the central government), delegated, or elected by a group of stake-holders or through free elections.

The role of the leader can differ: he or she can be a champion and lead the institution without inner control and with as little consultation as possible; or the leader can be inclusive. In the latter case, the leader builds strategic partnerships with other members of the organization and communication is based on dialogues and discussion.

Power relations are defined by several factors, mirrored by the general patterns of decision-making. In this dimension, we consider all the elements and phases of decision-making, from defining different agendas, brainstorming, planning and project management to controlling implementation. The role of the leader influences the nature of decision-making. We also need to analyze the tools of decision-making: negotiations, consultations, commands, instructions, or consensus-oriented methods. The relevance of formal and informal decisions can be a distinguishing feature. The source of power is analyzed based on Bryson's paper on stakeholder analysis (adapted by the German team). It differentiates political, network- and market-based power, and thus offers another dimension to understanding power relations.

Network relations are a highly complex issue. Different stakeholders play different roles in decision-making. Their roles are defined on the one hand by legislation, conventions and customs, and on the other by the forcefulness of the involved stakeholders. We distinguish the following dimensions in network analysis: density of networks and network-position (the latter may be central, marginal or medium). In multi-centred networks, different actors have dense connections with each other, and there is no actor in a dominant position. In single-centred networks, one stakeholder has an overwhelming position. There may be a third possible scenario where there are few connections among the stakeholders, so their network is very sparse or even disconnected.

We also analyze the capital, most frequently used by each stakeholder, distinguishing political, social, intellectual and economic capital.

The final dimension concerns whether the stakeholder is interested in the specific GILDED topics.

2.4.2. Cooperative decision making: the local partnership model in energy policy – the case of Potsdam and České Budějovice city and county

2.4.2.1. Energy governance in České Budějovice city and county

Actors in local environmental governance

In the case of the Czech study area, energy policy is based on the partnership and cooperation of governmental and non-governmental actors. Formal positions and informal networks determine energy governance, wherein many different interests may appear. The Czech National Report classifies three main actors of local environmental governance: (i) local government, including a leader and council; (ii) civic organizations; and (iii) entrepreneurs. The main roles of local government are the monitoring, controlling and distributing of the subsidy flow, and ensuring a part of the education process. In addition, by municipal public notice, local government can influence people in positive way. For example, there were several public notices dealing with waste combustion. In the field of media and promotion, local government has the power to create an 'image' of energy savings. Prevailing activities of local governance are the monitoring and the controlling of achievements of national policies. The responsibility of local government mainly concerns its own subsidy distribution, and in several cases the redistribution of financial help from the national and European levels.

Local government involves NGOs in local governance; the main areas of cooperation concern the consultancy services dealing with education and public campaigns, subsidy application and particular cost efficiency measures. The cooperation between local government and entrepreneurs is more particular than with NGOs. However, entrepreneurs are also involved in designing cost efficiency strategies.

Civic organizations impact on energy policy through the initiation of discussions on energy savings. They can offer alternative expedients for state policy, and they have an impact on making and implementing decisions, and also on the administrative process. NGOs have a role to play when state administration does not work properly. NGOs disseminate information in the newspapers and via the Internet, and they interpret what may be good practice for citizens. They cooperate with local government; and get involved in negotiation processes, decision-making and implementation. The formal framework for participation of NGOs in state administration is the project; they have to apply for participation. Depending on the issues, civic organizations may appear in energy governance as consumer associations, environmental organizations, lobbyists, etc.

Entrepreneurs are also active non-governmental actors in energy governance in the Czech study area. The only distributor of energy (electricity, gas) in the Czech study area is the company E.on, working under the supervision of the Energy Regulation Office. In addition, there are several small and medium-scale enterprises in the household energy savings market which offer services for locals. The thermal insulation of buildings, and the sale of better energy-saving technologies /materials for households and for energy production have become profitable new activities for local firms. Entrepreneurs appear in the energy policy as applicants for subsidies. Their interests in energy governance may result in gaining opportunities for alternative financial sources. They may create formal or informal relationships with experts when it comes to project management and applications

(because of a lack of knowledge in these areas) and often, they may link with NGOs because of shared, similar interests. The activities of small and medium-scale entrepreneurs disseminate energy-saving methods and products into the public sphere.

(WP 2 Country Report the Czech Republic 2010)

Understanding the case

The case of energy governance in the Czech study area is a good example of the involvement of non-governmental actors in local governance. The main actors in energy policy are civic organizations. NGOs have been the initiators of activities and issues related to energy savings and air-pollution management. In comparison with state administration and local government, civil associations possess knowledge and information, and they are involved in international networks in the field of environmental protection and energy savings. This forms the base of their power position within energy governance, resulting in their strong network position. In several cases they have already prepared a program of energy savings (for example 'hnutí Duha' in the Temelín nuclear power plant campaign). The NGOs are partners in negotiation, frequently asked to comment on the steps of state administration. However, there is a limit on the cooperation between governmental institutions and civic organization; many phases of state administrative activities concerning energy policy are controlled by civic organizations. The case of the Strategic Development Plan in České Budějovice represents the participation of non-governmental actors in local governance. The planning process started in May 2007. There were five thematic working groups on key plan's issues: (i) transportation and technical infrastructure; (ii) sustainable area development; (iii) the quality of life among the population; (iv) economic development; (v) health, social care and education. Local government also uses other forms and methods of involvement with non-governmental actors. They run a questionnaire survey in order to gather public opinion on the strategic plan, installing a feedback form on their website. Expert local government groups have made an overall analysis and have prepared a SWOT analysis. Before the acceptance of the municipal council and committee, they organized a public consultation on the strategic plan. When the final proposal was accepted by the municipal council and committee, it was given to city representatives. During the evaluation process, several public consultations were organized (for example, an Environmental Impact Assessment). Finally on September 4, 2008, the final form of the strategic plan was accepted. In this case, non-governmental actors were involved throughout several phases of the planning process, thus demonstrating the formation of a CDM-LP model. (WP 2 Country Report the Czech Republic 2010)

Name of the research area	České Budějovice city and county			
Name of the stakeholder	Local government: leader and council	Administration	NGOs	Enterprises
Source of Legitimacy	Election, prestige of state administration	Juridical regulation, bureaucracy	Local embedment; expert knowledge	Local embedment
Decision-making	Negotiation, partnership, democratic	Preparation and execution	Initiation, consultation and control	Consultation
General tools of decision-making	Negotiation, cooperation, discussion, consultation			
Network position	Mediatory; linking position	Mediatory	Central bridging position	Marginal
Used capital	Political, managerial knowledge	Political, managerial knowledge	Social capital; scientific, managerial and lay knowledge	Economic, lay
Connection to other stakeholders	Strong, dense			

Table 3.2 Energy governance České Budějovice

2.4.2.2 Energy governance in Potsdam and Potsdam-Mittelmark

Actors in local environmental governance

The central administrative institution concerned with climate change is the Climate Coordination Unit (Klimakoordinierungsstelle, or KKS). The KKS was formed in 2008 in order to express, coordinate and reinforce the city's climate protection goals. The KKS is a staff unit connected to Department III (Youth, Environment and Health). Interviewed stakeholders tend to see this administrative setting as a constraint, because the climate group does not have full instructive powers within the administration. Also, the personnel of this group was reduced from three to two staff members in 2009. It has been debated that the climate group should be moved from Department III to Department IV. A change in the administrative structure (i.e. making the KKS a staff unit connected to Department IV) could hence be an improvement in terms of power; but this would not solve the general problem of a staff unit, which would not be embedded in the administrative system. The KKS has initiated a number of public and internal events to raise awareness of and inspire action for climate protection. The most significant project is the foundation of the climate council. Basically, all major stakeholders related to energy issues and climate issues – governmental as well as non-governmental actors – are members of this advisory board.

Another important player connected to the city administration is the municipal real-estate service (Kommunaler Immobilien Service, or KIS). The KIS is the management body for all municipal buildings.

Compared to other municipal entities, such as the municipal energy supplier (Stadtwerke Potsdam, see under 'Enterprises'), KIS does not have a legally independent status, and the city is the sole operator. Thus, KIS acts as a representative of the city and is strongly dependent on financial constraints in the city's budget plan. KIS is important for the city's energy balance, because the majority of the city's energy expenditure on electricity and heat is consumed through municipal buildings. This is also why KIS created the job of an energy manager in January 2009, responsible for the identification of energy saving options in buildings. It has been found that an energy manager is profitable when energy expenses rise above 5 million EUR per year (LHP 2009xxx). It is also noteworthy that Potsdam works transparently: sessions of the plenum, or committees, are generally always public, except in matters relating to personal or corporate interests. Most committees also invite expert citizens, who support and advise councilors in technical, or simply civic matters.

An important difference between Potsdam and Potsdam-Mittelmark is that in the latter, the council is the representative of an association of municipalities, committee and plenum sessions, and thus has a more general focus than that of Potsdam. More detailed matters, which come under the scope of the self-regulatory traditions of single municipalities and towns, are dealt with by the respective subsidiary city/community councils, and the head of administration (i.e. the mayor). Under the head's direct order are a number of staff units, most importantly the unit of business development. One employee of this unit was formerly in charge of the environmental office within the council administration, but has now shifted responsibilities to combine business development and smart energy supply. This merger of two formerly opposing goals – economic progress and sustainable energy supply – indicates how interests and world views can change.

The order of departments is slightly different in Potsdam-Mittelmark. The most important difference is the strong focus on land development and farmer's issues, which are bundled in a separate administrative department. The current chief councillor in Potsdam-Mittelmark is at the same time the head of the regional planning association. He is known for his open-minded manner towards the development of renewable energies – and a capability for 'making things happen'. There is no such institution as the Potsdam Climate Coordination Unit or the Climate Council in Potsdam-Mittelmark. However, the above-mentioned business development staff unit takes charge of many similar activities. For example, the annual prize for environmental activities is issued by this unit. Also, the unit prepares the renewable energy strategy of the county and supports general renewable energy projects currently in place in the region.

Analyzing decision-making patterns and power relations within the governmental organizations of both Potsdam and Potsdam-Mittelmark, it is clear that the mayor and the chief councillor have the widest powers, thanks to the political settings and their network power. However, the differences and the overall structure constrain actors to cooperate: the next most powerful stakeholders are the councils and the city departments.

In Potsdam, municipal enterprises are the two largest employers: the local energy supplier (Energy Water Potsdam, EWP), and the largest local residential building cooperative (GEWOBA GmbH). Other important enterprises in the field of climate policy are the local real estate-service (Kommunaler Immobilien Service, KIS), and the municipal transport service (Verkehrsbetrieb Potsdam, VIP). Both EWP and VIP are part of the same municipal utility SWP (Stadtwerke Potsdam). There are other enterprises under the umbrella of the SWP: E.on edis is the main energy supplier in Germany, holding 35% of its stocks. This holding structure is quite common

in cities with a tight financial situation; other cities often have a higher share of stocks in their energy supplier (PWC, 2008: 16). All the municipal enterprises mentioned are crucial for the success of the city's climate programme, because these are the main municipal players, and they need to implement the most important measures to reduce CO₂ emissions. The city's influence is somewhat limited, because enterprises are bound by financial and logistic constraints.

GEWOBA stands out as an especially forward-thinking company; they are engaged in improving energy-efficient building methods and try continuously to mainstream climate protection measures and adaptation issues into their daily working practices. Most other companies which could be considered to have a stake in the city's climate policy are typically small or medium-sized enterprises with sound support systems: these may create the basis of green industries. The connections among these enterprises and the city administration are dense.

In Potsdam, several NGOs are active within the energy and climate scene. The most important is arguably the Energy Forum Potsdam (EFP), established by engaged citizens, most of whom have some professional background knowledge in energy issues; some hold a leading position within one of the municipal enterprises (GEWOBA, tenants' association). Many members of the Energy Forum are also members of the climate council and vice versa. The Forum meets regularly and discusses local energy options. The main aim of the Energy Forum in Potsdam is to raise public awareness of climate and energy issues, and to bundle together existing initiatives and information about these topics. The Solar Club (Solarverein) in Potsdam is a citizen-led initiative which initiated the construction of two photo-voltaic power plants financed by citizens' loans.

Potsdam is also home to local branches of nationwide environmental NGOs. Although these organizations are engaged in climate policy, they focus mainly on environmental issues and their activity is channelled through the Energy Forum, which overlaps with the city's Climate Council.

The most important local enterprise in Potsdam-Mittelmark is the local energy supplier Eon.edis. There are large wind farms, thus green energy is exported to other parts of Germany. There are a small number of innovative firms involved in the research and implementation of renewable energy solutions.

Farmers in Potsdam-Mittelmark generally play an important role when it comes to the implementation of renewable energy solutions, such as biomass/biogas, but also when providing land for potential solar plants, and as organic producers.

The 'Renewable Energy Working Group' (Arbeitsgemeinschaft Erneuerbare Energie, ARGE) bundles together the main activities in the county in relation to energy efficiency and renewable energies. ARGE is a network of people from energy-related organizations, and also comprises members from the county administration. The group is a close informal network of the administration (professionals) and engaged citizens, and it can play a crucial role in promoting new developments. (Reusswig et al 2010)

Energy strategy

As early as 1995, the city of Potsdam decided to construct a gas-fired power plant with combined heat and power (Gas-und Dampfkraftwerk). The mayor and the city council held to this decision despite protests from

the lignite lobby, which is very strong in Brandenburg. As lignite was (and is) the major domestic energy source of Brandenburg – and an important economic sector providing many jobs – the city’s decision was perceived by many as a hostile act of the county capital against the interests of Brandenburg. This change in energy supply helped Potsdam to achieve relatively low CO2 emissions per capita.

The county of Potsdam-Mittelmark decided to adopt a fundamentally different strategy, by having a major focus on renewable energies. Even the terms ‘climate change’ or ‘climate protection’ barely play a role in local politics. Local authorities and even citizens’ initiatives concentrate rather on the development of renewable energies. The general strategy at the county level is more economically driven. There are also, of course, initiatives which have a broader focus beyond energy issues, but these rather smaller, are municipality driven, and not (yet) relevant for the whole of Potsdam-Mittelmark.

In Potsdam-Mittelmark, the further development of fossil and renewable resources is connected to the strategic decisions of Eon.edis. This is because Eon.edis has the resources to either strengthen or impede decentralized renewable energy options by making it easier or more difficult for renewable energy developers to connect to the electricity grid. Energy production and household energy use are under focus, probably because local governments are interested in these issues themselves, as well as owners; transport is also important. (Reusswig et al 2010)

Understanding the cases

The main characteristic of this model is cooperation between different stakeholders and interest groups on many issues. Different stakeholders are involved in a wide range of local affairs, even if they are not experts. The basis of participation is that actors live there, or the planned initiative has an effect on their life.

Both temporary alliances and long-term cooperation are characteristic of the local partnership model. In the GILDED research, the Potsdam area provides a typical example of this model. Local services are provided by the city, but several NGOs and enterprises are involved in different decisions and activities. Such initiatives range from participatory budget planning to climate councils. These examples also show the relevance of subsidiarity in decision-making, as well as a horizontal approach. Decisions are typically a result of mutual agreements, arrived at through long negotiations.

One very interesting current example is the development of the participatory budget process in Potsdam (Bürgerhaushalt). The idea was actually implemented in 2007. Every year, citizens of Potsdam have the possibility to suggest projects which the city should implement. Common examples of suggested projects in 2008 are cost-free public transport (either for all, for youngsters, or for the elderly) investment in youth clubs, or the refurbishment or construction of leisure facilities. Citizens' suggestions can be made on ten thematic topics (Beteiligungsgegenstände). The different thematic topics included in the participatory budget are part of the voluntary system and controllable by the city (see section 3.1). Current topics are normally decided by different members of the administration, but a core group within the administration heads this process. For the first time in 2009, citizens had the option to suggest projects in the field of climate protection. This is probably because the issue of climate change has become a ‘formal’ topic of the city’s agenda, which is reflected in the city’s climate

staff unit and the climate council. Currently, suggestions related to this topic include: the switch to green electricity for urban electricity demand; the use of photo-voltaic power on municipal premises; having a bus fleet using electricity or gas instead of petrol; or the reduction of private car traffic within the city.

Citizens can read the suggestions made by others and then vote. Eighty suggestions which received the highest agreement rates will then be studied by the city administration. Based on economic and political evaluations, the suggestions will be either rejected or taken into account where possible. Most suggestions made in 2008 were rejected due to financial constraints, or it was claimed that the administration is already involved with the suggested project (City of Potsdam 2009). Realized projects include the refurbishment of a cultural centre in the city district of Babelsberg, and the construction of a main road. Further, the development of a cycling strategy was largely influenced by high voting results during the participatory budget process (LHP 2009 i).

Another ongoing example of cooperation between city administration and citizens is the ‘Traffic-Roundtable’ of Potsdam. This group meets monthly and discusses current hotspots in the traffic development of Potsdam (for details see the German Report). The group itself is not as well-known as the climate council, and it seems that concerns of the climate council’s sub-group traffic overlap with those of the ‘traffic-roundtable’. One representative of the roundtable is also a member of this subgroup.

The role of intermediate stakeholders and the members’ project class are increasing in these cases.

Name of the research area	Potsdam city				
Name of the stakeholder	Leader	Council	Administration	NGOs	Enterprises
Source of Legitimacy	Elections; prestige	Elections	law	Prestige; locally embedded	Not relevant
Decision-making	Partnership; negotiation; democratic	Democratic; negotiation; discussions	Discussion; decrees; control; regulation	Discussions; partnership; public control; active initiators	Initiate; negotiate
General tools of decision-making	Negotiation, participatory planning, citizens’ jury				
Network position	Central, mediatory	Medium – not central	Very marginal	Mediatory; medium linked to the city administration and the leaders	Not dense, but connected
Used capital	Political, managerial knowledge, prestige	Political	Professional, managerial knowledge	Expert, social; networks	Expert, economic
Connection to other stakeholders	Strong, dense	Weak, sparse	Weak, sparse	Strong, dense	Strong, sparse

Table 3.3 Energy governance in Potsdam

Cooperative decision-making: the local partnership model

We found two examples of the cooperative decision-making model: the Czech and German case study areas. In both cases, the legitimacy of governmental bodies and also the leader are based on democratic elections.

According to the case-study analysis, the cooperative decision-making model is characterized by cooperation between different stakeholders, from planning to implementation stages; and different types of actors are involved in the governance process. This has been demonstrated in the case of Potsdam, where local services are provided by the city, but several NGOs and enterprises are involved in different activities. One of the main characteristics of the cooperative decision-making model is the significance of non-governmental actors in local governance.

Local government uses several methods for the involvement of non-governmental actors, from public negotiations to projects. The case of the strategic development plan of České Budějovice represents several methods and tools of local government for the involvement of non-governmental actors (from websites to negotiations between expert groups including NGOs).

Non-governmental actors appear in several stages of the governance process, from decision-making to implementation. In both cases, studies present several examples of how the local governmental bodies negotiate their decisions with non-governmental actors, and in several cases prove that civic organizations and/or entrepreneurs initiate the discussion. This results in a strong network position for non-governmental actors. In the Czech case, the most influential actors of energy policy is the civic organization. This position is based on their international network, and their intellectual capital and knowledge regarding issues related to energy and environment protection.

The legitimacy of local government is based on cooperative behaviour and activities. We can say there is no legitimacy of local government decisions without public negotiation. In the cooperative decision-making model, public control is very strong in every stage of governance. It results in the significant appearance of local interest groups in a wide range of local affairs, as has been significantly demonstrated by the Potsdam case. Different knowledge and interest groups achieve a power position in this model: a range of actors, from groups of local inhabitants to members of project class can reach their goals within the framework of the cooperative decision-making model.

2.4.3 Formal democratic decision-making: the local democratic model in energy policy – the case of Aberdeen and Berettyóújfalú

2.4.3.1 Energy governance in Aberdeen

All three government levels - central government, the Scottish government and the government of the municipality - have detailed plans and targets for CO2 emission reduction; most of these were based on the targets of the central government, although the Scottish Climate Change Bill⁵ was developed following public consultation. A key component of Scotland's action is to target emissions from large businesses and public sector organizations, including local authorities, retailers and the central government. The Scottish government launched several programmes to achieve the above-described goals: Scotland's Climate Change Programme;⁶ Environmental Information (Scotland) Regulations (2005); the Home Energy Conservation Act (HECA) (1995); the Central Energy Efficiency Fund (CEEF); the Scottish government's Central Heating Programme (begun in October 2008); a separate initiative run by Scottish Gas on behalf of the Scottish Government, the 'Warm Deal'; the Scottish Executive, Scottish Community and Householder Renewables Initiative (SCHRI) (funded by the Scottish government). The Sustainable Scotland Network (SSN) is a network of sustainable development officers and advocates from Scottish local authorities. The Energy Saving Trust⁷ is funded by the Scottish government and operates five advice centres across the nation, with close working relationships with local authorities, housing associations and the voluntary sector. It is part of a wider network of 21 centres throughout the UK. The advice network has been specifically designed to help consumers take action to save energy, and aims to reach 250,000 people every year. The Climate Challenge Fund (CCF) is a Scottish government source of competitive funding for community partnership projects, initiated in 2008.⁸ The Climate Challenge Fund (CCF) gives communities, through individual community groups and community planning partners, the ability to implement actions to reduce their carbon emissions.

Most of these programmes are based on partnership between government and local authorities, while fewer programmes are based on government and citizen partnerships. As households comprise one of the most important actors, one programme aims to establish partnerships between government and householders.

Aberdeenshire council's Scrutiny and Audit committee conducted an audit on the council's response to climate change; the report states that Aberdeenshire council seeks to be a carbon-neutral organization in the short to medium term (2020), and for the whole area of Aberdeenshire to be carbon neutral in the medium to long term (2030).⁹ To achieve these goals, the council has launched several initiatives (such as the Local Authority Carbon Management Plan, the Climate Change Action Plan)¹⁰ and has done and continues to do a lot of work in terms of reducing carbon emissions as a result of the services which it provides (for example, the Aboyne Biomass Boiler). Aberdeenshire council is involved in seeking funding from many sources to engage in partnership initiatives, including the UK government's CESP (Community Energy Savings Programme) to work with local

⁵ <http://www.scottish.parliament.uk/s3/bills/17-ClimateChange/index.htm>

⁶ <http://www.scotland.gov.uk/Publications/2006/03/30091039/0>

⁷ <http://www.energysavingtrust.org.uk/scotland>

⁸ <http://www.scotland.gov.uk/Topics/Environment/SustainableDevelopment/ClimateChallengeFund>

⁹ Source: 'The Bigger Issue'.

¹⁰ Climate Change Action Plan

NGOs (e.g. Save Cash Reduce Fuel, SCARF) and private-sector energy suppliers (e.g. Scottish and Southern Energy). These reductions have been made in partnership with SCARF, and achieved by reducing demand and improving space- and water-heating efficiencies (including combined heat and power schemes in large apartment blocks) and increasing insulation levels in homes, particularly under a scheme targeting Victorian-era tenement flats (the Aberdeen Victorian Tenements Project).

Aberdeen City Council published their *Local Agenda 21 Action Plan* in 2001, which contains a range of strategies and projects that address particular sustainable development issues. These include climate change, procurement, fair-trade, carbon footprints, construction, waste, biodiversity and community awareness. There are approximately 25,000 council-owned dwellings in Aberdeen city. Each year, the council carries out a major programme of energy-efficiency works on these properties. The city council operates needs-based energy efficiency works focusing on those properties with a low National Home Energy Rating (NHER). Both of the local authorities work with other agencies in order to achieve environmental policy objectives, and are often linked to work on social housing. A key NGO in the region, SCARF, helps to identify and run projects on behalf of, or in partnership with the councils. In these projects the council plays the role of intermediate actor: it transfers money from central funds to local citizens, and transfers knowledge from entrepreneurs to local citizens.

Transport sector strategy in the north-east of Scotland is overseen by NESTRANS,¹¹ a body funded by both councils with the role of coordinating and implementing local transport policy and initiatives, linking in with the national transport network. NESTRANS was originally a voluntary regional transport partnership between the city and the county. (Aberdeen City and Shire Report 2010)

Understanding the case

Many private environmental consultancies operate within the region, often with links to the oil industry, conservation or environmental impact assessments. Some of these work alongside local stakeholders, including the councils, on emission-reduction initiatives. If funding for such initiatives increases (following the Scottish Climate Change Bill), then it can be assumed that more private consultancies will tender for such projects, perhaps introducing new skills and some competitiveness into the sector. They are members of the project class, thus are agents of the new governance methods.

Partnerships can exist in many forms, and at a variety of scales. They may begin as unstructured discussion groups and evolve into dealing with operational issues or applying for external funding. Partnerships can be classified as strategic, tactical or operational and different types of partnership have their own distinct governance and accountability issues.

The associated advantages, disadvantages and risks must be assessed prior to the formation of a partnership, to try and ensure that the advantages outweigh disadvantages. The council was advised to arrange partnerships to minimize problems and risks, particularly in relation to accountability and governance.

¹¹ <http://www.nestrans.org.uk/>

The benefits of partnerships involving Aberdeenshire council included: access to additional funding; increased public participation in local decision-making; increased efficiency of local works; and improved local services. However, for a council to work with many partnerships across a range of issues creates complexity, risks a lack of transparency, requires clarity over accountability and places time demands on those involved. Of particular concern were issues relating to effective auditing and financial accounting. While working in a partnership allows councillors to engage in service delivery across the wider public sector, increased external influence might limit a council's scope for policy change or reprioritizing resources. This has the potential to reduce the role of councillors as strategic decision-makers, and thereby the public's ability to effect changes through voting in council elections.

Within the local authority, staff report a positive engagement within and between most relevant departments. Local authorities feel that they have good and essential engagement with some key stakeholders. However, it has been recognized that improved coordination across sectors would be beneficial, and this is to some extent being addressed by the North-East Scotland Climate Change Partnership (NESCCP), and Aberdeenshire council's Sustainability Forum which involves other regional stakeholders.

The Scottish administrative system shows characteristics of a formal democratic decision-making or local democratic model. Despite this, energy policy is highly centralized. Local Authorities, NGOs and enterprises have few tools to influence household energy consumption; this is also mirrored in different action plans.

Name of the research area	Aberdeen city				
Name of the stakeholder	Leader	Council	Administration	NGOs	Enterprises
Source of legitimacy	Elections, prestige	Political elections	Professional law	Locally embedded	Not Relevant
Decision-making	Decrees, discussions	Control, negotiations	Decrees, control	Discussion, Negotiation	Discussion
General tools of decision-making	Lobby, discussions				
Network position	Central	Medium	Medium	Medium	Marginal
Used capital	Political, prestige	Social, political	Expert knowledge, professional	Expert knowledge, social networks	Economic, Social
Connection to other stakeholders	Central position	Important	To the leader	Sparse	Few, sparse

3.4 table Energy governance in Aberdeen city

2.4.3.2 Energy governance in Berettyóújfalu

Energy has become an important recent issue in the town. The main actors of energy governance in Berettyóújfalu are the municipality, entrepreneurs and civic organizations. The increasing number of state and EU tenders connected to energy issues has also drawn attention from the municipality, civic organizations and the market sector.

The municipality

According to the mayor, the municipality does not have opportunities to efficiently influence household energy consumption. This has to be solved at the state level, as part of a nationwide strategy. Despite this, the municipality's plans, concepts and activities show that they have made real achievements in local energy use. The local government has devised its own plans concerning energy, and they bid for different tenders in order to realize their objectives; most of the time, plans are tailored to tenders. The town has already had a lot of successful tenders in this area (in public lighting, conventional bulbs were changed to energy-saving bulbs; local bus services were modified so that more citizens would use them; bicycle paths were made, etc.).

However, they do not have a complete, long-term energy strategy, and delegates' interests can significantly influence the decision-making process. The special feature of the local government of Berettyóújfalu is the strong participation of entrepreneurs and civic organizations; due to this, efficient investments are being made, along with the use of innovative methods. There are some local entrepreneurs in the council and the main civic organization who are connected to the energy issue, and participation with local entrepreneurs was established by the municipality. This background serves the spread of renewable energy sources, although lack of financial means and different interests may hinder it.

Despite an uncertain financial background, the municipality explained that the reasons for using renewable energy sources instead of fossil fuels in the future were primarily financial. There were two alternatives: setting up a 'bio' power station fuelled with agricultural-products; and building a geothermal energy system. Ultimately, geothermal energy was decided upon, because the funding system would be more supportive to this type of renewable energy source (naturally, they will finance almost the whole of the investment through tenders). The local government's firm would operate the geothermal power plant. At first, they would use the plant for the heating of the public institutions, but then they would like to extend its use to households. At the same time, local entrepreneur lobbies could influence this decision. One of the entrepreneur-delegates, in parallel to the municipality's decision, has started to build a hotel complex which would be heated with geothermal energy. (Csurgó at all 2010)

The market sector

The market sector may be the most efficient field for the spread and utilization of renewable energy sources. The question of energy was very prominent among local entrepreneurs a few years ago. There were many plans due to the appearance of national and EU tenders on this matter. But at present, most plans have been dropped because of financial problems. But in line with this, one group of local entrepreneurs has joined the local government. They founded their own pressure group, the Berettyóújfalu Entrepreneurs' Association.

The members support and help each other to obtain more and more work (e.g. they apply together for a public procurement). This group is also very active in the energy field. It seems that their lobbying activities have significantly influenced the decision of the municipality to use geothermal energy in the future. (Csurgó at all 2010)

Civic organizations

Most civil organizations in Berettyóújfalu were founded by local politicians and entrepreneurs; citizens' civil activities are low. This attitude also characterizes civil organizations concerned with energy issues. One of the most serious consequences of the lack of civic organizations established by citizens is that the organizations fail to involve local people. For example, the town has no civic organization which informs citizens about energy issues. (Csurgó at all 2010)

Understanding the case

There is very strong collaboration among the municipality, and one part of the market and civic sector in Berettyóújfalu. On the one hand, this cooperation works very efficiently, but on the other hand a lot of actors are excluded (e.g. other civic organizations and entrepreneurs) from local energy policy. The existence of this special cooperation may hinder, for example, the stable and efficient functions of those civic organizations which were established by local citizens, but may facilitate communications between the municipality and the local population. The municipality has established a civil organization which facilitates the operations of firms that produce and use renewable energy. Within the Entrepreneurs' Association, local entrepreneurs had many plans to establish a 'bio' power plant, but none were realized because of financial issues. Within this organization, local entrepreneurs who had no municipal connections could also participate. Different interests and a lack of cooperation may lead to the end of this organization. At present, it has no activities.

Regarding the operation of the city, the arrival of the current deputy mayor has brought changes. Since 2006, the number of investments and developments has increased, and the role of entrepreneurs and civic organizations has also refreshed the municipality. In line with this, the establishment of an entrepreneur-friendly environment has become one of the main aims of the local government (e.g. providing different benefits and allowances for entrepreneurs). The delegates from civil organizations and entrepreneurs have already appeared on the city council, so they have had a real influence on local government operations. Due to this process, approaches toward businesses have become stronger and stronger. Berettyóújfalu is one of the most successful applicants in the county. The development and investment opportunities create permanent jobs for one segment of entrepreneurs and local people.

Networks within the settlement are very dense; co-operation is good, being supplemented with clear power structures, which results in democratic decision-making. (Csurgó at all 2010)

Name of the research area	Berettyóújfalu				
Name of the stakeholder	Leader	Council	Administration	NGOs	Enterprises
Source of legitimacy	Elections, prestige	Elections national, party background	Administrative regulation	partly embedded	Economic power
Decision-making	Channeling in of various interests	Formally democratic	Preparation and execution	Consultation and lobbying	Consultation and lobbying, initiation
General tools of decision-making	Informal discussions, lobbying				
Network position	Medium	Central	Medium	Medium	Medium
Used capital	Political	Political	Professional	Social networks, political	Economic, political
Connection to other stakeholders	Important	Central position	To the leader	Important	Important

3.5 table Energy governance in Berettyóújfalu

2.4.3.3. Formal democratic decision-making / local democratic model

The most typical model is the local democratic decision-making model. It can be characterized by a centralized local council, in which the leader, the mayor (or council leader), has clear legitimacy from direct or indirect elections, and this leader defines the most important issues; he or she can foster decisions and represents the city administration as a whole. In the GILDED case studies, the following local authorities are close to this model: Potsdam-Mittelmark (although this has enough features of the local partnership model to be classified there), Aberdeen, Aberdeenshire and Berettyóújfalu. The government model of a local council and the government model of energy policy can be different.

In the local democratic model, the leader of the organization is typically elected by locals; his or her power stems from the legitimacy of direct elections. Note: in Potsdam-Mittelmark, the leader of the council is elected by the council. The leader has strong political power, but market and network power may supplement it as well. Although she/he is quite influential, some conditions may force him/her to be conciliatory about policy decisions and other issues. These forces can be: coalitions with other parties (in Potsdam-Mittelmarkt and Hajdúböszörmény, the council consists of different parties, thus negotiations among them result in democratic leadership and limits on the leaders' power. The strong representation of localities, as in Aberdeenshire council, can also be a strong factor forcing local leaders to negotiate. In such cases, institutional circumstances help local governance as well. In Berettyóújfalu, the entrepreneurs are the stakeholders, which forces local political leaders to negotiate. Although we have no examples, there are could be cases where strong local NGOs or entrepreneurs force local administration or politicians to start negotiations. Sometimes the participation of different stakeholders has an established and well-organized forum, as in the case of Potsdam-Mittelmark, where different interests and ideas about the relevant agenda of the local community can be expressed. The elected leader

involves the local council in different decisions, and effects decisions through the city administration. The leader involves other stakeholders only in issues where it seems to be necessary. Cooperation among local governments, civic organizations, and entrepreneurs in maintaining local services (education, health care, social care) is not necessary in this model; it happens if the local government is unable to provide the services themselves, or other conditions constrain it. These constraints help to establish different institutions, which create the basis of a partnership model. In the long-term, the institutionalization of such forums may lead to a local partnership model of governance.

2.4.4. The local-hierarchical model – the cases of Debrecen and Assen

2.4.4.1. Energy governance in Debrecen

As we have mentioned, the city council has 12 committees, covering: health care; ethics; culture; education; finance; sport; society; ownership; procedure; urban development; environmental protection; and European integration. These keep contact and cooperate with civic organizations as determined by the city council. This indicates that the local government has established its own civic sphere. The main elements of the committees' operations are to contact and cooperate with different organizations. The city council and the committees may create working groups.

Local government tasks related to energy issues involve settlement development and contributing to the local energy supply. The committees relevant to energy issues are: European integration; environmental protection; ownership; and urban development. The European integration committee participates in European Union projects and may have contact with the county municipality, the University of Debrecen and other civil organizations which deal with European integration. The environmental protection committee controls the town's traffic system, tasks related to local transport, and environmental education at educational institutions. It may have contact with dedicated civil organizations, authorities and offices, and contribute to putting out tenders connected to agricultural and environmental entrepreneurs. The ownership committee forms opinions about development and investment concepts. The urban development committee forms opinions about the planning of urban investment concepts and proposals related to district heating and hot water prices, and may have contact with dedicated authorities and offices. (Csurgó at all 2010)

Enterprises

TIGÁZ Ltd., the biggest Hungarian gas provider, is a subsidiary of the Italian energy giant, the ENI Group, and operates in northern Hungary, for approximately one-third of the country; it has more than 1.1 million individual consumers and approximately 74,000 corporate consumers; individual consumers use 57% of the merchandized quantity (1.6 billion m³). The company does not have power plants in the region.

Despite this, EON Hungária Zrt. (a subsidiary of the E.ON Group) operates Debreceni Kombinált Ciklusú Erőmű Kft. (the Combined Cyclic Power Plant of Debrecen, Ltd.), which was built after an investment of 17 billion HUF (approximately 62 million EUR) in 2000. The power plant sells energy directly to the regional electricity provider E.ON Tiszántúli Áramszolgáltató Kft (the local subsidiary of E.ON Hungária, Ltd.) and other

actors of the electricity market. Efficiency is round 80%, thanks to the fact that the power plant also provides heating energy.

Debrecen District Heating Ltd. (Debreceni Hőszolgáltató Zrt.) is owned by the local authority, Debrecen's self-government (as we will present later, the local government has a company which owns several other companies related to public services. It was established in 1994 and provides central heating and warm water to 31,000 homes and 2,176 offices and other institutions. Today it is a profitable company without any subsidies from the owner, or the local government. There are two reasons for this: on the one hand the number of employed people has sunk to a quarter in the last 20 years, while on the other, automated systems and new investments in energy production have helped cost reduction. The company cooperates with E.ON and TIGÁZ with a long-term contract. They have modernized the heating system of 20% of the homes they provided with central heating or warm water.

Understanding the case

The high level of organization and professionalism at Debrecen City Hall, and continuous cooperation and communication between the different stakeholders works as efficiently in the field of energy governance as in other fields. The mayor of the city defines the most important development pathways for Debrecen, but also for the county. As we have mentioned, the mayor's office has regular consultation with other parties, but these consultations are dominated by the agendas of Debrecen's leaders. In the local-hierarchical governance model, decisions are centralized, and this is further enforced by the limited company of the city. Based around a central project, they maintain the so-called block-house programme, which assists local inhabitants in modernizing heating systems and insulation of flats. For City Hall, the main benefit of saving energy and reducing carbon emissions is that money is saved. (Csurgó at all 2010)

Name of the research area	Debrecen city				
Name of the stakeholder	Leader	Council	Administration	NGOs	Enterprises
Source of Legitimacy	Elections, prestige	Elections, political	Law, expert knowledge	Not embedded	Not relevant
Decision-making	Autocratic	Formally democratic	Professional	Unpredictable	Professional, market-led
General tools of decision-making	Decrees; informal discussions; regulation	Voting, discussions	Decrees, negotiations; regulation	Informal discussions; informal actions	Discussions, negotiations; informal and formal meetings
Network position	Central, regulatory, decisive and controlling	Marginal	Subordinated or marginal	Invisible	Strong connection to the leader
Used capital	Political, prestige	Political	Redistributive or professional	Social, prestige	Economic
Connection to other stakeholders	Dense	Sparse; only to the leader and administration	Electoral, to the leader	Sparse; occasional, discrete and individual	Few

3.6 Table. Energy governance in Debrecen

2.4.4.2 Energy governance initiatives in the city of Assen

The local government influences energy use in Assen via communication and subsidizing. The council decided that all public buildings should reduce energy consumption by a specified amount. To convince households, they are limited to providing subsidies and using communication channels.

The government at the national level (Ministry of Housing, Spatial Planning and the Environment) have initiated various subsidies related to household energy use (solar panels, sun boilers, double glazing, etc.) that are generally quite popular. The government subsidizes municipalities and provinces in the frame of the Stimulation of Local Climate Initiatives programme which helps municipalities to reduce greenhouse-gas emissions by reimbursing up to 50% of expenditures. In total, 31.5 million EUR has been allocated to municipalities and 3.5 million EUR to provinces, from which Assen may apply for a maximum of 188,000 EUR. One example of subsidizing is the Drenthe Bespaart (Drenthe saves) initiative from Environmental Federation Drenthe, the province of Drenthe and several municipalities in Drenthe, including the municipality of Assen. They have a website with several practical tips to save energy and to help inhabitants of Drenthe reduce their energy use. Another example of subsidizing energy saving is the Energy-neutral neighbourhood of Kloosterveen. Assen SenterNovem is an institution of the Ministry of Economic Affairs, and offers rules and programmes related to innovation and sustainability. The municipality of Assen has initiated a nature and environment education programme focused on sustainability. In 2004, Groningen and Drenthe introduced so-called euro tickets. In the city of Assen, people could buy a ticket for 1 EUR for travel throughout the city, no longer having to buy a ticket in advance. Within four years, 10 million tickets have been sold in Groningen and Drenthe. Many of the policies of the municipality of Assen are focused on its own energy use and not on household energy use. For instance, the municipality of Assen has specific plans to reduce the CO₂ emissions of its buildings and cars. When it comes to households, there are no such plans. The municipality of Assen aims to increase awareness with regard to sustainability and the environment by intensive communication. (WP 2 Country Report the Netherlands 2010)

Understanding the case

Assen municipality has a top-down decision-making system, and the mayor's as well the four aldermen's power positions are rather strong. The political parties directly intervene in local policy by appointing aldermen. This hierarchical decision-making benefits effective energy policy and energy saving, and communication strategies on energy saving works well. However, the power network is centralised and less open, giving limited possibilities for civil actors to launch 'green issue' actions. The future question is whether closed power networks have the capacity to attract more attention for future energy-saving actions.

Some initiatives have attempted to involve locals in decision-making. An example is that citizens have been given the opportunity to contribute their own initiatives and add items to the agenda of the city council. Other options open to citizens are to write letters to the city council, or submit requests. A letter is meant to inform the city council about an opinion or to provide them with information.

These opportunities do not seem to be used often by citizens with respect to energy or the environment, and hardly ever by individual citizens. Organizations are usually consulted at the early phases of policy making. First, the officials of the municipality work on a particular policy. At this phase, they consult relevant organizations. For instance, with regard to energy use, they can consult the environmental federation. In later phases, when the city council discusses the policy, there is little further contact with other organizations.

The environmental federation of the province of Drenthe was founded in 1971 as a forum for the cooperation of nature and environmental organizations in Drenthe; its goal is to improve sustainable development. The federation is actively involved in vision and policy development and advises with regard to important nature and environment issues. They launched the website 'Drenthe saves' with information on energy-saving projects in their municipality and province. The *milieufederatie* initiated this website, together with the province of Drenthe, several municipalities in Drenthe, energy companies and the institute for nature-protection education. (WP 2 Country Report the Netherlands 2010)

Name of the research area	Assen				
Name of the stakeholder	Mayor and four alderman	Council	Administration	NGOs	Enterprises
Source of Legitimacy	Election of a mayor; policy parties' appointments (four aldermen)	Elections	Law, regulations	Locally embedded	Economic success and efficiency
Decision-making	Formally democratic, practically hierarchical	Formal democratic	Marginal	Indirect, secondary impact, initiatory role	Indirect, secondary impact, initiatory role
General tools of decision-making	Regulation, control, monopolization, disposition	Voting, informal actions	Preparation	Consultation, initiation, peer pressure	Consultation, initiation, lobbying
Network position	Central, regulatory, decisive and controlling	External	Mediatory	Weak, one-way	Weak, one-way
Used capital	Political, prestige, redistributive, indirect economic	Political network	Professional, knowledge-based	Social networks, knowledge	Economic, indirect political
Connection to other stakeholders	Subordinating,, decisive, organized, manipulative	Indirect , electoral, formal controlling	Subordinated to leader, subordinated to other actors, organized, institutional, administrative, controlling	Occasional discrete and individual	Occasional, discrete and individual

3.7 table Energy governance in Assen

2.4.4.3 Energy policy in Hajdú towns

Self-governance in the three Hajdú towns (Hajdúböszörmény, Hajdúdorog, Hajdúnánás) goes back over 400 years, and despite 40 years of socialism which restrained local autonomy, the revival of localism occurred quickly after 1990. Local council meetings are public – with the exception of some specific cases. No specific issue related to climate change is assigned to any council committee or department of the mayor's office. The administration of environmental issues is subordinate to those of the economy, tourism and agriculture. Waste management and water-quality management feature in the city development plans, although climate change is not mentioned among preferred development goals. Energy issues seemingly do not come within the competency of local government in ways that can impact directly on household energy use. There is no statute related to energy use to be found among last years' local council edicts. Development plans pay attention to

waste management, water security and tourism-related environmental issues; conversely, climate change and alternative energy use are not the focus of local policy. Local governments have no control over energy use or policies managing climate change. They are autonomous in a juridical and administrative sense, but state/EU-financed projects and direct state subsidies cover a significant part of the local government budget.

The most powerful stakeholder is the mayor, who has the widest capacity for networking. Local policy is dependent on national party relations and local networking. Such networks are not hierarchical, with no actor predominating. Networking is necessary for any mayor or actor in order to be effective in the local policy arena. Policy networks interweave formal institutions; and local oligarchies rule over local power relations both inside and outside institutions. Oligarchies evolved from socialist-era economic leaders, their family, personal and institutional networks, and they have the economic potential and networking capacity to control the local policy arena. Local policy becomes about retaining the power of oligarchies (or from their opponents' side, limiting or possibly deflecting it). Anything that might be related to the use of alternative sources or managing climate change is usually part of an open struggle for power, or state/party dependency.

In the three cities' councils, according to interviews, decision-making, after discussion, is formally democratic. None of the parties have a stable majority in the city council. According to interviewed council members, the cities have clear development plans: one aims to increase energy consumption based on thermal energy, if the self-government can find subsidies for the investment. The city councils intend to develop the thermal-heat-based central heating of public buildings. The plan is supported by several members of the city council, who support it as it would be much cheaper and more environmentally friendly. The overall reason for the investment is cost efficiency.

The Hajdúsági Multi-functional Micro-region Association was established in 2004 based on the cooperation of the three settlements. 59,566 people live in this area. The three mayors are members of the Association council; six experts work for the office, which is actually a project-managing bureau. This is the first association in which the three Hajdú towns have been willing to co-operate. An initial historical distrust has been overcome by the necessity to work together. In regards to power relations, a consequence of the previous lack of desire to work jointly is that one of the Association's essential roles now is to ensure consistent harmony between the local governments. The Association office, symbolically, is located in the smallest town, at the geographic centre point. One element of the power structure is that decisions are always the result of negotiations in which all parties are equal. The Association is originator of energy-related development plans, which aim to reduce electricity use and develop thermal-water-based heating. The marginalized civil associations occasionally concern themselves with environmental protection, alternative energy use or health-care programmes, but their activity is limited and depends on policy/government subsidies. The Association has a mediating role in coordinating the micro-region's development plans and projects, and in linking civil associations, local and non-local actors to governance networks. (Csurgó at all 2010)

Understanding the case

The power structure and the manner of governance in the three cities are highly determined by the local oligarchy, the cooperation and inter-relationship between the local economic elite and political leaders. The

councils and economically powerful actors struggle for local dominance and mayors play a balancing role in power networks. Decision-making in general, especially on energy issues is a top-down, hierarchical process. Energy-use issues are dependent on financial rationality and accessing external (state, EU) sources which may give legitimacy (for example in the planned thermal-water-based heating of public buildings). This is a multi-actor network in which the mayors' personal and networking capacity links various interests. The multi-actor interest group networks' political activity leads to less democratic and more centralized policy-making and control over political and economic processes. The representation of non-oligarchic civil associations is weak, but their activities are increasing in 'green' and energy issues. The civil associations' energy-policy actions are against oligarchic stakeholders.

For example, the case of a protest against a waste-burning plant in Hajdúböszörmény shows what possible tools that non-governmental actors can use to influence local energy policy. In 2008, the Hajdúböszörmény local government started negotiations with an investor to build a waste burner in Hajdúböszörmény. The oldest civic organization concerned with local environment protection, the Zöld Kör (Green Club) association had received information about the plan, and began fighting to stop the investment, organizing a campaign against it. They printed information leaflets, and organized local forums for residents and local-government members to negotiate about the plant, also inviting the investor. Ultimately, the protest movement was successful, with local residents vetoing the waste burner in the town. One reason for this was the strong embeddedness of the environmental association in that local society. The local inhabitants' trust in the association enabled them to mobilize locals in protest. Another important element was the association leader's connections with the local government, giving him the opportunity to use informal networks in the lobbying campaign.

The Multi-functional Micro-region Association is an institution which, functionally, modifies local power relations and governance. Its primary activity is the launching of development planning processes. Staff consists of young, educated experts who are in a position to convince the mayors of the necessity of planning and project-making. The mayors have the position of formal decision-maker in the Micro-region Association power structure, possessing political and legitimization capital. The staff are well-enabled to design and manage projects, and to persuade actors to join. The conditions of projects, and the compulsory initial financial contribution, and contradictions of regionalization, may hamper smooth progress. The Association has played a central role in the preparation of between 18 and 20 development plans, and has run successful public work projects for the unemployed. A particular mission has been the linking of civil associations to local governments in the project actors' network structure. Local governments, and the local oligarchies ruling them, do not consider non-governmental associations as possible partners in local development. One consequence of state/EU-financed development projects is that their grants are not accessible without NGO (and entrepreneurial) participation. The civil associations have gained a specific capital in the projectification process (for example LEADER) which may be termed 'participative' capital, which would scarcely be channelled into projects without the conduit of the Micro-regional Association. Alternative-energy use and climate-change management are not the focus of local-development plans. There has only been one set of negotiations on the issue of energy use: an under-developed plan to use thermal water for heating public buildings. The technological difficulties and a lack of required capital halted proceedings. The civil associations which often find legitimization in

promoting an environmentalist ideology and running ‘green’ teaching and exhibition programs may become key actors of climate-change projects. The power structure around the Micro-region Association is a multi-actor network with non-hierarchical power relations, and complex groups of participants. (Csurgó at all 2010)

Name of the research area	Hajdúság				
Name of the stakeholder	Mayor	Council	Administration	NGOs	Enterprises
Source of Legitimacy	Election	Election	Law, regulation	Locally embedded, micro-regional development	Economic success and efficiency
Decision-making	Formally democratic, practically hierarchical, primary role	Formally democratic, consensus-oriented	Marginal	Indirect, secondary impact, initiative role, linking and bridging role	Indirect impact, initiative role, oligarchic
General tools of decision-making	Regulation, control, monopolization, disposition, oligarchic	Voting, informal actions	Preparation	Consultation, initiation, peer pressure, conciliation	Consultation, initiation, lobbying, indirect and direct peer pressure
Network position	Central, regulatory, decisive and controlling	External	Mediatory	Weak and one-way; in the case of MCA, linking and bridging	
Used capital	Political, prestige Redistributive, indirect economic, oligarchic	Political and oligarchic network	Professional, knowledge-based	Social networks, knowledge, expertise	Direct economic , indirect political
Connection to other stakeholders	Subordinating,, decisive, organized; manipulative, embedded in economic power	Indirect, electoral; formal controlling; direct oligarchy	Subordinated to leader; subordinated to other actors, organized; institutional, administrative, controlling	Occasional, discrete and individual	Stable, economic and influential; power-based

3.8 table Energy governance in Hajdú towns

2.4.4.4 Dominating power positions: the local-hierarchical model

We found three examples for the abovementioned local hierarchical model: Debrecen, Assen and the Hajdúság case study. In all three cases, the leader is directly elected by locals. The leader of the organization has the widest executive powers, and although these are controlled by a general assembly, or an elected committee,

through political, economic or network power, the leader defines main issues and controls all major decisions. Accordingly, power relations are hierarchical within the organization; the leader's powers are very strong, and thus, the management and leadership model can be autocratic (the leader becoming a champion). The leader is very influential; consequently, negotiating and reconciliation are not typical, even though issuing directions and instructions are not the only method of decision-making.

After analyzing the three case-studies, however, it is obvious that they differ from the ideal type of the theoretical model. In all three cases, there are minor groups of decision-makers; then there is a single person who defines the goals and controls all the processes. In the Dutch case, the mayor has four aldermen, each with defined duties. In Hajdúság, the mayor works closely with powerful entrepreneurs, in a kind of oligarchy. The only exception is Debrecen, where the leader, the mayor can build on a well-organized institution: the city administration. Their cooperation with local energy-providers is based on an understanding of equal parties, unlike the method they used to introduce the new public transport. These cases show that City Hall is regarded as a respected stakeholder by market-oriented companies; City Hall knows how to use this, turning its political capital into economic capital. The Hajdúság towns may be said to follow a similar pathway, but on the one hand here, local entrepreneurs are much more powerful. On the other, they have to cooperate with each other; thus here, the analysis shows strong elements of a cooperative model, as has been presented above.

In the *local hierarchical model*, network positions are extremely important. Most stakeholders have a marginal position, usually the above-described actor, or group of actors have central position. It is a single-centred, star-formed model. Connections among the different stakeholders are not obvious; more typically, there are dense connections surrounding the central actor, and much fewer among the rest. Decisions are made centrally.

Power positions are defined by network positions, and the quality of connections to the central actors or group of actors. Apart from powerful entrepreneurs belonging to an oligarchy, local and non-local entrepreneurs and civic organizations are rarely involved in policy-making, and the transparency of decision-making is not always guaranteed. The role and possibility of different stakeholders in influencing decisions is unequal.

The case of Hajdúság, as we have mentioned, is special as the settlements are forced to cooperate; the *local hierarchical model* is typical within each of the municipalities, whilst their association much more resembles a cooperative model. In institutions of this type, the central actor plays special role, which may make the system vulnerable.

2.5. Comparison of the energy governance systems

Based on the above analysis we present a table comparing the three most frequently found government models. We only present the dimensions within which, the three models differ: typical actor; typical actors' source of legitimacy; type of decision-making; general tools of decision-making; most frequently used form of capital; and network type.

Name of the model	Dominating Power Position-Local Hierarchy	Formal-democratic	Cooperative Decision Making - local partnership
Most influential stakeholder	Mayor	Mayor administration	Mayor – NGO administration; Entrepreneurs
Source of legitimacy	Elections, customs, reputation	Law, regulation	Embeddedness
Decision-making	Central decisions, control orders	Negotiations, Discussions	Participation, discussions, consensus seeking
General tools of decision-making	Voting, informal discussions; informal actions	Official consensus- building; discussion of equal partners	Participatory planning; negotiations; long discussions with all interested stakeholders
Used capital	Political, prestige economic	Political, cultural (professional); expert knowledge-based	Social, expert knowledge; local embeddedness
Connection to other stakeholders	Occasional, discrete and individual; sparse	Official, connections, multi-centred	Dense, multi-centred; many connections among the actors
Network type	single-centred	central – circuits	Connected, non- centred

3-9 table Comparison of energy governance models

In the local hierarchical model, the mayor is the most influential actor. In the local democratic model, the local administration and the mayor are the most important. In the local-partnership model, all actors play an important role. Elections carry an important source of legitimacy in all three cases, but it is the only source – a kind of political legitimacy – that the local hierarchical model has. In the local democratic model, the professional character of the administration plays an important role, whilst in the local partnership model, it is the embeddedness. In the local hierarchical model, prestige is also an important source of legitimization. Decision-making is already expressed in the name of each model; but the network mirrors this as well. Decisions are made by the leader – in some case, he or she works together with a close team, with a group of stakeholders (visible or non-visible), but in several cases, the leader makes his or her decisions alone, as our examples show. The powerful actors of the local democratic model use their expert knowledge during the decision-making process: in this case, the leader, his or her team, the council and the administration follow legal procedures in all negotiations and discussions. In several cases, we saw that elements of the discussion approaches in this model may lead to a partnership between stakeholders. In the local partnership model, cooperative decision-making is the most common form: different participatory methods are used, such as citizens' juries or participatory planning to involve all possible opinions in policy-making and decisions.

The local hierarchical model is single-centred, unlike other two, where the network is typically denser, and although there can be centres, different stakeholders are connected to each other.

Used capital is also different. In the local partnership model, social capital is the most important. Economic and cultural (incorporated especially) capital is important, the decisive model being social capital. In the local hierarchical model, economic and financial capital both have important roles along with political capital; the power of the leader is built on these forms of capital. In the local democratic model, which is based on expert knowledge, cultural capital is the most important, but political capital is also relevant. This description does not mean that other capitals, networks; decision-making models cannot appear, but that these are the most characteristic ones.

In all the five countries surveyed, basic questions of energy supply are defined by central governments. The three Western-European countries have a clear and ambitious commitment to reducing CO₂ emissions, but the two post-socialist countries do not emphasize this. Potsdam-Mittelmark aims to achieve zero-emissions by 2020. The decision was prepared by the member of the business support unit of the council's administration and experts for renewable energy issues in the region, with the support of the deputy councillor and the chief councillor, whose proposals were accepted by the elected representatives in the county council. The strategy of the county is focused on regional economic development, for which renewable energy sources play an important role. Renewable energies are primarily seen as an economic tool to enhance regional businesses and projects. Hence, climate protection seems to be less important in the rural areas of Potsdam-Mittelmark: effective project management, which can produce quick results, seems to be more important.

According to the case studies from the five countries, the methods of decision-making are very different. In Potsdam, several governmental and non-governmental actors are involved, even if their power positions are not necessarily high. Climate change has been on the city's agenda since 1995 (as with Aberdeen). In Assen and the Hungarian research area, climate change is a less important topic. The county council of Potsdam-Mittelmark also follows a different strategy, with a major focus on renewable energies, as do Berettyóújfalu, Hajdúböszörmény and České Budějovice.

The Scottish and the German case studies raise concerns that the goals to reduce CO₂ emissions will be difficult to reach. There are ethical concerns as well: *"The main one is perhaps the degree to which a democratically elected government can impose restrictions on individual behaviour. While providing financial incentives such as tax breaks may help to change individuals' behaviour, particularly with reference to transport choice, they can be costly to implement and have relatively little impact on large sectors of society."* (Scottish National Report, 2009)

The attitude of the locals in the new EU Member States toward energy saving are best reported in the Czech National Report: *"The main factors that obstruct energy saving are: indifference, indolence, laziness, habits, unconcern of public things and distrust to authorities' effort to save energy."* (Czech National Report,

2009) Beyond social barriers, there are institutional barriers: bureaucracy, and a lack of subsidies and information.

Due to decentralization, the municipality has more responsibilities in the five case study areas than was the case until recently. For example, municipalities now have a big impact on how to divide subsidies. The important tasks of municipalities are to provide sufficient housing and transport facilities. The council makes decisions with regard to the construction of new roads, parking spaces and cycling lanes. Due to environmental laws, the municipality also has an impact on the environment, being able to keep polluting companies out of residential areas.

Municipalities provide information and subsidies for households on energy saving, but their communication has limited effects. Assen's goal to become CO₂-neutral in 2020 is similar to Potsdam's. In Assen, however, to reach this goal, focus is on the insulation of public buildings. Another topic is recycling, which has a long tradition in the Netherlands. Cooperation with companies is another way to achieve ambitious CO₂ reduction goals; parties work together with housing corporations.

3. Impact assessment

Although local governments have to balance different power-holders, and conflicting interests, their role of local governments and municipalities in promoting energy-saving is low, because of the lack¹² of legal power and finances. Thus their role is mainly in motivation or information sharing. Central governments have enough power and financial resources to promote subsidy programmes. The largest ongoing programs are the Green for Energy Savings programme in the Czech Republic, and the so-called Panel Program in Hungary regarding population and expenditure.

According to the Czech Report, the Environmental Department of the South Bohemian Region deals with environmental issues like waste management, air pollution, nature conservation, and with reducing CO₂ emissions; the programmes on these topics are focused mainly on public buildings and institutions.

Municipalities have limited powers to control households' energy consumption, as national governments determine the laws and regulations for the whole country; subsidies are defined by central governments in Hungary, the Netherlands and the Czech Republic. The Environmental Department of the municipality of České Budějovice offers subsidies for the protection of the city's environment. This is not aimed directly CO₂ but it is possible to apply for city grants. In the Netherlands the province is the link between the national government and the municipality. Tasks of the province include granting environmental permits to companies enforcing environmental laws stimulating sustainable energy for example by appointing locations for windmills. The province also determines which company gets to public transport in the province and for price. In the Netherlands municipalities have gained more power in recent years. Certain tasks and competences of the national government have now shifted to the municipalities.

¹² For example: Aberdeen city's social housing has been a focus for energy saving initiatives, and had difficulties by regulating private developers.

Other successful examples suggest that a close cooperation with public local stakeholders (private and business as well) contribute to a holistic development of a low-carbon society. In particular, the city of Potsdam is in a fortunate situation, because of the number of existing forums and the capacity for climate protection. Although Potsdam is comparatively rather a 'late-comer' in terms of public-awareness raising of climate issues, this may be changing. In a press release of 4 September 2009, the lord mayor announced a tender to develop an integrated climate concept for the city. He hopes that this concept will be a first step to picture a city in a 'post-fossil-fuel' time. Further, he also pledges that the city administration will take its model role seriously and looks forward to discussions in thematic departments and with the public (Landeshauptstadt Potsdam 2009h).

There is strong evidence of environmental awareness in local authority departments, with engaged and committed staff. However, they are responsible for drawing up policies, and while generally supportive, the councillors (the decision-making power within the council) may be influenced by those arguing for economic development (both internally and external lobbying), particularly in the current economic recession. There is an increasing use of working partnerships, promoted in some cases by funding requirements (e.g. CCF); reports have indicated that they bring benefits in areas where no single agency is able to take a lead.

4. Concluding remarks

The comparative paper has concentrated on the analysis of the actors, their power networks and energy governance structures that may cause and influence changes of households' behaviour on energy saving. We conclude by summarizing the main results of the report: the comparison has found three energy governance models which show relevant differences and, at the same time, consistency in terms of energy-saving policy. The improvements, which need to be made to emission reduction policy and its implementation, have to take into account the diversity of governing modes and institutions.

The change from (top-down) government to (new) governance is far-gone in all the project countries; a multitude of new actors, with diversified networks and interests, have appeared in energy governance. For example in Potsdam besides the local government's activity the local inhabitants' and the NGOs' activities are also important. In České Budějovice the role of NGOs is increasing constantly while in Berettyóújfalu the connection between the local government and a group of entrepreneurs is very strong in the field of energy governance.

One reason for the multiplication of actors and institution is that many tasks of energy governance (including education and training) are outsourced to short-term (temporary, non-permanent, project based budget as foundations, agencies) institutions, still under the hierarchical model, and project proliferation has changed power structures as projects lock participants into various power relations. The sharing of authority over energy savings oriented policy between (local) governments and short-term organisations results that EU/national states/local governments have to find ways in which small but well-focused actions produce sufficient improvements

Now we present some examples of best practices from the case study areas which introduce how the local actors can realize energy reducing initiatives.

Examples of best practices in České Budějovice

Role of NGO's

In the centre of the city a shopping centre called "Černý Pelikán" was planned, which would negatively influence the quality of living of the entire quarter. Active citizens established an NGO - civic association ("občanské sdružení" in Czech) and fight against this building in the frame of the area planning process ("územní řízení" in Czech). The activity of this association involved an information campaign, a petition as a supportive tool, and active participation in the decision making process. Despite of all this activities the association lost this fight. But this example does describe the involvement of ordinary citizens and NGOs in public issues generally.

The strategic development plan of the České Budějovice

The work on this plan began in May 2007. Public participation on the strategic plan had three levels - questionnaire survey, remark form on the web site, public negotiations. There were 4 meetings of workgroups. The strategic plan was evaluated in April 2008 and the results were presented for public consultation in May 2008. The Environmental impact assessment of the plan was presented on public negotiation in June 2008 and in July 2008 gained the agreement of the Department of Environment and Forestry of South Bohemian Region. Finally on September 4, 2008 the final form of strategic plan was accepted. Simultaneously with the strategic plan an Integrated plan for city development which could serve as

Example of best practices in Berettyóújfalu

Role of entrepreneurs

The leader of the Morotva Association is a municipal delegate who has participated in the establishment of the Agricultural Energy Association and the Entrepreneurs' Association. Using EU subsidies, his enterprise aims to build a *sports complex and wellness hotel heated by geothermal energy*. Geothermal energy will reduce costs. Conventional gas usage would have been very expensive because of installing a new pipeline. To realize his plans this entrepreneur takes advantage of any available funds and uses his business connections.

In this case we have an autonomous enterprise who aims to gain profit through investments, which are intended to be environmentally friendly. The entrepreneur has good connections to the local governance network and his plans are connected to the local economy and local development plans, and would create new jobs, and contribute to the economic performance of the town. This case shows the force of local networks in development.

Example of best practices in Debrecen

The case of local transport:

The case of the Mobility Initiatives for Local Integration and Sustainability project in Debrecen represents the role of non-governmental actors in energy initiatives in the county. The project was supported by the EU during 2005–2008. The aim was to provide biogas vehicles for local public transport in Debrecen, mainly to replace old vehicles with environmentally friendly ones and to study the possibilities of biogas use. Co-ordinating the project was Debrecen city council; the main project partners were the Hajdú Volán public transport company and Debrecen University.

Need for the involvement of Hajdú Volán was obvious because of its key position in the development project. The company transports Debrecen's 300,000 passengers, and shares the notions of environmentally friendly public transportation. Thus, new, eco-friendly and more comfortable vehicles are gradually coming into use. The company aims to use biogas as fuel for its vehicles. The project also involved experts from Debrecen University.

The city council invited its partners to the project, using previous networks, both formal and informal.

As a result of the project, Hajdú Volán began to use more environmentally friendly buses in Debrecen, and the experts carried out feasibility studies on the utilisation of biogas in the city's public transport. These studies were the main outcome, involving the majority of the budget. Because of their knowledge, the experts played an important role in the project.

Example of best practices in Assen

Cycling

The responsibility for cycling policies is mainly down to municipalities. Assen has many projects that are focussed on improving cycling conditions. Assen is very suitable for cycling, because of its size. A large part of the city is located within 3 kilometers from the city center.

Some of the targets for cycling in Assen and in the province of Drenthe are:

- High quality corridors to and from Assen
- Fast, direct and comfortable ‘cycling-highway’ between Groningen and Assen.
- Attractive recreational cycling routes from Assen to places outside Assen.
- Cycling routes between neighbourhoods and with the city center.
- Good storage facilities for bicycles in the city centre and at the train station.

There are two organizations in Assen that have a strong focus on improving cycling quality: the environmental federation Drenthe and the cyclists union of Assen. In total there are 108 km of cycling tracks in Assen. Next to that, many neighbourhood streets are used as part of a cycling route. In Assen there are on average 100 movements per day per 100 inhabitants by bike. The bicycle accounts for one third of all trips in Assen. Compared to similar cities the share of trips by bicycle in Assen is higher than in other cities.

None of the three found governance models (or other existing practices) have an absolute benefit regarding an effective energy-saving policy, or the influence on household behaviour. Combinations of strengths and weaknesses are present in each energy-governance model, and no single one should be appointed as an ideal. It is important to note that geographical (geo-political) lines, varying historical paths and traditions (including capitalistic or socialist past), and the level of (economic) development do not necessarily lead to different energy-governance modes. Certain features and combinations of hierarchical, autocratic and democratic models are all present in diverse (local) terrains inside the EU.

One conclusion of this study is that successful and effective energy governance can be linked to multi-actor or hierarchical, single-centred political structures and networks. The precondition of operative energy governance, in all acting governance models, is the coordination of distinct economic, social and political interests (including financial benefit, influence, prestige or legitimisation) that may ensure the flexible, efficient involvement and persuasion of household members to reduce energy use. From this point of view, the emerging activity of civil associations and entrepreneurs in managing ‘green issues’ in a form of projects or other short term actions is a necessary condition for addressing climate change.

However, the EU, and national and local governments, having power and legitimization, and having control over financial sources, remain key stakeholders within energy governance especially in regulation and

controlling. The local involvement and project class activity intermediate between governmental and local levels, enhance articulation of local needs, and facilitate local activity.

Accordingly, a new coalition between political stakeholders and non-governmental actors, that mutually adjusts all their interests, and promotes new governance approaches, may be the most promising route toward (European) contributions to the reduction in household energy demand and hence the mitigation of climate change; as we saw in the case of the is the development of the participatory budget in Potsdam.

At this point, we argue for two-level approaches to better governmental management of GHG emissions. First, on a EU and national (regional) level, we recommend:

- 1) policies which do not favour any sector or actor;
- 2) the encouragement and enhancement of such new governance methods and tools in energy saving as co-operation, consensus, discussion, conviction, acceptance, and tolerance;
- 3) strengthening both civil-association activity from one side, and local government planning, legislation and controlling from other;
- 4) using context dependent policy tools such as financial incentives, regulatory elements and awareness raising in order to encourage households to reduce their GHG emissions.;
- 5) considering, accepting and planning around actors' institutional and individual interests;
- 6) forceful and immediate intervention from one side, and the introduction of participative redistribution from the other;
- 7) supporting networking, and the transmission of knowledge and information;
- 8) providing adequate emergence for lay and local knowledge forms;
- 9) weakening national bureaucracy by allocating funds to local actors under direct EU control ;
- 10) introducing LEADER-type (bottom-up) actions and action groups in the field of energy savings;
- 11) finding key actors from the project class, experts, youngsters, and alternative associations who may become drivers of energy savings and awareness raising, and whose economic interests and moral commitments are associated with energy saving and use of renewable sources. Facilitating them in doing local emissions reduction projects.

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ANNEX 1. Infrastructure

This part of the report aims to summarize an overall description of infrastructural characteristics of the study areas. It gives background information to the analyses of governance, lifestyle and initiatives. We focus on settlement and population structure, as well as consumption and transport habits of households. Energy policy cannot be interpreted without knowing the basic trends within local communities. Moreover, the characteristics of the settlement network have a fundamental effect on energy use.

Included here are general statistical and special data related to energy issues at different levels. These data have been obtained at different times and have been processed from different perspectives. While, for example, in one case-study area there are a lot of data from 2009 related to energy consumption, in the other area there are few data, and from years ago. This fact made the comparison and the interpretation of the data difficult.

1.1 Settlement and population structure

This section describes and summarizes the settlement and administrative structure of the case-study areas. We focus on the main characteristics, presenting similarities and differences between study areas. The selected case-study areas of each country have complex settlement structures; the study areas of the GILDED project ranges from highly urban to remote rural.

The Scottish study area, covered by Aberdeen and Aberdeenshire, ranges from highly urban to remote rural; Aberdeen is very much larger than any other settlement. The Dutch study area is the municipality of Assen, consisting of the city of Assen and a few small villages. Except for Vries, these are all extremely small towns with just a few inhabitants. The Czech study area consists of two districts in the South Bohemian region: České Budějovice district, which is a highly urbanized area; and the Český Krumlov district, which consists mostly of rural settlements. The Hungarian study area consists of the two micro-regions of Hajdú-Bihar county. The Hajdúság region is characterized by neighbouring small and middle-sized towns, having well-developed and independent administrative functions. In contrast, the eastern part of the county (and especially the Bihar region) is characterized by a dense settlement network with smaller and less populated villages. Finally, the German study area consists of Potsdam and Potsdam Mittelmark. Potsdam is part of the Metropolitan Area of Berlin/Brandenburg situated on the river Havel. The city consists of three-quarters green, and one quarter urban areas. Potsdam is divided into six historic districts and nine new parts. Potsdam has a diversity of urban landscapes. The Potsdam-Mittelmark region is highly dispersed with the more urbanized municipalities in the north and east and more rural areas in the south and west. Potsdam-Mittelmark is a rural area where 80% of the land is used for agriculture or is forested, with farmers playing an important role.

Number of settlements	<i>Aberdeen, Aberdeenshire</i>	<i>Assen</i>	<i>České Budějovice and Český Krumlov</i>	<i>Hajdú-Bihar county</i>	<i>Potsdam, Potsdam Mittelmark</i>
Urban/towns	10+	1	19	17	?
Rural/villages	>50+	12	136	65	?
Total	>60	13	145	82	?

Table A1.1 Settlement structure

The study areas range from small areas with few settlements to huge regions with several towns and villages. The Scottish study area consists of a single city, 10 or more small towns, and numerous villages. In the case of the Dutch study area, there is again only one city, Assen. While the Hungarian and Czech study areas include several settlements with urban settlement status, there are small towns and bigger cities in both study areas. It is especially important in the evaluation of the results that each study area consists of rural and urban parts.

	<i>Aberdeen / Aberdeenshire</i>	<i>Municipality of Assen</i>	<i>České Budějovice / Český Krumlov</i>	<i>Hajdú-Bihar county (including Debrecen)</i>	<i>Potsdam / Potsdam Mittelmark</i>
Population	212,125 / 226,871	67,500	180,986 / 60708	552998	151,725 / 204,510
Population density	1127 /km ² 186/km ² /km ²	798 inhabitants per km ²	110 inhabitants per km ² / 38 inhabitants per km ²	89 inhabitants per km ²	810 inhabitants per km ² / 79 people per km ²
Age structure		24.5% (senior citizens)	13.7% / 11.6% (senior citizens)	30% (senior citizens)	

Table 1.2 Population structure¹³

This table shows the main characteristics of population structure of the study areas. Because of the different size and complexity of the study areas, the population structure of selected study areas are very different.

The behaviour and lifestyle of households are determined by people's ages. We have collected information on the age structure within the study areas.

In the case of the *Dutch study area*, the old age dependency (the number of people over 65 years of age related to the number of people between 20 and 65 years) is 24.5%. In the past few years, this has increased. (WP 2 Country Report the Netherlands 2010)

In the case of the *Czech study area*, the age structure of the population is very similar in both districts; the share of the population under 15 varies between 15.2% and 15.7%; the share of the population in the productive ages (15–64 years) varies between 71.1% and 72.7%; the post-productive population is more frequent in the Česká Budějovice district, the difference being about 2% (11.6% and 13.7%). (WP 2 Country Report the Czech Republic 2010)

In the case of the *Hungarian study area*, the population age structure is more favourable than the national average. The number of children per 100 adults is little bit more than the national average (Hajdú-Bihar: 28; Hungary: 25), while the number of elderly people per 100 adults is a little less (Hajdú-Bihar: 30; Hungary: 34). (Csurgó at all)

In the case of the *German study area*, the average age of the population is 41.84, which is much lower than the average of the whole of Brandenburg. Even though the over-65 age group will grow, the old-age dependency ratio will not play an important role in Potsdam, unlike other cities in Brandenburg. Meanwhile,

¹³ This data came from different years, so it is not feasible to make exact comparisons. The table only demonstrates the characteristics of different study areas.

Potsdam-Mittelmark's society is ageing. Although over-ageing of the population is particularly striking for most East German municipalities where younger people leave because of the lack of working opportunities, the situation at the national level does not differ much. Reusswig et al 2010)

1.2 Consumption and transport

This section presents the main factors influencing energy use of households in the study area, including household structure, housing features, transport and consumption. What follows is a general overview of the main characteristics of households in each study area, concerning energy demand.

Explaining household energy use as one of the key questions of our research, we need to collect background information and data on households as regards their energy use. General hypotheses are that the size of families, age structure, and the measurement of income inequalities can determine energy use.

First of, we describe the relevant characteristics of household energy use relating to statistical data in each study area.

Number of settlements	<i>Aberdeen and Aberdeenshire</i>	<i>Assen</i>	<i>České Budějovice and Český Krumlov</i>	<i>Hajdú-Bihar county</i>	<i>Potsdam / Potsdam Mittelmark</i>
Commonest household type	Family without children	Multiple-person with children	Family without children	Family without children	Single household / two-person household
Average number of persons per household	No data	2.3	2.5	2.5	2.2 (Potsdam Mittlemark)

Table 1.3 Household structure

In the Scottish study area, the characteristic household type features two or more persons, or households with no dependent children. The proportion of single-person households is high in both the regions under study (Aberdeen: 25.3%, Aberdeenshire: 37.6%). The main difference between the studied regions relates to the number of families with children. In Aberdeenshire, the proportion of families with children is more than the Scottish average, while in Aberdeen this proportion is less, and the differences between the two studied regions is more than 10%. (Aberdeen City and Shire Report 2010)

In the case of Assen, there were 28,330 households in the municipality in 2008. 34% were one-person households, and 66% were households consisting of several persons. Of the multiple-person households, 46% were without children and 54% with children. Over 40% of the one-person households comprised people aged 35–55. On average, Assen has 2.3 persons per household. (WP 2 Country Report the Netherlands 2010)

In the case of the Czech study area, there is an obvious downward trend in the number of people per household. The number of children (dependent children per household) in families is also decreasing. The number of one-person households is increasing. (WP 2 Country Report the Czech Republic 2010)

The decrease in household size is an important characteristic of the Hungarian household structure too. In the Hungarian study area in Hajdú-Bihar county, there were 255 persons per 100 households in 2005, which is

eight persons more than the Hungarian average. Most households are family-based: 33.7% of families have no children; 31% of families are single-child families; 25% have two children, and only 9.8% have three or more children. The increase in single households is an important demographic tendency: 28% of households were single households in 2005 in Hajdú-Bihar county. (Csurgó et al 2010)

In 2008, 152,725 inhabitants had their principle residence in Potsdam, and 6,505 their secondary residence. They lived in 85,007 households. There were 40,275 single households, 30,157 multi-person households without children 10,140 multi-person households with children and 4,435 single-parent households. In Potsdam Mittelmark, there are about 91,100 private households. There are 27,300 single households, 33,100 two-person households, 17,000 three-person households, and 13,700 four or more-person households. Thus, the share of single households is approximately 30%, and the average household size is 2.2 people. (Reuswig et al 2010)

In the case of the Dutch study area, there were data for the province of Drenthe, and for the area between Groningen and Assen, which also includes Assen. These data are different, but they show the same trend. There are fewer houses with 1–2 rooms in the area; in 2008, this was between 5–10% (VROM, 2009). The percentage of houses with three or four rooms has stayed almost the same since 1985. Between 13.7% (Drenthe) and 20.2% (Groningen-Assen) are houses with three rooms. Between 35.8% (Drenthe) and 32.2% (Groningen-Assen) are houses with four rooms. The percentage of houses with five rooms or more has increased since 1985. In Drenthe, 45% of the houses have five rooms or more; in Groningen-Assen, 3.4%. Overall, houses seem to be containing more rooms, and are therefore probably bigger as well. (WP 2 Country Report the Netherlands 2010)

In the Czech research area, detached houses comprise 86% of all (permanently occupied) houses: the same number as in the whole republic. On the other hand, 56% of flats are in detached houses – in whole country this is only 43%. (WP 2 Country Report the Czech Republic 2010)

The number of flats in Hajdú-Bihar county under the Hungarian study area was 158,134 in 2001. The average size is 70m². There are many more flats in towns than in villages, but the average size of a flat is bigger in villages. The changes in flat size are well-shown by the size of new flats. In the 1990s, the size of a newly built flat was 75–101m², while by 2005 the size of a new flat had increased to 7–35m². There are small towns and villages where lower-income households live, where the size of a new flat is less than the average, at only 90m². The new flat size is bigger in the villages and small towns of the Debrecen agglomeration, to where upper classes migrate. (Csurgó et al 2010)

In 2008 the housing supply in Potsdam consisted of 81,843 apartments (compared to 72,614 in 1999), within 84.5% apartment buildings (92% in 1999), 12.9% one-family or town houses (6.1% in 1999) and 2.5% other buildings. In the case of Potsdam-Mittelmark, in total there are 56,417 residential buildings with 92,147 flats. Most of these flats have four rooms. The living space in square meters has increased since 2000 from an average of 35.8m² to 39.4 m². (Reuswig et al 2010)

In the case of the Scottish study area, we can emphasise food and drink consumption as being important to the carbon footprint of north-east Scotland, with the city of Aberdeen's footprint at 1.07 gha/person (19%),

and 1.11 gha/person (20%) for Aberdeenshire. The council lacks influence over the food and drink sector and does not consider emission reduction options in their strategies. If there are any projects looking at reducing food miles, etc., then these are not well-publicized, although there may be some in early stages of development. (Aberdeen City and Shire Report 2010)

In the case of the Dutch study area, we have detailed information on food consumption. Eurostat has performed a survey among several European countries to assess food consumption. Results are on a nationwide level. Dutch people eat more meat on average than other Europeans. The Dutch eat 105.3kg of meat per person per year; other Europeans eat 98.5kg. According to national statistics, the Dutch ate 84.7kg of meat in 2007. The most consumed meat is pork, comprising around 40% of all meat consumption. The Dutch eat around 23.8kg of fish and seafood per year (22.6%). Dutch people spend 18.7% of their income on food, beverages and catering services (Eurostat, 2007). 2.6% of total consumption is on meat, 2.5% on bread and cereals, 1.7% on milk, cheese and eggs, 1.3% on vegetables, 1% on fruit, 0.5% on fish and seafood, and 0.2% on oils and fat. (WP 2 Country Report the Netherlands 2010)

According to the public health nutrition body (2002), Dutch people eat too few vegetables. Vegetable consumption was 135 grams per day. Fruit consumption was 180 grams per day.

In 1994, Dutch people consumed 60kg of vegetables on average per year, which is around 164 grams per day. In 2008, consumer spending on organic products increased 12.4%, from €518.9 million to €583.4 million. The total market share of organic food is 2.1% in the Netherlands (Bio-monitor, 2008).

In the case of the Czech study area, food consumption patterns are very similar to the whole country. Even if there are no precise data for whole country, some data show us food consumption trends in the last 20 years. Consumption of meat decreased slightly (about 16%), pork and beef consumption decreased, and poultry consumption increased. Milk products, oils and fats remained almost the same (with a less than 10% change). Fruit and vegetable consumption increased (about 20%). Consumption of cereal products in total remained almost the same (with a less than 10% change); only preferred types of products changed (i.e. consumption of bread decreased, pasta increased). These changes were mainly caused by the political and economical transformations of 1989. A plentiful supply of food (especially foreign fruits) and lifestyle changes (usually towards 'healthy' trends) changed food consumption patterns. But these changes shouldn't be interpreted in terms of modesty or anti-consumerism: after a big drop in the 1990s, meat consumption has slightly increased from 2001 to the current time. Patterns of food consumption are healthier nowadays than 20 years ago, but trends in vegetarianism, organic food consumption and voluntary modesty are rather rare in society. (WP 2 Country Report the Czech Republic 2010)

In the case of the Hungarian study area, national data from 2005 show half of the consumption in the country was spent on food and household maintenance. While food consumption decreased, the volume of household maintenance remained unchanged. On the other hand, the third-most significant consumption (transport and communication) increased. The share of food consumption was 26% in 2005. This amounts to 13,300 HUF (50 EUR) per capita, and 35,200 HUF (130 EUR) per household. A decrease in the volume of home-grown food has continued for years. The volume of purchased-food consumption has remained unchanged

in recent years in Hungary. Regional data from 2007 on food consumption per person show that cereal and meat consumption is more in the Észak-Alföld region than the Hungarian average. Cereal consumption per person is 92.4 kilograms in Észak-Alföld, while the Hungarian average is 88 kilograms. The amount of meat consumption per person in the region is 61.5 kilograms, while in Hungary it is 57.3 kilograms. People in the Észak-Alföld region consume fewer fruit (42.5kg/person) and vegetables (83.9kg/person) than the national average (fruit, 44.9kg/person; vegetables 85.1kg/person). (Csurgó at all 2010)

Regarding the consumption of private households, there are no detailed data available for Potsdam and Potsdam-Mittelmark. Thus, the following expenditure figures for the Bundesland Brandenburg region can be given. Consumer spending of households in Brandenburg in 2003 was around 1,895 EUR per month. Therein, the most important item was habitation and energy (598 EUR), followed by food, beverage and tobacco (288 EUR) and traffic (265 EUR). There are no data available for the annual quantity of food consumption in households. But from the expenditure for food, beverage and tobacco, an inference can be made. Households in Brandenburg have a high consumption of products with a high climate impact, like meat (49 EUR), milk and eggs (28 EUR). In contrast, the consumption of vegetables is rather low. (Reusswig et al 2010)

We can emphasize that each study area has a high consumption of products with a significant impact on the climate. In most of the study areas, meat consumption is high.

	<i>Aberdeen and Aberdeenshire</i>	<i>Assen</i>	<i>České Budějovice and Český Krumlov</i>	<i>Hajdú-Bihar County</i>	<i>Potsdam, Potsdam Mittelmark</i>
Use of cars	Significant in its carbon footprint: Aberdeenshire: No car 17,9%, 1 car: 44,9%, 2+cars:37,3%, Aberdeen: no car 33,8%, 1 car 45,5%, 2+cars 20,7%	Number of cars is increasing	Number of cars is increasing; the number of old cars is large	Number of old cars is large	Number of cars is increasing; car use is more important in Potsdam-Mittelmark
Transport system	Roads (urban and rural). Mainline rail, limited local rail.	Developed (motorway, railroad, waterway, airport)	Underdeveloped in villages (off road networks); developed in the city	Developed (motorways, railway lines, airport, etc.)	Developed
Public transport	City bus network – subsidised private company	City bus network	Mainly bus (in the city, including complex public transport services)	Bus network	Good bus network – best developed in Potsdam
Use of bicycles	Some provision being made – anecdotal increased use of bicycles in city.	No data	No data	Important	Important

Table 1.3 Household use of transport

In the case of the Scottish study area, Aberdeenshire's carbon footprint is 0.81 gha/person (14%); and the city of Aberdeen's is 0.74 gha/person (13%). Transport is a significant contributor to energy use and greenhouse

gas emissions; Transport includes the impacts associated with purchasing and maintaining private vehicles, and use public transport services. (Aberdeen City and Shire Report 2010)

In the municipality of Assen, for every 1,000 inhabitants there were 421 cars and 43 two-wheel motor vehicles in 2007. Ten years before in 1998, there were only 357 cars per 1,000 people. In the province of Drenthe, there is in total 105 km of railroad (Drenthe comprises 2,680 km²). The waterways take up 169 km, 159 km of which is canal. In the Netherlands, 1,582,563,000 tons of goods were transported in 2003. There is also a highway (the A28) connecting Assen to other cities. There are 494 km of roads in Assen (CBS, 2008). Of this, 465 km are minor roads. 29 km are main roads (provincial and state roads). In the city, people are able to use public transport, including a city bus network. There is an airport near Assen, 15 km to the north in Eelde. Eelde is the largest airport in the northern part of the Netherlands, and carried over 170,000 passengers in 2007 (*Drenthe in cijfers*) and handled almost 60,000 flights. Schiphol is the main airport of the Netherlands. It is 150 km to the west of Assen, and handles over 47 million passengers (www.infoschiphol.nl, WP 2 Country Report the Netherlands 2010)

In the case of the Czech study area, data are available only for bigger administrative regions (the South Bohemian region is one of 14 Czech regions, with 627,000 inhabitants situated in 10,056 km²). There are a relative high number of off-roads in this region, due to fact that there are many villages and small towns which do not need roads with bigger capacity. The density of the road network is high. A highway for trucks is much-needed in a north-south route, which is currently under construction. Most of the public transport provided concerns bus services, due to the lower railroad density in the area. Individual transport is commonly used, due the relative cost of the train compared to the car. The airport in Planá (near České Budějovice) became available for civilian use in 2007, although most flights have been sports flights. Public transport in the main city of the region (České Budějovice) is well-developed (including buses and trolley buses); this covers the whole city, with affordable costs and comprehensive timetabling. Due to city's location on a plateau, people often use bikes (more so compared to other Czech cities), although special bike paths are only present in some parts of the city. City public transport also covers nearby settlements which do not officially belong to the city, but are effectively suburbs (but are only some 3 km from the city limits). The amount of goods carried by railways is small, due to the bad policies of the national railway operator and the national railway owner. There are 280,469 passenger automobiles in the whole region. The development of vehicle stock is only available for the whole country. The relative number of older cars in the country is fairly big and is not decreasing. The relative number of cars aged 5–10 years increased from 20% in 2000 to 25% in 2007. More than half of all passenger cars are older than 10 years. (WP 2 Country Report the Czech Republic 2010)

In Hungary, Hajdú-Bihar county plays an important role in east-west traffic. This may be seen in the development of road transport, and also the county's railway lines. The county can be reached by four highways and one motorway. Debrecen is located on the main Budapest–Záhony railway line. Debrecen and the county have the one of the best railway networks in the country. There is one main rail line, and eight branch lines which cover the whole county and ensure connections between the settlements and Debrecen (and also providing connections with neighbouring countries). In addition, the level of transport services in small villages is very low; mostly there are only two buses per day travelling to Debrecen, as several interviewees have emphasized.

There is an airport in Debrecen owned by the City Council and operated by the Debrecen Airport Company. The airport plays an important role in the development of the county, as regards tourism. The most important public transport company in the county is Hajdú Volán, providing mass transport throughout. The company provides local public transport in Debrecen and four other towns. The number of passenger vehicles in 2006 was 148,975 in the County, which is 4.6% of the national total. Most passenger vehicles are in Budapest (19.9%) and Pest County (13.4%). In Hajdú-Bihar county in 2006, there were 138,156 cars, 773 buses, 6,360 motorbikes and 226 caravans. The average age of cars in Hungary was 10.34 years old in 2006; in Hajdú-Bihar this figure is very similar, the average age of cars being 10.57 years. The number of passenger vehicles has increased in the county, rising more than 41% between 2000–2007. The bicycle is traditionally a popular vehicle in the county, mostly in rural towns and villages; interviewees mentioned that the number of cyclists in Debrecen is increasing. Bicycles are an important part of local inhabitants' everyday transport; several travel agencies provide bicycle tour possibilities in the county. Several cycle path developments in the county are supported by European Union Funds. (Csurgó at all 2010)

Potsdam, due to its proximity to Berlin, is well connected to the federal motorway network by three motorways: the A2 (Berlin-Hannover); the A9 (Berlin-Munich); and the A10 (the Berlin Ring). Furthermore, the B1, B2, B102, B107 and B246 highways are accessible.

Potsdam and Potsdam-Mittelmark belong to the Berlin-Brandenburg public transport association (Verkehrsverbund Berlin-Brandenburg, VBB), which includes public transport operators in Berlin and Brandenburg. Regular Deutsche Bahn railways connect the region with Berlin and airports Tegel (only via bus) and Schönefeld airports. Potsdam is also connected to Berlin's rapid transport system (the S-Bahn). Furthermore, the Havelbus transport association connects Potsdam with more than 200 buses to its nine new parts and many places in Potsdam-Mittelmark. The municipal operator, Verkehrsbetriebe Potsdam (ViP), supplies various tram and bus lines in Potsdam. Individual motorized transport is also important in Potsdam, but with 37% use, it is significantly less important than in Potsdam-Mittelmark (50%). Potsdam also is a city of cyclists (20%) and pedestrians (23%), probably due to the partial character of a city of short distances (e.g. in the centre and some districts, where living and shopping are mixed). On average, an individual passenger in Potsdam travels 3.1 times per day and 8.3 kilometres per mode. Car ownership in 2003 was 395 vehicles per 1,000 inhabitants; with bike ownership, it was 753 bikes per 1,000 inhabitants. It should be kept in mind that the study on which these figures are based came from a small sample, and Potsdam is a dynamic city. Due to its growing population, car ownership and individual travel are expected to grow. In the case of Potsdam-Mittelmark, there are railways, public and private bus transport, and trams. These are, however, not accessible for every person in the same way. To the north and east of Potsdam-Mittelmark, comprehensive services are provided with all the abovementioned modes of transport. This corresponds to the fact that Potsdam and Berlin in particular are focal points for commuter movement. To the south and west of Potsdam-Mittelmark, infrastructure and transport is not as good as to the north. Individual transport is the most important transport type in Potsdam-Mittelmark. Data are from 1998, but indications are that individual motorized transport hasn't declined in recent years. Around 50% of traffic volume corresponds to individual motorized transport. The share of public transport might be higher now, but not necessarily by much. Interestingly, many inhabitants of Potsdam-Mittelmark use bikes or travel on foot. According to the Statistical Office of the Land Brandenburg and Berlin, there are 131,972 motorized vehicles in

Potsdam-Mittelmark. Most of these are cars (109,890). There are three motorways (Autobahn) that connect Potsdam-Mittelmark with the national highway network: the A2, A9 and A10. Furthermore, there are federal roads (major sub-Autobahn long-distance highways) called 'Bundesstrasse' which are also accessible: the B1, B2, B102, B107 and B246. Last but not least, at least every hour there are trains between Berlin and Belzig, and between Berlin and Brandenburg/Havel, linking the rural hinterland with Potsdam and Berlin. There are different types and ranges of roads in Potsdam-Mittelmark: 148km of motorways and 303km of highway. State roads cover 491km, and county roads 310km. Most traffic takes place on the national highways. In this respect, Potsdam-Mittelmark is more widely covered than other counties in the region. Transport (public and individual) in Potsdam-Mittelmark is increasingly influenced by the share of people travelling for leisure purposes. This may be ensued from the growing number of tourists travelling in the region. While 33% of all people travel for shopping purposes, 20% do so for work; 28 % travel for leisure reasons. Regarding long-distance transport, there is no direct access to Intercity or Intercity Express trains from Potsdam-Mittelmark's railway stations. This clearly makes public transport less attractive and may contribute to increased car use. (Reusswig et al 2010)

Energy governance in České Budějovice and České Budějovice shire The Czech Case

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1. Introduction

České Budějovice and České Budějovice shire is the name of Czech study area. This area is located in the South Bohemia region, bordering with Austria. The area is characterized by mixture of urban and rural patterns. As to urban, even industrial patterns and concentration there is the town of České Budějovice, which with near to 100 000 dwellers represents the Czech Republic's 8th biggest town; and the Temelín nuclear power plant is the newest in Europe, with an installed capacity of 2000 MW. As regards natural patterns they are represented by extensive natural and semi-natural ecosystems such as woods, lakes, a lot of fish ponds, meadows, crop fields and small towns and villages included in the UNESCO list of cultural heritage. One of these is Český Krumlov town (14 000 dwellers), a well preserved Gothic town, explored by tourists all over the world - not only from European neighbours Austria, Germany, Poland, Slovakia and Hungary, but also increasing number of visitors coming from the USA and Japan. An example of a well preserved Baroque village is Holašovice (140 inhabitants), declared as UNESCO heritage in 1995.

Our aim was to select an area with many potential factors positively and negatively affecting attempts to lower carbon emissions. The chosen study area combines traditional enclosed rural community in some areas, while on the other hand international tourism brings the main income to many local towns and villages. In low carbon related politics there are also two streams – urban development, including ongoing projects of highway construction from Prague to Linz in Austria (North – South), a railway high speed corridor under construction following the same direction; and on the Vltava river a great project of canalizing the river for tourist boats connecting Hamburg in Germany with Prague and České Budějovice, supported by the EU. Two general trends in the behaviour of people living in our selected area are also visible – save, this is traditional pattern of this former rural area, and spend – in many of new supermarkets, travelling, etc.

From the state administrative point of view, the Czech study area involves two former districts (see Chapter 3, Fig 4) – České Budějovice and Český Krumlov. České Budějovice represents in our case the area with prevailing urban parameters and Český Krumlov district represents the area with more rural character.

Almost all of the data are provided on the region level. Data accessibility is quite good when we focus also on former district level. Of course, when speaking about rural and urban areas we can often say more about trends than precise data. There are some data available for the single local settlement (municipality/village) or settlement type (according the number of population) – the settlements up to 2 000 inhabitants are perceived as rural and settlements with population over 2 000 inhabitants are urban. Some data exists only on regional or national level; in this case we used our advisory group as a source of expert estimation.

There are two basic levels of state administration in our chosen former district area:

- The first one is South Bohemian Region. The regions in their current size and organization were established in the year 2000. The region is represented by regional government and regional representative, the label is “hejtman”, with all regional competencies.

- The second level is the local municipality.

Policy and decision making are provided on the both levels – from regional to municipality level, the differences concern the extent and matter of decisions, of course.



State administration of the Czech Republic: our two districts – the study area – are located in the south with the names České Budějovice and Český Krumlov. (For details see below.)

2. Overall description of study area

2.1. Main characteristics of the study area

The first settlements in the České Budějovice district are from the Bronze Age. The centre of the area – České Budějovice – was established as a royal town by the Czech king Přemysl Otakar II in the year 1265. The city lies on the route connecting Austria with the centre of the Czech Republic on the confluence of the Vltava and Malše rivers. The location ensures benefit from trade traffic and later led to the development of local industry in the 19th century. The city is the centre of the whole South Bohemian region and it is a seat of the South Bohemian Authority. The city council provides a city bus network which extends beyond the area of the city – it serves as transportation for neighbouring villages. There are also railway and bus connections to all major Czech cities.

České Budějovice district has shown a stable increase in population in long term monitoring (since 1991). 70 % of the population lives in urban areas. 40 % of employees in the entire South Bohemian Region work in this district. Most of the rural population of the former district works in bigger settlements. The entire district has high traffic density. There are currently no highways in the former district area but it is planned to finish the building of the highway from Prague to České Budějovice as soon as possible. The main roads are the E55 to Prague and E49 to Plzeň. There are 4 important railway lines – to Prague, Plzeň, Austria and Volary in the Šumava Mts.

We can say it is the most developed district of the whole South Bohemian Region. There are three bigger settlements with self governance status in the district – České Budějovice, Týn nad Vltavou and Trhové Sviny. The district is also very interesting from the tourists' point of view – there are many historical sights including Holašovice or Neo-Gothic Château Hluboká.

Český Krumlov is the district with the second lowest population density in the entire Czech Republic; it is also the most underdeveloped district in the South Bohemian Region. More than 50 % of the population live in one of the five towns in the district. The district belongs to the areas with the highest unemployment rate in the entire Region.

The main transport connection is the road E55, there are also two railway lines in the district.

The centre of the district – the town of Český Krumlov – is on UNESCO list of world sights. The city depends on the tourism industry. The rest of the district has high environmental value which is sometimes used for its tourist potential. Šumava Mts. and Lipno Lake are traditional Czech tourist destinations. In recent years this part of the district has been discovered by foreign tourists, and there is a Dutch project for luxury Marina on Lipno Lake.

The structure of employment is available for the level of South Bohemian Region. In 2007 in agriculture worked 6 % of all employees, in industry 42 % and 52 % in services.

Both districts were historically the part of the multinational Austrian empire from the 16th century until the year 1918. Since the Middle Ages there was a considerable minority (in the case of Český Krumlov a prevailing share) of German population not only in the borderland but also in the cities and towns. This national distribution lasted also after the year 1918 when the Czechoslovak Republic was established. In the year 1938, the big part of the districts was annexed by Germany. After the WWII the German population was almost completely displaced following the Potsdam agreement.

The “empty space” was settled by a heterogeneous population from different sites of former Czechoslovakia. We can say that the “new” population of the borderland was prevailing of peasant origin. The rest of the population in our study area keeps its character. In rural areas it was peasantry with some share of handicraftsmen and population working in towns – the proportion of which differs according to the distance from bigger settlements. After WWII the process of increase of the employment of rural population in the towns and cities sped up.

One fifth of the chosen study area consists of protected areas of different levels of protection. There is a special management regime in these types of areas. In our case we have to mention National Park Šumava Mts. and the Landscape Protected Area Blanský les. The most important parts of these protected areas have the status of small area reserves. Several agricultural activities (especially activities related to intensive agriculture) are fully prohibited or limited. Due to the higher altitudes of these protected areas the temperature is lower. The vegetation of the protected areas consists of mixed and coniferous mountain and sub-mountain forests, pastures and meadows.

As renewable sources of energy in both districts we have to mention solar energy, hydro power and biomass combustion. The use of the renewable sources of energy is just beginning. In both districts there are no large sources of raw materials.

2.2. Possible low-carbon energy sources

The main goal of current Czech energy policy is to increase the share of renewable energy sources in the whole consumption of primary energy to 8.9 % in the year 2010 and circa 15.7 % in the year 2030. Biomass should cover about $\frac{3}{4}$ of this share. The share of the energy from renewable sources was only 4.3 % in 2006 and the biomass covered $\frac{1}{4}$ of this share at that time.

Wind power: The appropriate altitude for wind turbines is between 500 and 690 meters in our conditions, and wind speed averages almost 5 m/s. The Šumava Mountains and Novohradské Mountains are the most suitable areas. In Novohradské Mountains there is not such risk of conflicts with environment protection (according to a survey by the Czech Statistical Office). The total extent of the suitable area is 56.8 km². The Novohradské Mountains are divided into areas with some level of protection (about 5 %) and the area without any protection (95 %). There is only one other important wind farm in the study area in the municipality of Vrábče. Installed capacity is 12 kW.

Water power: The most important river in the study area is the Vltava with inflows of the river Malše in České Budějovice and the river Lužnice in Týn nad Vltavou. The Římov Dam on the Malše river serves as the reservoir of drinking water for most of the entire South Bohemian Region. Hněvkovice Dam on the Vltava River was built due to the building of the Temelín nuclear power plant. Most of the suitable places for building hydroelectric plants are already in use. The Vltava River flowing through both districts of our study area has the biggest useful hydro energetic potential of rivers in the country for power plants under 10 MW. The opportunity to build more hydroelectric plants is in the mini and micro water power plant category; building new bigger power plants would be very complicated from the environmental protection point of view.

Solar power: This is the most promising source of renewable energy in the study area. Several specialized firms are running businesses in this branch of energy production and a lot of successful installations exist as a proof of this fact. In the neighbourhood of the town of České Budějovice there are two installed photovoltaic power plants in the villages Homole and Planá. There is still considerable solar production potential in the firms and households in the study area.

Heat pumps: The most common type in the area is the compressor heat pump. The use of heat pumps has promise due to subsidies. There are cases of whole village being heated by heat pumps in the Šumava Mountains. This trend is displacing another, traditional, type of renewable energy – wood heating.

Biomass: Without doubt, the most important renewable source of energy in the entire studied area is biomass. The biomass sources used for energy production are specially cultivated plants or the waste from agriculture, food or the wood cutting industry. Agricultural land is used for maize, potato, rape and other crop production.

A lot of villages, households and institutions use biomass (bio-garbage) for electric power production or biogas production. The municipality of Dříteň uses biomass for heating for 90 % of the entire village. The municipality has its own wood chip machine and a 3 hectare plantation of fast-growing wood species.

A decrease in arable land and increase in pasture and meadow is evident in recent years, especially in marginal areas (the district of Český Krumlov in our study area); this fact relates to extensive management supported by subsidies.

The knowledge of the local population about renewable sources of energy use is still insufficient. However there are many NGOs running consultant services. As far as we know there is no specific research dealing with public know-ledge of renewable energy sources. But we can estimate from previous surveys related more generally to the environment that the people open to these types of arguments and alternatives are those with higher educational levels.

The electric power and natural gas supply are provided by E.On company in the study area. Since January 1st, 2006 households gained the right to choose their providers and the market was fully liberalized. Data at the regional (NUTS III) level are available for annual gross electric power consumption for the South Bohemian Region in the period of 2001 – 2007. South Bohemia region is in second place for electric power consumption per capita in the entire country.

We have to mention some basic data relating to the entire country level. Czech dependency on the import of strategic energy raw materials is 70 %. The EU estimates Czech can save 20 % of energy consumption by 2020 – of course this depends on progress and change in consumers' behaviour. Primary energy supply in Czech consists of fossil fuels (42 %), oil (21 %), gas (18 %), nuclear energy (15 %) and renewable sources (4 %) in year 2005. Fossil fuels were the most important source of all energy produced in Czech (72 %); nuclear energy was the second most important source (21 %) in year 2004.

2.3. Settlements and administrative structure

Population size and density (data for the year 2007)

Our area of interest consists of two districts in the South Bohemian Region, the two districts are shown in red on the maps below, the rest of the region in orange).

České Budějovice district has 180 986 inhabitants; its population density is 110 inhabitants per square km.

Fig. 1 Location of České Budějovice district



The population of Český Krumlov district is 60 708 inhabitants and the population density is 38 inhabitants per square km.

Fig. 2 Location of Český Krumlov district



Number and size of settlements (city, town, village)

There are two approaches to the settlements hierarchy. The first one (used for the project purposes) is statistical. The Czech Statistical Office draws the line between rural and urban area (village and town) at 2 000 inhabitants per settlement. The second approach is historical – some Czech settlements of the size of villages (less than 2 000 inhabitants) could have the status of township or town due to the historical development of the area – the status was given by a king or emperor.

České Budějovice and Český Krumlov districts are very different when comparing the distribution of population among settlements of different sizes.

České Budějovice district. České Budějovice city is the only city with population over 50 000. Its population is more than 95 000 and it is more than half of the population of the entire district. There are no settlements between 10 000 and 50 000 inhabitants. There are 11 small towns with from 2 000 to 10,000 inhabitants (only one with between 5 000 and 10 000). The rural area consists of 13 settlements with population

from 1 000 to 2 000 inhabitants, 19 settlements of from 500 to 1 000 inhabitants, 42 villages with population between 200 and 500 inhabitants and 23 villages with under 200 inhabitants. In the district there are 12 settlements in the urban area and 97 in the rural area – but this is a very rough differentiation. It needs to be said that we can find relatively small settlements (statistically counted in the rural area) as parts of the towns or suburbs in both districts of our study area.

Český Krumlov district. There are no large towns in the district. The biggest is Český Krumlov with about 14 000 inhabitants in the category 10 000 to 20 000 inhabitants. In the category between 5 000 and 10 000 inhabitants there is only one town, 5 towns or townships with from 2 000 to 5 000 inhabitants. The settlements with populations from 1 000 to 2 000 are represent by 9 villages, there are 16 settlements between 200 and 500 inhabitants and 5 villages with under 200 inhabitants. There are 7 settlements in the urban area and 39 in the rural area.

Age structure of the population

The age structure of the population is very similar in both districts: the share of the population aged under 15 is between 15,2 % and 15,7 %, the share of population in the productive age (15-64 years) is between 71,1 % and 72,7 % per cent, the proportion of post-productive population is slightly greater in České Budějovice district – the difference is about 2% – (13,7 % to 11,6 %).

	<i>0 - 14</i>	<i>15 - 64</i>	<i>65 +</i>	<i>total</i>
České Budějovice district	1 059	1 011	689	964
Český Krumlov district	1 059	1 050	713	1 005

Table 1. Number of males per thousand females

<i>Region, administrative districts of municipalities with extended competence</i>	<i>Population aged</i>			<i>Males aged</i>			<i>Females aged</i>		
	0-14	15-64	65+	0-14	15-64	65+	0-14	15-64	65+
TOTAL POPULATION									
České Budějovice district	26129	132 051	26 076	13 436	66 388	10 638	12 693	65 663	15 438
Český Krumlov district	9 649	44 377	7 235	4 963	22 734	3 011	4 686	21 643	4 224
URBAN POPULATION									
České Budějovice district	17759	93 276	18918	9098	46 432	7628	8661	46 844	11290
Český Krumlov district	4 343	21 917	3 706	2 188	11 156	1 541	2 155	10 761	2 165
RURAL POPULATION									
České Budějovice district	8 370	38 775	7 158	4 338	19 956	3 010	4 032	18 819	4 148
Český Krumlov district	5 306	22 460	3 529	2 775	11 578	1 470	2 531	10 882	2 059

Table 2. Population, age dependency, sex and place of residence

Migration and population increase

The population of the districts slightly increased over the past 10 years. The population of České Budějovice district was 178 700 inhabitants in the year 2000 and increased to 186 151 in the year 2009. The

population of Český Krumlov district increased from 59 301 in the year 2000 to 61 616 inhabitants in 2009. For the migration trends see Table 3.

	Immigrants	Emigrants	Net migration
České Budějovice district	25 094	17 596	7 498
Český Krumlov district	11 117	10 280	837

Table 3. Last decade migration trends (total number of people per years 2000-2009)

Dynamics of population change between urban and rural areas

The dynamics of population change are monitored for settlements with a population of 2 000 inhabitants and higher. The timeline from the period of 1998-2004 shows a general decrease of population caused by emigration. This trend is more evident in bigger settlements (former district administration centres) in our case the towns České Budějovice and Český Krumlov. Most of the town municipalities in České Budějovice district had an increase in population after 2005. Český Krumlov district, however, had an increase only in the years 2005 and 2006.

In the last decade there has appeared a massive trend of building suburbs in the former rural area – in the 10 km surrounding rings of bigger towns (especially former district administration centres). In the centres of the towns it is very common for green areas to decrease, mostly due to new transportation infrastructure. Suburban greenery is disappearing due to the building of shopping centres and supermarkets on the outskirts of the towns.

Increase and decrease of population

The data taken from the South Bohemia development programme from March 2008 analyzes the demographic situation and should serve as a forecast to the year 2026.

The chosen scale of this evaluation was:

- Areas very endangered by depopulation
- Areas endangered by depopulation
- Areas with increase of population
- Areas with big increase of population

The data show that most of the areas of both districts have had a big increase of population in recent years, and probably this will continue up to the chosen time horizon of 2026. Our two districts can be divided into 11 smaller administrative areas. Only 3 of them are considered as “Areas endangered by depopulation” (boundary areas), 1 is an “Area with increase of population” and rest, 7 areas, are considered as “Areas with big increase of population”.

Dynamics of territory permanently urbanized over the last few decades

The period from 1950 to 1980 saw fast growth of small and mid-size towns and an evident decrease in big cities' development. Historical town centres were enlarged with new quarters with modern infrastructure. The increase in the number of flats in the urban area caused an outflow of rural population. The development of mass transportation enabled new enlargements of urban areas and the rise of the suburbs. The growth of the urban area slowed down in the 1980s because the urbanization process was near to its saturation level. People looking for places with better environmental conditions, in combination with increasing population mobility, caused some return to rural areas.

Since 1994 the popularity of smaller municipalities (1 000 to 5 000 inhabitants) has grown at the expense of big towns. České Budějovice has an annual decrease of 800 to 1 000 inhabitants. The inhabitants are moving to villages in the neighbourhood of the town. The annual decrease of population in Český Krumlov town is between 100 – 200 inhabitants.

2.4. Consumption and transport of households

Household structure and equipment

There is an obvious trend in our area (as well as in the whole country) of slightly decreasing numbers of people per household. Also, the number of children (dependent children in household) per families has decreased. The number of 1-person households increased. We have precise data for the years 1991 and 2001, and we can assume that this trend has continued.

	People per household		Family households*				1 person households**	
	Economic households	Flat households	0 dep. children	1 dep. child	2 dep. children	3+ dep. children	Economic households***	Address households
1991	2,6	2,8	42 %	26 %	26 %	6 %	25 %	24 %
2001	2,5	2,7	49 %	25 %	23 %	4 %	29 %	24 %

* Percentage of all family households.

** Percentage of all households.

*** All people living at one address make up an "address household", while an "economic household" consists of people living and running the household together (including children).

Table 4. Structure of households in 1991 and 2001

	Number of houses*			Number of flats (accommodation units)			Number of people	
	Family**	Block of flats	All	In family houses	In block of flats	Total	In family houses	Total
	32 955	4 559	38 187	49 449	38 496	88 714	107 834	237 568

* Not all, but only permanently occupied houses and flats.

** Houses with usually 1-2 accommodation units, usually occupied by 1-2 economic households. Most often detached houses, sometimes semi-detached.

Table 5. Housing and flats (2001)

In our area family houses (for explanation see note in Table 5) make up 86 % of all (permanently occupied) houses, that is the same number as in whole republic. On the other hand, 56 % of households are in family houses, while across the whole country this number is only 43 %.

In years 1997-2007 altogether 8 010 accommodation units were built in Budějoviceshire, 60 % of them in family houses. The number of finished houses in 2005 (1 094) or 2006 (995) was more than twice that in year 1997 (475).

	Houses with		Heating in households*				Household area	
	Gas pipeline	Central heating	coal	wood	electricity	gas	Area per household**	Area per person***
	15 760	29 138	15 795	7 327	6 766	21 445	77 m ²	18,7

* These figures cover only approx. 60 % of houses, but no other data are available.

** Total area per household.

*** Living area per person in household.

Table 6. Other housing features (2001)

The proportion of households with central heating in our area (76 %) is almost the same as in the Czech Republic as a whole (76 %), while the number of households with a gas pipeline differs more (41 % in Budějoviceshire, 57 % in Czech). Area per household corresponds in Budějoviceshire and in Czech, as well as area per person (18,7 m² and 18,6 m²) and number of people per flat (2,7 and 2,6).

Rural and urban areas

To differentiate rural and urban areas we use the limit of 2 000 inhabitants. Smaller settlements are rural and bigger urban for us. There are only slight differences between the structure of rural and urban households in our area. Almost ¾ of people in our area live in urban settlements (in the whole country this number is 74 %). The next table shows that there are almost no differences in household structures between rural and urban area, but this does not mean there are no differences in lifestyles.

	People in	Percentage of people		Economically non-active*		People per household	
		Economically active	Economically non-active	Pensioners	Dependent children	Economic household	Address household
Urban	72%	53 %	46 %	20 %	18 %	2.4	2.6
Rural	28%	52 %	48 %	21 %	18 %	2.6	2.9
Whole region	100%	53 %	47 %	20 %	18 %	2.5	2.7

* In percentage of all people in each type (rural/urban).

Table 7. Rural and urban households (2001)

Income, expenditure and food consumption

Average wages and income per capita per household are approximately 5 – 10 % lower than the Czech average (which is highly influenced by the main city Prague), so information for our region in Table 8 is our expert assessment.

	1990	1996	2002	2007
Our region*	23 223	59 151	86 632	117 010
Czech Republic	24 971	63 604	93 153	125 817

* Expert assessment according to data from CSO.

Table 8. Average net income per capita per household per year (in CZK)

From 1993 (older data are not available) nominal wages in the Czech Republic have rapidly increased (6 – 18 % per year). Real wages also increased (1 – 8 %) with one isolated drop in 1998 (-1 %).

Despite the fact that the average income in our area is approx. 5 – 10 % lower than in the whole country, the proportional expenditure of households is almost the same. Data in Table 6 are originally for the whole Czech Republic, but they are valid also for our region.

	1990	1996	2002	2007
Food	25.7 %	24.9 %	20.6 %	17.4 %
Housing, electricity, water, gas, and fuels	9.7 %	13.7 %	20.3 %	17.2 %
Transport	11.2 %	11.1 %	9.2 %	9.3 %

* In percentage of total amount of net money expenditure.

*Table 9. Structure of households expenditure (1990-2007)**

Food consumption patterns in our region are very similar to those in the whole country (there is no way to find them out for our region). There are no precise data even for the whole country, but some data show food consumption trends in the last 20 years. Consumption of meat decreased slightly (about 16 %), pork and beef decreased, poultry increased. Milk products, oils and fats remained almost the same (change less than 10 %). Fruit and vegetables increased (about 20 %). Consumption of cereal products remained almost the same (change less than 10 %), only the preferred types of products changed (i.e. bread decreased, pasta increased).

These changes are mainly caused by the political and economical turnover in 1989. Plentiful supply of food (especially foreign fruits) and lifestyle changes (usually in a „healthy“ direction) changed food consumption patterns. But these changes shouldn't be interpreted in terms of frugality or anti-consumerism, i.e. after a big drop in the 90's, meat consumption has slightly increased from 2001 to the present. Patterns of food consumption are nowadays healthier than 20 years ago, but vegetarianism, organic food and voluntary frugality are rather rare in society.

Transport

When data are available only for bigger administrative region (South Bohemian Region, one of 14 Czech regions, 627 000 inhabitants, 10 056 km²) we put here expert assessment for our region. If there is not any date written, all data are for year 2007.

Roads and railways network

There is a relative high number of minor roads in our region, due to fact that there are many villages and small towns, which do not need roads with bigger capacity. The density of the road network is high. A much needed north-south highway for trucks is under the construction.

	Motorways	Main roads	Off roads	Railways	Airports**
South Bohemian region	16	611	5 437	952	1
Our region*	0	150	1 450	240	1

* Expert assessment.

** Number of airports.

Table 10. Roads, railways and airports (in km)

Passenger and goods transport

Most of the public transport is provided by buses, due to lower railroad density in our area. Also individual transport very often, due the expensive cost of the train (compared to car). Planes are used very few. Airport in Planá (near České Budějovice) became civil airport in 2007, but most of all flights (Table 11) are sport flights.

	Railway	Bus	Airplane*	Car**
SB region	8 282.3	21 595.7	12	180 000
Study area**	2 760	7 500	4	70 000

* Thousands of flights.

** Expert assessment.

Table 11. Passenger transport per year (in thousands of passengers)

Public transport in the main city of region (České Budějovice) is well developed (buses and trolley-buses), and covers the whole city, with acceptable costs and fair frequency. Due to the city's flat terrain people also often use bikes (compared to other Czech cities!), although special bike paths are only in some parts of the city. City public transport also covers the closest settlements which officially do not belong to the city but in fact are almost its suburbs (but only to approx. 3 km distance from the city's edge).

	Railway	Roads
SB region	2 541	33 120
Study area*	847	11 040

* Expert assessment.

Table 12. Goods transport per year (in thousands of tonnes)

Automobile statistics

There are 280 469 passenger automobiles in whole SB region, in our region the expert assessment is for 97 000 cars. Figures on vehicle stock are available only for the whole country; our study area has about 2,3 % of the total stock of passenger cars in the Czech Republic.

	2000	2003	2004	2005	2006	2007
Total number	3 438 870	3 706 012	3 815 547	3 958 708	4 108 610	4 280 081
by age category						
Up to 2 years	250 535	288 382	279 127	257 013	254 113	259 216
2-5 years	479 357	443 742	443 929	458 475	465 992	466 373
5-10 years	687 773	881 230	1 005 702	1 090 780	1 107 725	1 074 250
Over 10 years	2 021 205	2 092 658	2 086 789	2 152 440	2 280 780	2 480 242

Table 13. Passenger cars registered in Czech Republic

Table 10 shows that the relative number of older cars in Czech is high and is not decreasing. The proportion of cars 5 – 10 years old increased from 20 % in 2000 to 25 % in 2007. More than half of all passenger cars are older than 10 years.

Economic activity

	Employed**	Agriculture, forestry and fishing	Industry and construction	Market and non-market services	Unemployed
SB region	311.8	6.2 %	42.2 %	51.6 %	4.5 %
Study area*	122	6.2 %	38.8 %	55 %	4.5 %

* Expert assessment.

** Thousands of people (absolute number).

Table 14. Economic activity

3. Description of the governance structure of the study area

3.1. Overall description of the governance structure in the case-study area

Public Administration in the Czech Republic

In principle, the state administration in the Czech Republic is performed in a certain territory by the operating self-governing territorial units (municipalities and regions). First, it is necessary to distinguish between state authorities and authorities of self-government. The highest state authority is the Czech government, followed by different ministries, other “central bodies of the state administration” and other state authorities, bodies and agencies, which are controlled “from the top” and perform the state administration through their local and relevant units in all the territory of the country. Based on the law, the performance of the state administration can be delegated to municipalities or regions. Municipalities and regions perform, besides this so-called “delegated state administration“, also the public administration in their “own competence“.

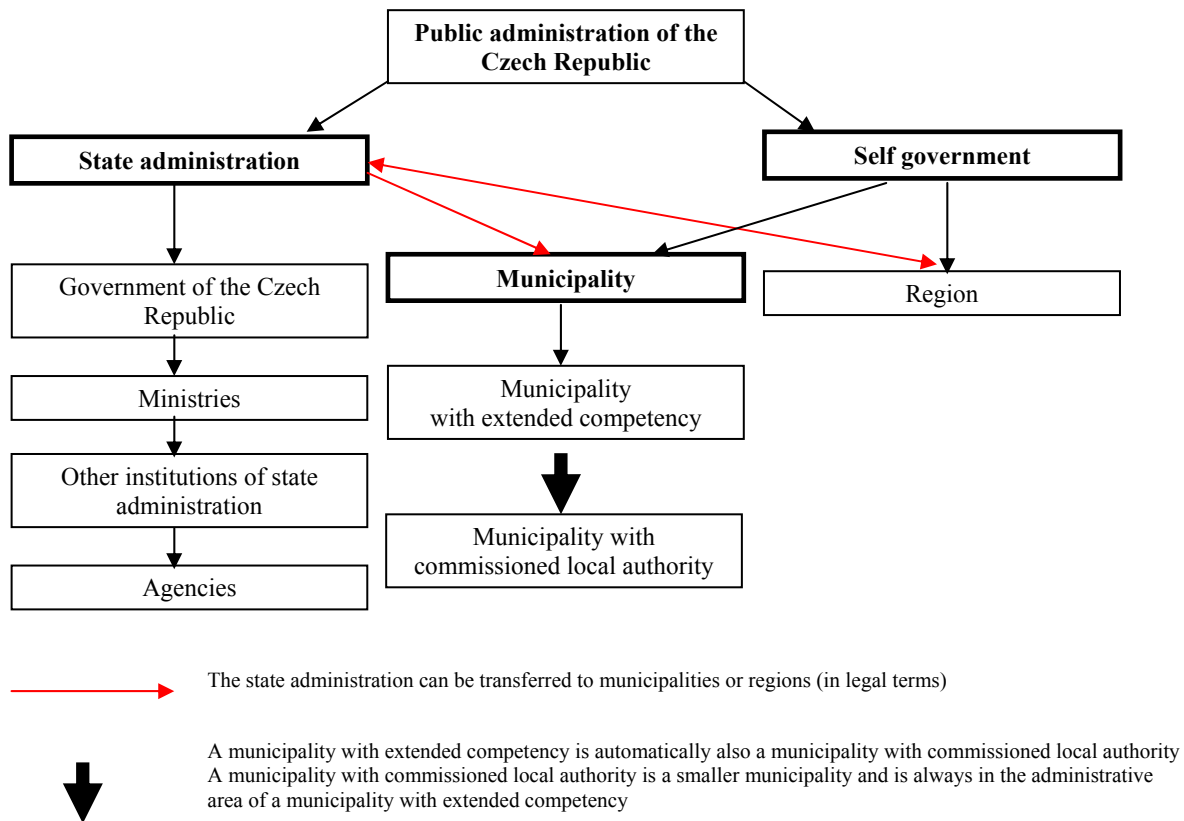


Fig.3 Public administration of governance in the Czech Republic

Until December 31, 2002, in the Czech Republic there were district authorities which had their competences within the self-government of selected districts. In 2003 particular competencies of the district authorities were partially taken over by regional authorities and partially by municipal authorities with extended competence. The territories of former districts have been divided into so-called administration districts, which are under municipalities with extended competence. In general the administration and competences were decentralized – a shift from the state to the regions and municipalities.

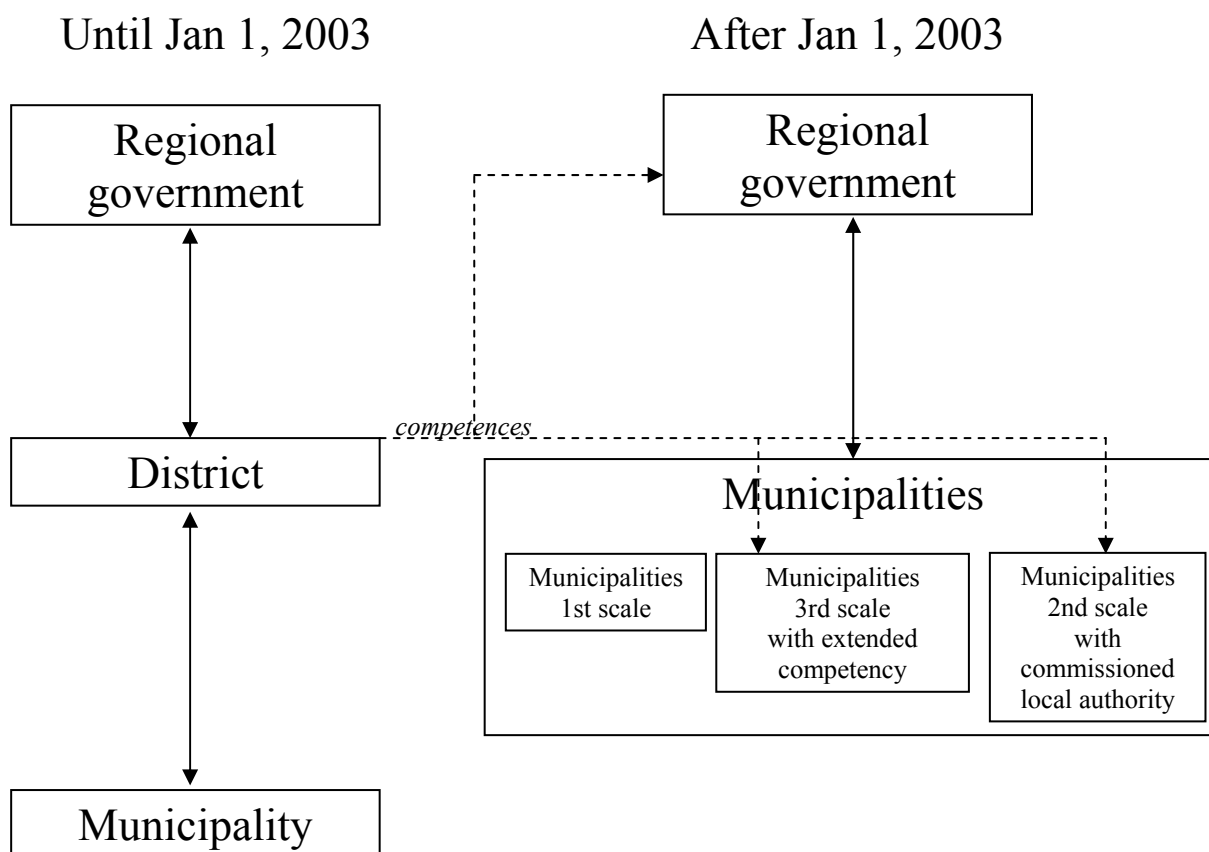


Fig. 4 Change of regional governance

abbreviation	Czech administrative unit	Number in the Czech republic	Name	Name
NUTS 0	State	1	ČR	ČR
NUTS 1	Area	1	ČR	ČR
NUTS 2	Large region	8	Jihozápad (Southwest)	Jihozápad (Southwest)
NUTS 3	Region	14	Jihočeský (South Bohemian Region)	Jihočeský (South Bohemian Region)
NUTS 4	District	77	České Budějovice	Český Krumlov
NUTS 5	Municipality	6 249	109	42

Table 15. Compatibility of Czech regional bodies with EU NUTS

Units of local government and their competencies

Municipality

The basic unit of local government is the municipality. The municipality is understood as a territorially bordered self-governing unit.

Municipal bodies

The Municipal Board is the body that independently manages the municipality. The Board elects the mayor from its members. The mayor represents the municipality in relation to third parties, and is responsible to the Board.

Municipal competencies

Municipalities manage their own business independently in their own competencies. Responsibilities of the municipality are legally defined, and include the creation of conditions for social development and the satisfaction of the needs of citizens in compliance with local conditions and habits (§ 35, Act No. 128/2000 Coll., on municipalities).

Delegated power

With regard to delegated power to perform the tasks of the state administration, the municipalities are divided into the following categories:

- *municipalities* (§ 61 I a) Act 128/2000 Coll.); (1st scale municipality)
- *municipalities with commissioned local authority* (§ 64 Act 128/2000 Coll., Act No. 314/2002 (2nd scale municipality or MCLA) on designating municipalities with commissioned local authority, and designating municipalities with extended competence, Ordinance No. 388/2002 about designating administrative districts of municipalities with commissioned local authority and administration offices with extended competence.) Currently there are 388 municipalities with commissioned local authority in the Czech Republic. An MCLA always belongs to the administrative district of a municipality with extended competence (see below). The administrative district of the municipality with commissioned local authority does not have to create a contiguous territory.
- *Municipalities with extended competence* (§ 66 Act 128/2000 Coll., Act 314/2002 Coll., Ordinance 388/2002 Coll.). (3rd scale municipality or MEC) Currently there are 205 municipalities with extended competencies in the Czech Republic. A municipality with extended competency is also a municipality with commissioned local authority. These municipalities with extended administration partly substitute the function of district authorities.

Regarding the difference between local governments in urban and rural areas, it can be said that MECs and MCLAs are usually towns.

Region

The region is the largest sub-national self-governing territorial unit. A region has its own property and own income defined by law, and manages and controls this money. In legal relationships, the region acts on its own behalf and bears responsibility for these relationships.

Regional bodies

The Regional Council (rada kraje) independently manages and controls the region. The governor and vice-governor(s) are elected from the members of the Regional Board. The executive body of the region is the Council, which consists of the governor, vice-governor (or vice-governors) and other members elected from the Board. The Regional Authority (Krajský úřad) is another regional body. It executes the tasks in its own competence assigned by the Board or Council, and performs delegated state administration.

Scope of the regions

The state can intervene in local government only in the case of a breach of the Constitution or a law. The regional bodies are subordinate to the relevant ministries and have to reflect standards issued by the relevant superior bodies. Competence of the region is defined by the Act No. 129/2000 Coll. “Act on regions”.

According to the “Act on regions”, the competencies of the region are:

- Financial management of the Region;
- Budgeting and annual balance of the region;
- Managing financial funds of the region;
- Deciding about staffing and bonuses of the Regional Authority and special regional bodies;
- Issuing generally obligatory ordinances;
- Presenting bills to the Chamber of Deputies;
- Presenting proposals to the Constitutional Court for cancellation of legal regulations if they are regarded to be in contradiction to the system of law;
- Coordinating development of the region;
- Approving territorial planning documents for the region and declaring their generally obligatory parts as a general obligatory ordinance of the region;
- Deciding about the cooperation of the region with other regions, as well as international cooperation;
- Setting the scope of basic transportation services for the region;
- Setting penalties under the law (in our case especially for air and water pollution).

According to the relevant laws, the competencies of the region are:

- Development of policies for the protection of landmarks, and maintenance and reconstruction of historical landmarks;
- The secondary school system, apprentice schools, special schools and academies of music;
- Supervision over the operation of hospitals, retirement homes, social-educational houses and special nursery schools;
- Establishment and operation of facilities for health care, emergency service, and “sobering-up” stations;

- Protection against abuse of alcohol and drugs;
- Development of policies for waste management;
- Participation in proceedings on environmental protection, working out projects for the protection of the environment.

Local governance of study area

There are 109 municipalities in the České Budějovice district. This includes 3 MECs: České Budějovice, Trhové Sviny, Týn nad Vltavou, 4 MCLAs and 102 municipalities of the 1st scale.

The number and population of towns and other municipalities in the district of České Budějovice is as follows:

	Number of inhabitants
Towns (9)	129,953
Other municipalities (100)	54,303
Total	184,256

Table 16. District of České Budějovice

In the part of the study area belonging to the Český Krumlov district there are actually 46 municipalities - 2 municipalities have the status of MEC (Český Krumlov, Kaplice) and 4 are MCLAs (Český Krumlov, Horní Planá, Kaplice, Vyšší Brod) the rest have the status municipality of the 1st scale.

The number and population of towns and other municipalities in the district of Český Krumlov is as follows:

	Number of inhabitants
Towns (7)	30,335
Other municipalities (39)	30,926
Total	61,261

Table 17. District of Český Krumlov

- On regional and local level in our focused district the environmental administration are:
- Municipal Office – Department of Environment
- Municipality of the City of České Budějovice – Department of Environment,
- Czech Inspection of Environment,
- Municipal Office Český Krumlov – Department of Environment and Agriculture
- Municipal authorities with extended competence – Department of Environment

Involvement of actors in local governance

Governance and NGOs

In the district of Český Krumlov in 2008, there were 12 NGOs registered in total. Only one of them is focused on ecology.

In the district of České Budějovice in 2008 there were 42 NGOs registered in total, of which there are 12 non-profit organizations dealing with ecological and environmental activities.

NGOs or representatives of the local population are often members of the advisory panel as a part of the agreement process of strategic documents (from municipal to regional level). They comment on the content of documents, control or monitor achievement of their goals and make suggestions for updating them. Unspecific decision making process NGOs can be participants when they apply for this role.

This role is most visible at the moment when starting new building projects, especially in the towns and cities because of their impacts on the wider population. The greenhouse gases emissions are mostly used as supportive arguments for the whole campaign. The most recent example is from České Budějovice. In the wider centre of the city a new shopping centre called “Černý Pelikán” was planned, which will negatively influence the quality of living of the entire quarter. Active citizens established an NGO - Civic Association (“Občanské Sdružení” in Czech) and fought against this building in the framework of the area management process (“územní řízení” in Czech). The activity of this association involved an information campaign, a petition as a supportive tool and active participation in the decision making process. Despite all these activities the association lost this fight with the future shopping centre. But this example describes the involvement of ordinary citizens and NGOs into public thing generally.

Local Action Group (LAG)

LAGs represent partnership between the public and private sector on the local level. The participation of the private sector has to be 50 % minimum in the decision-making platform. The private sector is defined as economic and social partners, civic society representatives for example farmers, women, NGOs etc.

Local action groups are focused on partnership in local development. Their function is to make suggestions for the complete strategy of local development. LAGs are responsible for the implementation of the LEADER strategic plan. The role of a LAG is to choose the projects consistent with the LEADER strategic plan to be financed in the framework of the rural development program.

Existing LAGs in our study area:

LAG Blanský les-Netolicko o.p.s.

LAG Českokrumlovsko o.p.s.

LAG Pomalší, o.p.s

LAG Sdružení Růže

LAG Vltava, o.s.

LAG Hlubocko - Lišovsko o.p.s¹⁴

As an example, the LAG Sdružení Růže includes 23 municipalities with more than 26 thousands inhabitants. The LAG was established in January 2004 and its members are municipalities, NGOs, businessmen

¹⁴ The abbreviations: o.p.s. stands for Public Service Copany; o.s. stands for Civic Association.

and the active population of the region. The location of the LAG area is southeast from České Budějovice. In the last 4 years they gained for the LAG region via LEADER Programme the sum of 22,5 million CZK.

In the LAG's long term goals and several project fiches for the period of 2007 – 2013 there is evident an emphasis on energy savings topics.

One of the long term goals is to improve the energy balance of public buildings and make their functioning more efficient.

The project fiches are more general, however the topics of fiche 2: Infrastructure for per-school education (17 % of the budget), and fiche 6: Conditions for social services and health care (9 % of the budget) cover the topic of improvement of energetic balance of public buildings.

In fiche 3: Competitiveness of agriculture (8 % of the budget) support for local agricultural production is declared.

The total amount of subsidy for this financing period from the last three calls was nearly 14 million CZK.

Among the LAG activities supporting cooperation within the region are:

- labelling of local products
- exchange of know-how on energy savings - excursion to Austria
- exchange of know-how on local agricultural production - excursion to Austria

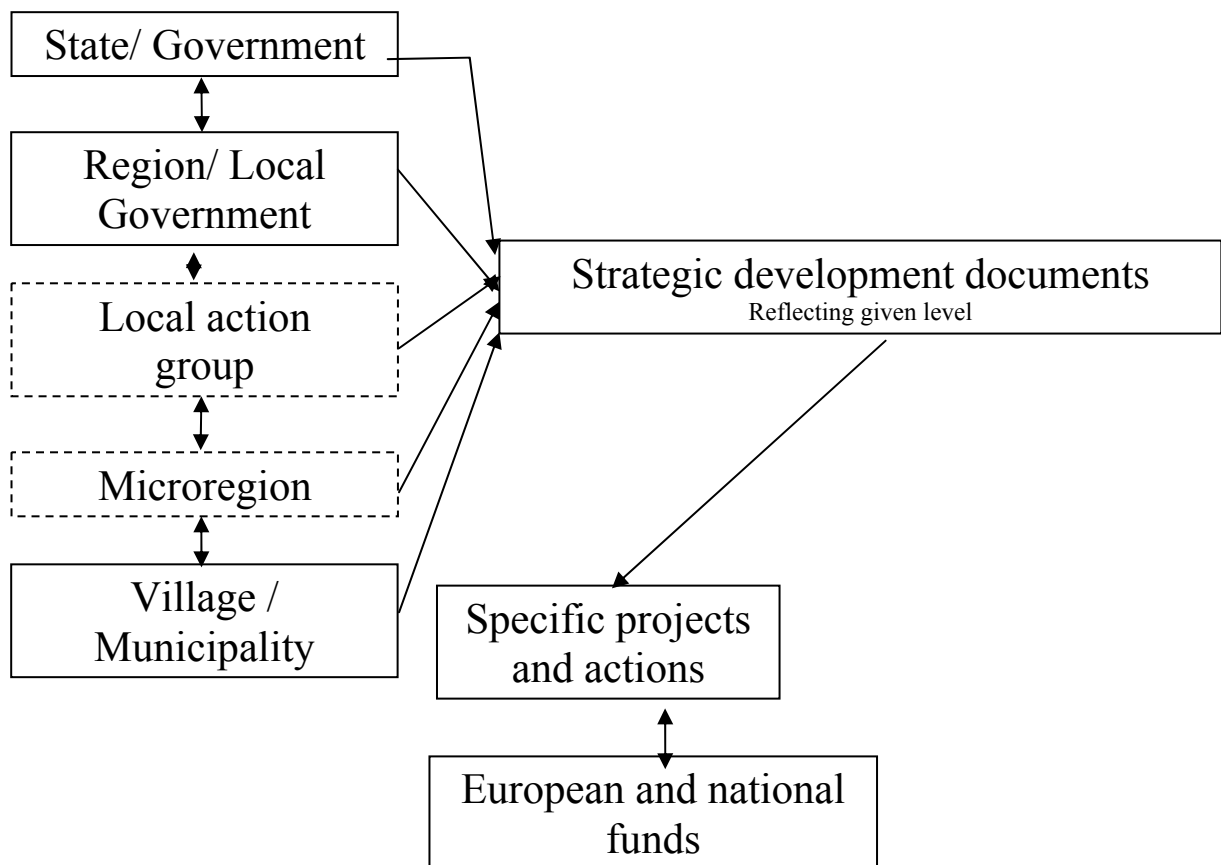


Fig. 5 Scheme of financial flow between administrative levels

Local action groups (LAG) and microregions play specific roles in self-government. In fact they are voluntary associations of municipalities following the same development vision.

Methods of planning, decision-making and implementation: participants, role of project

There are development plans on every level of state or self administration which can serve as a base for subsidy application and define the directions of future development. Very roughly it can be said that subsidies for municipalities over 500 inhabitants are related to Regional operational programmes (in NUTS II units). The municipalities with under 500 inhabitants can apply for financial support mostly in the programme of rural development. Another chance to apply for support is to establish a Local Action Group and prepare locally oriented subsidy ideas. Moreover there is a large number of subsidy programmes oriented to specific topics – operational programmes.

We will mention a case regarding the strategic development plan for České Budějovice. The work on this plan began in May 2007. There were 5 thematic workgroups:

- transportation and technical infrastructure,
- sustainable area development,

- the quality of life of the population,
- economic development,
- health and social care and education.

Public participation on the strategic plan had three levels:

- Questionnaire survey
- Online form on the authorities' websites for public comments
- Public meetings

There were 4 meetings of workgroups. The work continued with a process of evaluation of proposals via e-mail. A socio-economic profile of the city was produced in July 2007. In October 2007 a SWOT analysis was compiled for each thematic area and after their evaluation these were fed into an overall analysis for the entire city. A proposal for 4 priority areas for the period of 2007-2013 was prepared during autumn 2007. At the same time a Strategic Environmental Assessment process had begun, which lasted until the January of 2008. In the last quarter of 2007 the implementation and financial plans were created. In November 2007 there was public consultation on the strategic plan. In March 2008 the proposal was given to city representatives. The strategic plan was evaluated in April 2008 and the results were presented to the public in May 2008. The Environmental impact assessment of the plan was presented to the public in June 2008 and in July 2008 the agreement of the Department of Environment and Forestry of South Bohemian Region was given. Finally on September 4, 2008 the final form of the strategic plan. Simultaneously with the strategic plan, an integrated plan for city development was prepared, which could serve as a bridge between particular projects and financial opportunities.

Differences between rural and urban local government

Municipalities of the 1st scale have mostly only a mayor and the representatives (no professional council staff). Municipalities of the first scale cover all settlements under 2000 inhabitant – in our terms most of the rural area. The municipalities of the 2nd and 3rd scale (MCLAs and MECs) are mostly in the urban areas. They have a professional staff to solve problems in areas such as environmental protection or social care. These municipalities are the responsible body in these fields of action.

Adamov – 1st scale municipality – rural area

- No special competences

Nové Hradý – 2nd scale municipality – Municipality with commissioned local authority

– structure of the office – urban area

Departments

- Registry office
- Construction administration/ Building Office

Trhové Sviny – 3rd scale municipality – Municipality with extended competence – structure of the office – urban area

Departments

- Trades Licensing Office
- Department of transport- administration agenda
- Department of education
- Department of inner affairs and defence
- Department of environment
- Construction administration/ Building Office

3.2. Progress state of government/governance change

Soon after the velvet revolution the new emerging actors in the environmental field were NGOs. They took the initiative in the topics of energy savings and air pollution, and in comparison with the state administration they were well-informed and had knowledge from their colleagues from foreign countries. In several cases they have already prepared a programme of energy savings. The NGOs (especially environmental ones) were perceived as rivals and troublemakers by the state administration during the whole of the 90's. The main shift in position of NGOs can be seen now (after our EU accession in 2004). NGOs became partners in negotiation, they are asked to comment on the steps taken by the state administration, etc... However the co-existence of state administration and the NGO sector has its limits. Typical NGOs with aims concerning climate change and energy savings are "Hnutí DUHA" and Calla.

Hnutí DUHA, Friends of the Earth, Czech Republic

"Hnutí DUHA" – Friends of the Earth Czech Republic, described as "the most influential environmental organisation in the country" by two national dailies independently, and generally considered as one of the leading Czech NGOs, works on environmental and civic society issues on the national, local and international level.

With more than 30 staff, dozens of regular volunteers and some 15 local groups, it runs high profile campaigns on issues such as renewable and nuclear energy, climate change, nature conservation, national parks, forestry, waste recycling, ecological agriculture, environmental impact of mining and public participation in environmental decision making. Also general environmental policy issues such as public participation and civic

society development, green taxes, environmental debates in political parties' discourse, environmental modernisation of the economy and others are high on the list of interests.

Now Hnutí Duha runs a national Campaign called “Velká výzva” (Big Challenge) aimed at GHG emission decrease – the goal is to decrease the emissions by 2 % each year.

Calla - Association for Preservation of the Environment is a citizens' environmental association founded in 1991. The mission of Calla is to assist people in their efforts to protect the environment, to contribute to the conservation of valuable ecosystems in southern Bohemia and to support the development of renewable energy resources.

Calla runs programmes for the support of sustainable energy systems

In the field of energy Calla makes available expert know-how for communities and civic organizations, aiming at the support of sustainable energy systems based on the use of renewable energy-sources. Calla provides for information services, distributes leaflets and other information material, and organizes professional workshops, conferences and excursions. Also, the use of energy providing plants and organic fuels are part of its agenda. Calla has established an internet database of installations of renewable energy-sources (see www.zdrojeenergie.cz) and a homepage dealing with the much discussed topic of climate change (www.zmenaklimatu.cz).

The organization prepares lectures on the broad topic of energy for all age groups at school as well as for the general public. Besides the usual range of ecological advice Calla provides advice on renewable energies, nature- and landscape-protection, public participation in legal and administrative processes, alternatives in agriculture and so on. Calla is a member of the ecological information network STEP and the regional network of Southern Bohemian environmental centres KRASEC.

Completely new actors in energy saving include business people. Their number increased with increasing energy prices and with increasing “green” knowledge of the population. Now they have new challenge – the 25 billion CZK available as subsidies for energy saving from the government. The programme “Green for energy savings” is just beginning. There are no results yet: on October 2, 2009 the first 107 applications were approved for the sum of 15 million CZK. There are big (national level) companies offering savings and the offer include help with the application for the subsidy. Small enterprises see their opportunity but mostly do not have the know-how for subsidy application.

3.3. Environmental governance and energy use of households

Role of local governance in energy consumption

Local governments

There is the possibility to influence people in a positive way by municipal public information. There have been several public notices dealing with waste combustion. The prevailing activity on this level is monitoring and control of the fulfilment of national policies.

What really depends on local government is their own subsidy distribution and in several cases also redistribution of financial help from the national and European levels.

Also completely within the competence of particular municipalities is the development and support of mass transportation, thermal insulation of the flats and buildings belonging to the municipality, and distribution of gas, hot water and heating.

As an example of good practice we could cite the installation of town central heating and a hot water source by the municipality in Trhové Sviny. This source ensures heating and hot water for different users including 400 flats and 32 family houses. They use solid fuel (sawdust, wood waste, wood chips and bark). The total heat output of the source is 5 300-6 000 kW, installed electric output is 600 kW. Annual fuel consumption is 38 000 m³

The Svatý Jan nad Malší municipality has also installed sources of hot water and central heating for public buildings and 18 families in the municipality. They also use solid fuel (saw dust, wood chips) with annual fuel use of 2 300 m³. The total heat output of the source is 590 kW and the municipality plans an enlargement. The municipality has its own wood chip machine and has started to grow energy-rich plants on 1 hectare of land. In the field of media and promotion the local government has the power to create the “image” of energy savings in the region which is closely connected with the national programme “Zelená úsporám” - Green for energy savings.

Civic organizations

The NGOs were historically the first to open the discussion on energy savings – mostly they used “good practice” examples from foreign countries and showed to the public the necessity of savings combined with useful subsidy programmes. Actually they represent an alternative to state policy and help when the state administration does not work properly.

Environmental NGO Calla offers a legal advice service. When an ordinary citizen or group of citizens is in a situation where the environment is endangered they can contact this organization for help free of charge.

Entrepreneurs

The only distributor of energy (electricity, gas) in the study area is the E.On company working under the supervision of the Energy Regulation Office.

On the other hand there are a lot of small scale and mid-scale entrepreneurs who see their place in the household energy savings market and current situation as a good start for their business.

Among small and mid-scale businesses there are three groups of actors:

1. Craftspeople seeing the opportunity of alternative financial sources but lacking the know-how for subsidy application – this may open a niche for group 2 below.
2. Project managers - experts on subsidy applications.
3. Entrepreneurs linked with NGOs – a typical example is EkoWATT

EkoWATT is one of the Czech energy, economy and living environment consultancy companies. It was established in 1990 as a non-profit organization and became a professional consulting and expertise company.

Their main activities are:

- Preparation of energy surveys, audits, studies and analysis of the relationships between energy, economics and the environment.
- Professional support of energy saving projects and renewable energy sources.
- Research and development in the areas of energy saving projects and renewable energy sources.
- Consulting and environmental education, training and public enlightenment focusing on the effective and environmentally friendly use of energy.
- Public relations.

Organizations dealing with energy

Local government

There are three main types of government organizations dealing with energy on the local level.

- Businesses in the ownership of the region or municipality. Local governments are able to manage the conditions of businesses they own. These businesses sometimes include heating plants, and very often also distribution networks for hot water, central heating and gas
- Control is represented by the regional department of the Czech environmental inspectorate, and the integrated registry of polluters subordinated to the Ministry of Environment. These organizations are not involved directly in local government and are functioning more as national agencies and institutions. On the regional scale control is exercised by the Department of environment, agriculture and forestry of the South Bohemia Region office, and also particular departments of the environment located in municipality offices.
- Subsidies. The regional department of the State environmental fund is distributing major amount of subsidy dealing with the environment. The topic of energy saving is now actualised in two subsidy programmes – “Operational Programme Environment - Priority Axis 2 – The improvement of air quality and reduction of emissions” and the newly opened programme “Green for energy savings” which is aimed at households needs.

The regional council office for the NUTS II Southwest Region distributes subsidies from the Regional Development Plan and one of the main goals is development of the public transport infrastructure.

Civic organizations

The scope of these organizations differs according to the goals they want to achieve. We can divide them into several groups:

- Consumers: Defending their members' rights with clear vision and particular goals to ensure new improvements (thermal insulation for blocks of flats, new windows etc.). For example – “Jihočeské matky” – South Bohemian Mothers
- Environmental: Organizations with few members and a lot of sympathizers involved in popularization of energy saving topics. Their main activities are consultancy services and education – an example is Calla, mentioned above,
- Lobbyists: Organizations involving mostly experts trying to influence future policy on the state level. For example – “Česká bioplynová asociace” – Czech Biogas association (CzBA).

The Czech Biogas association, CzBA, was founded in January 2007 as the national technology platform in the field of production and utilization of biogas.

The key motives for its establishment were:

- A booming biogas plant build-up in the Czech Republic,
- lack of information for project preparation and plants operation,
- inexperience of investors, public administration, suppliers and operators,
- absence of independent consultancy authority,
- absence of common operational standards in the Czech republic.

CzBA associates leading R&D representatives, project specialists and other experts as well as operators and engineers of biogas plants from the Czech Republic. Its goals lie in coordination of the biogas research agenda, preparation of methodology and regulations, and providing expert services including education and participation on the international strategic projects.

Entrepreneurs

Energy saving businesses is most frequent in:

- the building industry
 - o Insulation of facades, windows, roofs etc...
 - o Designing buildings within energy saving parameters.
 - o Consultancy services;
- Production of energy from renewable sources. The sale of energy to major distributors is possible only with a license from Energy Regulation Office. Currently there are quite a lot of applications to the municipal offices for renting land to build solar power plants.

- Gas vehicles – now a vanishing branch of business. In the 90s it was very popular to rebuild cars to run on gas – running the car was cheaper.

Tools to influence household energy consumption and stakeholders' involvement

Local governments, NGOs and entrepreneurs have already found their role in the process of energy saving implementation. The following tools are used by local government, NGO and partly by entrepreneurs:

- Subsidies.
- Education (schools, colleges, lectures, workshops)
- Cooperation with the non-governmental sector.
- Promotion of energy savings policy in the media.

Local government

Currently, the main initiative aimed at households is the „Green for energy savings” subsidy programme, which is theoretically available for every household. The programme is just beginning. However the Ministry of Environment has already been criticized for the complicated application process related to this program. The Ministry has promised to simplify the whole application process.

Civic organizations

The main tool of civic organizations is adequate information. They disseminate this information mostly via the newspapers, internet and examples of good practice. These organizations are in permanent discussion with the state administration.

The public image of NGOs is still as not so trustworthy for ordinary citizens, due to the conflicts between environmental NGOs and government in the 90s. But since our accession to the EU NGOs are perceived as serious partners.

Entrepreneurs

Entrepreneurs depend on a) the common level of knowledge concerning energy saving among ordinary people b) subsidy programmes provided by state policy.

Relations between NGOs, local governments and enterprises

Local government monitors, controls and distributes the subsidy flow and ensures a part of the educational process. The important role of NGOs involves consultancy services dealing with education and public campaigns, subsidy application and particular energy-saving design. The entrepreneurs are working on particular (household) energy saving design and physical realization. In this context quite a lot of building firms are offering to apply for subsidy on behalf of the client.

NGOs have the right to be a part of the administrative process if they apply for it. It needs to be said there are a lot of NGOs in the energy sector with different goals (consumers' associations, environmental organizations, lobbyists etc.)

Enterprises often see their chance in new energy policies – because they are the end of subsidy chain as the beneficiaries. They see new benefits from thermal insulation of buildings, the sale of better energy saving technologies or materials for households, and energy production.

Although there exist several official expert panels dealing with our topic, for the most part relations among these players stay informal.

4. Impact assessment

Energy and renewable sources

The temperature and climate of our study area are influenced mainly by altitude above sea level:

PART OF STUDY AREA	LONG TERM AVERAGE TEMPERATURE	LONG TERM AVERAGE RAINFALL	ALTITUDE OF TOWN
České Budějovice	8.1 °C	623 mm	381 mm
Český Krumlov	7.0°C	644 mm	492 mm

In the Czech Republic, and also in our area of interest, the area of arable land has been slowly but constantly decreasing from 1989. On the other hand, the area of meadows and pastures has slightly increased. If we consider the long-lasting problems of traditional agriculture, and subsidies for raising energy crops, the potential for those crops is quite big in our area.

Nuclear power plant Temelín

Approximately 25 km from the city of České Budějovice is the nuclear power plant Temelín, the second biggest nuclear power plant in the Czech Republic. Its construction started in the early 1980's and finished in 2006. In the 1990's it caused big political problems in the Czech Republic, and also international political problems with Austria. Some NGOs became quite famous through their protests against the construction of the nuclear power plant. But citizens' attitudes towards these NGOs are very ambivalent, as are attitudes towards the nuclear power plant (but attitudes of Czech citizens towards nuclear energy are more positive than the attitudes of the major part of Europe).

The power plant is owned and operated by the ČEZ, a. s., the biggest Czech energy production company. But, paradoxically, the monopolistic provider of electric energy for our whole area is the company E.On. Despite its presence, this nuclear power plant does not play an important role in post-carbon speculations (according to our advisory board and qualitative interviews).

Social demographics

The population density of our area is 76 inhabitants/km². This is lower than the Czech average (132 inhabitants/km²). In the southern part of our area (the former district of Český Krumlov), the density is only 38 inhabitants/km². Low population density emphasizes the need for the development of public transport and the importance of owning a car.

Social and cultural specifics

It is often said that specific Czech characteristics are distrust of authorities and evasion of legislation. According to information from our advisory group and qualitative interviews we can confirm these specifics (or continuing stereotypes of Czechs about themselves).

As the main barriers obstructing lowering CO₂ emissions caused by household consumption were identified by our advisory group as:

- Decision-making by unqualified individuals
- Energy and fuel prices
- Unconcern with global politics
- Czech mentality

Table 17 lists 22 barriers proposed by us, marked by the advisory group. Number 10 indicates the biggest obstruction, number 1 the least important. The question was: **How much would these elements obstruct total lowering of CO₂ emission caused by household consumption in our area?**

Deciding of unqualified individuals	8.5	Governmental conception of energy policy	5.7
Energy and fuels prices	7.8	Aversion to change anything	5.7
Global politics unconcern	7.6	Distrust of others and withdrawal	5.3
Czech mentality	7.5	Inconsistency in respecting the laws	5.3
Public area unconcern	7.4	Clientelism	5.3
Structure of energy-saving subsidies	6.9	Only about oneself concerning	5.3
Comfortableness	6.6	Individual unable to change anything	5.2
Czech specific in governance	6.3	Distrust of existence of glob. warming	4.3
Political culture as whole	6.3	Household hasn't strength to influence market	4.3
Total economic uncertainty	5.9	Fear of the future	4.1
Profit pursuit	5.8	Distrust of ones competences	3.8

Note: Czech mentality, Czech specifics in governance and political culture as a whole are implicitly quite negative features (a combination of distrust, unconcern, laziness, bureaucracy and clientism).

Table 18. Expert assessment of barriers of CO₂ lowering

Another table based on information from our advisory board presents the most important barriers to CO₂ lowering, and existing advantages of our area. These barriers and advantages were not proposed by the research team.

	Physical	Social	Political	Economic
Barriers	Climate	Tradition and prejudices	Bureaucratic procedure	Shortage of public finances
	Energy resources	Unconcern and low level of knowledge	Political problems and lobbying	Energy from renewable sources not advantaged
	Energy demanding transport	Slow development	Bad legislation	Shortage of private finances
		Laziness	Unqualified politicians and officers	
Existing advantages	Biomass	Knowledge and education		Need to save money
	Agriculture	Ideal examples and people's interest		Lower consumption

Table 17. Barriers and advantages of case-study area

Our qualitative interviews confirm these stereotypes. The main factors that obstruct energy saving are: **indifference, indolence, laziness, habits, unconcern for public things and distrust of authorities' effort to save energy**. But beyond these social barriers there are also perceived political and governmental barriers, mainly: **bureaucracy, complicated conditions to get subsidies, lack of information and costs**.

In our interviews one interesting feature appeared in the context of distrust for authorities. It was distrust for authorities' efforts to save energy or to change the present status quo. Authorities (national and EU) and the powerful of our world (industry, oil, and mining) take advantage of the present state and they do not want to promote new renewable or alternative sources of energy, even if they are more environmentally friendly. This "conspiracy theory" was not mentioned by all of the respondents but the number who did mention it confirmed a quite sceptical and distrustful world view of many Czechs.

Governance structure

The role and specifics of governance structure are in detail described in parts 3.1., 3.2. and 3.3. Here we would like to stress some important things.

The role of local governments and municipalities is usually restricted by lack of finances. Thus their role (in relationship to all citizens) is mainly in motivation or information sharing. Central government has the real financial resources to promote subsidy programmes. The biggest programme now ongoing is "Green for energy savings" (see 3.3).

The environmental department of the South Bohemian Region deals more with waste management, air pollution, nature conservation and other problems. Lowering of CO₂ emissions is a part of programmes dealing with air pollution. Programmes of lowering CO₂ emissions are focused mainly on public buildings and institutions.

The environmental department of the municipality of České Budějovice offers subsidies for protection of the environment of the city. This agenda is not aimed directly on CO₂ lowering but it is possible to apply for city grants.

5. Concluding remarks

Based on qualitative interviews and discussions with our advisory board we can present first preliminary policy recommendations. Some specific characteristics of our region were discussed in part 4. Here we summarize the recommendations.

We can summarize the main recommendations into a few points:

- Information and motivation.
- Legislation and financial politics.
- Renewable sources and insulation (subsidies).
- Renewable and alternative sources and low energy appliances.
- Public transport.
- Food, transport and agriculture.

Information and motivation

Some people expressed the need for trustworthy and detailed information about environmentally friendly behaviour. As an example we can mention the problem of abandonment of 100W lighting bulbs in the EU. There is a perceived need to get more information about the background of this step (lifetime of the compact fluorescent lamps/low-energy light-bulbs, environmental impact of their production and destruction, etc.). This information, as well as detailed information on how to be really environmentally friendly are missing in our society. Some of these kinds of information are disseminated by different NGOs but it seems that if they were disseminated by local or national governments (very visibly, so that it is easy to find them) it would be appreciated by some of the people.

There is a perceived need for education and motivation, especially of children. The respondents also commented that such education- is in progress in schools, and it was assessed positively.

Legislation and financial politics

There is a strong perceived role of the state government in improving legislation and (very importantly) in ensuring that the laws and rules are observed. People often perceive great disrespect to law in Czech society, and when a big entrepreneur or factory are treated differently by the government than small households, the atmosphere of disrespect to the law and unconcern of the public area increases. Uncompromising control and stress on energy saving of big factories and companies is also suggested.

The respondents differ on one question: whether it is better to follow the way of positive motivation and education of people or the way of legislative restriction and financial disadvantages. The question of finances is interesting; some the people (optimists) argue that energy is so cheap, that people must be motivated by environmental or other incentives. Others (pessimists) believe that people are selfish and that they will save energy only if they would also save money or if it is prescribed by the law. Probably the combination of positive motivation and legislative restrictions is the right way, but the restrictions must be very carefully chosen and very well communicated to the public. Some people criticize restrictive governmental policies but they all declare that they will observe the laws (this is very interesting in context of the widespread stereotypes of not respecting the law – (see 4. Impact assessment)).

Despite people usually thinking that they are powerless to change something, they almost all express the opinion that we must save energy and use natural resources more carefully than we do now. They all seem ready to save energy (but not to change their lifestyle dramatically) but they need help from the government.

Renewable sources and insulation (subsidies)

The usage of renewable energy sources in households and insulation of houses is assessed as a positive feature, yet with a lot of problems. The biggest perceived problem is the high cost of the innovations. This could be partly compensated for by governmental subsidies. But also the subsidies are often perceived as the problem. The rigid conditions and a lot of complications make applying for the subsidies quite difficult and uncertain. There is always a part of the money that must be paid by the owner and there is a possibility that after finishing the innovation the owner will not get the subsidy because the construction does not fulfil all the conditions. So the conditions for applying for EU, governmental and local subsidies for households should be easier and more transparent.

Renewable and alternative sources and low energy appliances

People see low energy appliances as very important way to achieve the lowering of energy demand. The renewable sources of energy appliances and alternative sources of energy (e.g. for cars) should be promoted and financially supported by the government.

In some interviews there was an idea expressed that there is a lack of political willingness to promote renewable or alternative sources of energy.

A sceptical view that the capacity of the renewable sources will be insufficient also appeared. Nuclear energy was also mentioned. This is usually perceived as relatively clean and safe, and a necessary source of energy for the future.

Public transport

This was strongly stressed especially in rural regions and the capital city of Prague. In rural regions people want to have better public transport (especially more frequent buses and trains). This is a serious problem, especially in areas far from the cities or towns. In České Budějovice (and even more in Prague) people

suggest improving public transport and restrictions for cars in the centre of the city. In Prague people also mention reducing the costs of tickets for public transport.

Food, transport and agriculture

Redundant transport of food was often criticized. The import of food which is normally produced in the country is perceived very negatively. People from rural areas pointed out also the bad situation of Czech agriculture and saw the solution in subsidies for Czech agriculture. On the other hand, subsidies to agriculture were also criticized due to the fact that subsidized agriculture produces more food than we need and the food is consequently destroyed.

Data and information sources

Notes on data sources

All data (including tables) are from sources of the Czech statistical office (CSO, www.czso.cz).

We used new data, where it was possible, but for some topics, precise data had to be used. These data are available only from the Census of people, houses and flats, held in 2001. Data from the 1991 Census were used to illustrate trends in society. This census of the whole country is held once in ten years.

Data in Chapter 4 are field empirical data coming from the WP1 advisory group survey and interviews.

- Online database of Czech Statistical Office <http://www.czso.cz/>
- Online database of Energy Regulatory Office <http://www.eru.cz/>
- Czech Office for Surveying, Mapping and Cadastre <http://www.cuzk.cz/>
- Yearbook of transport for year 2007 <http://www.sydos.cz/cs/rocenka-2007/index.html>
- Regional information service <http://www.risy.cz/>
- Portal of the public administration <http://portal.gov.cz/>
- South Bohemian Region <http://www.kraj-jihocesky.cz/>
- Web sites of particular NGOs and municipalities
- Czech Renewable Energy Agency <http://www.czrea.org/>
- Server of state administration <http://www.statnisprava.cz/>
- Leader initiative in The Czech Republic <http://leader.isu.cz/regiony.aspx>
- Green for energy savings programme <http://www.zelenausporam.cz/>
- Operational Programme Environment <http://en.opzp.cz/>
- LAG Association Růže <http://mas.sdruzeniruze.cz/>
- LAG Association Růže Annual report 2008
- Calla <http://www.calla.cz>
- Czech biogas association <http://www.czba.cz/>
- Ekowatt <http://www.ekowatt.cz/>
- Hnutí Duha <http://www.hnutiduha.cz/>

Energy demand, Governance and Infrastructure in Potsdam and Potsdam-Mittelmark The German Case

Dr. Fritz Reusswig, Corinna Altenburg, Mirjam Neebe, Peter Schmidt, Vera Peters

The given global changes make a new reorientation
of our energy supply and our lifestyles necessary.¹⁵

(Climate Coordination Group, Potsdam 2009)

1. Introduction

GILDED's intention is to describe how households and local municipalities perceive energy issues in the context of global climate change, and how they can stepwise achieve a society with significantly lower greenhouse gas emissions ('low carbon society'). Despite the fact that Europe is committed to substantially reduce its GHG emissions until 2020 and beyond—not only at the overall EU level, but also at national levels—individual households and municipalities will have to take on their own share of responsibility. In fact, even EU- or nation-wide commitments and activities will have to find their way to the local level.

Fortunately, many local communities in Europe have already taken action—some of them even before national governments did commit themselves. Organisations such as ICLEI (Local Governance for Sustainability, <http://www.iclei.org/>) or the Climate Alliance (<http://www.klimabuendnis.org/>) demonstrate that local communities in fact can contribute substantially to the reduction of GHG emissions even on a European level. Despite the comparability of measures and initiatives, every city and every village remains an individual case with very particular conditions. According to Climate Alliance, there are at least four different roles or functions that local authorities can play in order to reduce GHG emissions:

- *Consumer and model*
Cities and municipalities fulfil an important model function when they reduce the energy consumptions of public buildings, motivate their own employees in climate-friendly behaviour, source green electricity themselves or husband the local woods effectively. The possibilities in exerting influence are the biggest here because one's own action takes centre stage.
- *Planner and regulator*
Local authorities can also influence the behaviour of the economy or of consumers in terms of climate protection through specifying the standard of climate protection in new residential and industrial areas, in management of traffic and parking space or judicial and regulatory measures.
- *Provider and supplier*
Communes act as provider and supplier in energy and traffic sectors, in waste disposal or local housing construction. Here the regulation is effected through a corresponding offer which the consumers can

¹⁵ Die beobachtbaren globalen Veränderungen machen eine Neuausrichtung in unserer Energieversorgung und unseren Lebensstilen erforderlich. (Lippert 2009: Klimaschutzbericht – Climate Protection Report, City of Potsdam, p. 49).

make use of. Local authorities can also influence the behaviour of the consumers through cooperating with private investors.

- *Advisor and promoter*

Where there is no juridical basis, local authorities can also exert indirect influence, for instance, through awareness raising or financial promotion of climate protection measures. They can thus motivate private consumers, architects or the local tradespeople in adopting climate-friendly behaviour and procedures.

In order to assess the state and capacity of local communities with respect to low carbon achievements, this report tries to give an overview of the two German focus areas, namely the city of Potsdam and the surrounding county of Potsdam-Mittelmark. As the transition towards a low carbon society will be a complex, multi-layered and multi-actor social process, we have embedded the local assessment into a wider picture of national and state-related activities and structures that influence this transition (either in a positive or in a negative manner). And as private households and individual consumers are our main focus group, we did pay particular attention to the question of how local structures and activities might influence (enable, empower, prevent...) individuals to engage in energy conservation and climate protection.

2. Overall description of study area related to energy use and infrastructure

The city of Potsdam, adjacent to the German capital Berlin, is an urban centre and the capital of the state of Brandenburg. In terms of the political and territorial structure of the Federal Republic of Germany, Potsdam is an independent city with its own administration and political representation. The same holds for the surrounding county of Potsdam-Mittelmark, which is a mainly rural area with only smaller to medium towns. These political and demographic differences do also influence the way in which energy is generated, distributed and used by the people living in the respective regions.

2.1. Main characteristics of the study area: Potsdam and Potsdam-Mittelmark

Before the fall of the wall, the case study areas of Potsdam and Potsdam-Mittelmark were located in the former German Democratic Republic (GDR). As the GDR had abandoned the Länder in 1952 and substituted districts, both Potsdam and Potsdam-Mittelmark had been part of the Potsdam district. After the re-unification in 1990, the Länder structure was re-established, and the districts have been abolished. Since then, Potsdam (as an independent city) and the county of Potsdam-Mittelmark are parts of the state of Brandenburg, including 14 counties and 4 independent cities.¹⁶

The 1990s have been a period of economic and social restructuring in all New Länder. Potsdam experienced a decline of industry, although not as dramatic as in heavy industry hot-spots such as the famous Leipzig-Halle-Bitterfeld area. For the rural communities in Potsdam-Mittelmark, the restructuring of land ownership and agricultural production systems had been the most characteristic process.

¹⁶ The term 'independent city' refers to the fact that these cities form a political unit of their own, and do not have a surrounding county.

Potsdam, the capital of Brandenburg, today is home to about 153,000 citizens, and in contrast to many other Eastern German municipalities, it continues to grow by about 1,000 people per year (between 2007 and 2008, its population even grew by 2,000 inhabitants) (Landeshauptstadt Potsdam 2008). This is due to a surplus of births over deaths, and a positive migration balance. The proximity to Berlin, diverse scientific institutions and universities, its favourable landscape surrounded by water bodies, and its historical heritage make Potsdam an attractive place to live, and provide good conditions for development (see Fig. 1).

Figure 1: City of Potsdam, aerial view



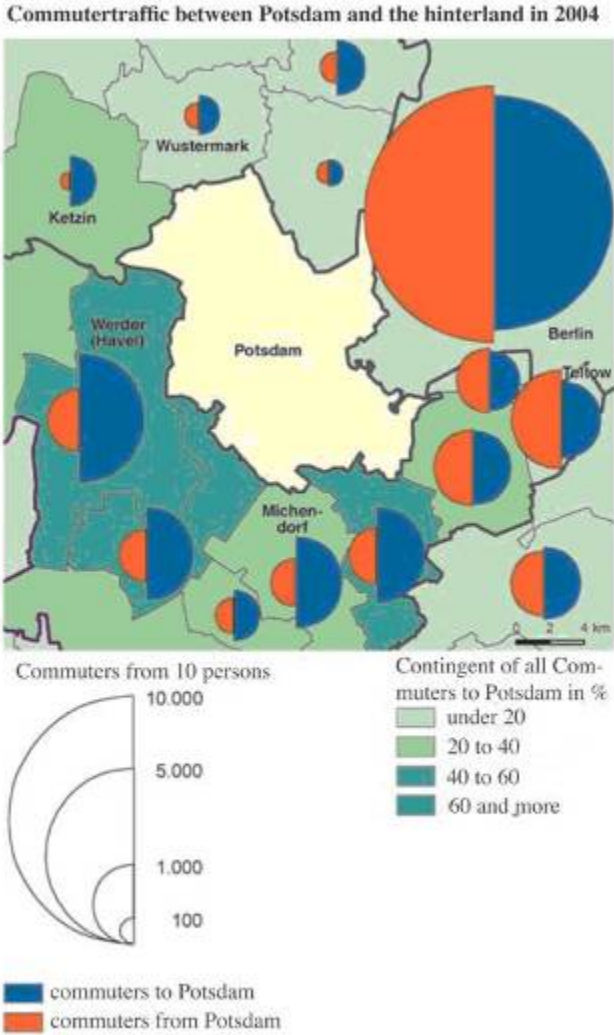
Source: photo by Wolfgang Pehlemann at Wiki Commons

Potsdam was the residence of the Prussian Kings; around the city one can find a number of scenic lakes and unique urban landscapes, which became part of the cultural heritage of the UNESCO in 1990. Beside tourism, Potsdam's economy is characterised by a few heavy industrial sites, media/communications, biotechnology/life sciences, automotive works and administration. 17.5% of all employed people are highly qualified, against an average of 7.5% in Germany (Landeshauptstadt Potsdam 2007: 31).

In 2007, a study conducted by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth demonstrated that Potsdam is one of the most family friendly cities in Germany (Bundesministerium für Familie, Senioren, Frauen und Jugend 2007). Since the city had little heavy industry it was not confronted with harsh closures, such as the lignite region in southern Brandenburg. Today, the unemployment rate in Potsdam is 8.4 % (August 2009) compared to 14.7 % in Brandenburg (meinestadt.de 2009), 14.8 % in Eastern Germany and 7.0 in West Germany (2008) (Arbeitsagentur 2009).

Potsdam is a destination for 38,000 incoming daily commuters and the most important employment market in Brandenburg. 25% of these commuters come from Berlin, and nearly half from the hinterland of Potsdam. At the same time, about the same number of people commute to other places, most of them to Berlin (Land Brandenburg 2006).

Figure 2: Commuter traffic between Potsdam and its hinterland in 2004



Source: Land Brandenburg 2006

Potsdam Mittelmark (PM) is located in the southwest of the Land Brandenburg, bordering its capital Potsdam and Germany’s capital Berlin. The administration of the county is located in the town of Belzig. The district surrounds the independent municipalities of Potsdam and Brandenburg/Havel. PM has 204,000 inhabitants and a geographical area of about 2,575 km² (Hartong et al. 2006). It has the largest population of all the districts in Brandenburg and is the third largest county (in terms of territorial size) in Germany. The region’s population is highly dispersed with the more urbanised municipalities in the north and east and the more rural areas in the south and west.

The hinterland of Potsdam has the lowest unemployment rate (7.8% in 2008) in Brandenburg, due to the function of Potsdam as centre of labour market and the proximity to Berlin, as well as a still prospering agriculture. Employment has increased since the last communal reform in 2003. More than 70% of PM

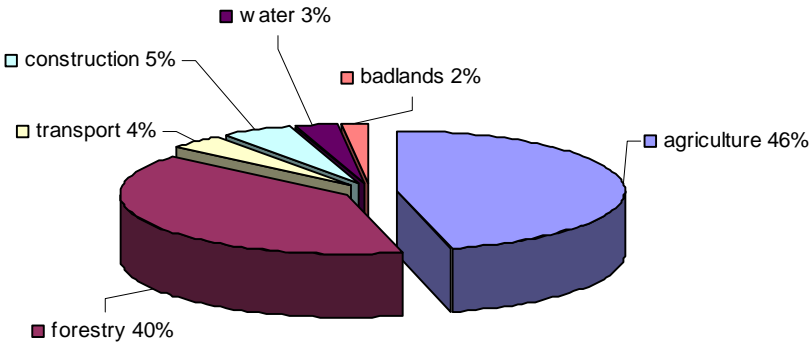
employees are working in the service branch, transport, hotel and restaurant industry and trading (cf. Landkreis PM 2009d).

Regarding the overall structural changes in this associated rural area of Potsdam, it has to be mentioned that the fall of the wall in 1989, the county reform (Brandenburgische Kreisreform) in 1993, and the communal reform in 2003 (Gemeindegebietsreform) clearly shaped the face of Potsdam Mittelmark. Not just because the county’s boundaries have changed twice since the fall of the wall but also because of migration dynamics, technological changes, and reconstruction of houses, etc. Overall, the technological modernisation of the East German industry and the reconstruction of buildings and private houses have contributed to a sharp drop of CO₂ emissions in the 1990’s. Thus, the mean energy use per capita in the new federal states is low compared to that of the ‘old’ federal states (Handwerksblatt 2009).

2.2. Possible low-carbon energy sources

The region of Potsdam and Potsdam-Mittelmark is characterized by many end moraines of the ice age. Depending on the area, soil types vary from quaternary sand and glacial drift to Holocene sedimentations. There are no stocks of oil, gas or coal in PM. There is a source of thermal water, which for the moment is only used for therapeutic bathing but could be used as a renewable energy source (LBGR 2009). Around 40% of the area of Potsdam-Mittelmark is forested (approx. 950 km²). Water covers about 3% of the total surface of the region (there are 47 lakes on an area of 10 ha) (LKRPM 2006: 116). Thus, more than 80% of the region’s land is used by agriculture and forestry (see illustration below) but only 6% of employees are working in agriculture and forestry. (Hartong et al. 2006, Landkreis PM 2009d).

Figure 3: Land use in Potsdam-Mittelmark



Source: own draft, according to Landkreis PM (2009d)

PM’s ice age derived landscape is dominated by two main features, the Fläming and the Havelland. The Fläming, known as Germany’s smallest low mountain range, is located in the south of PM. This region is known

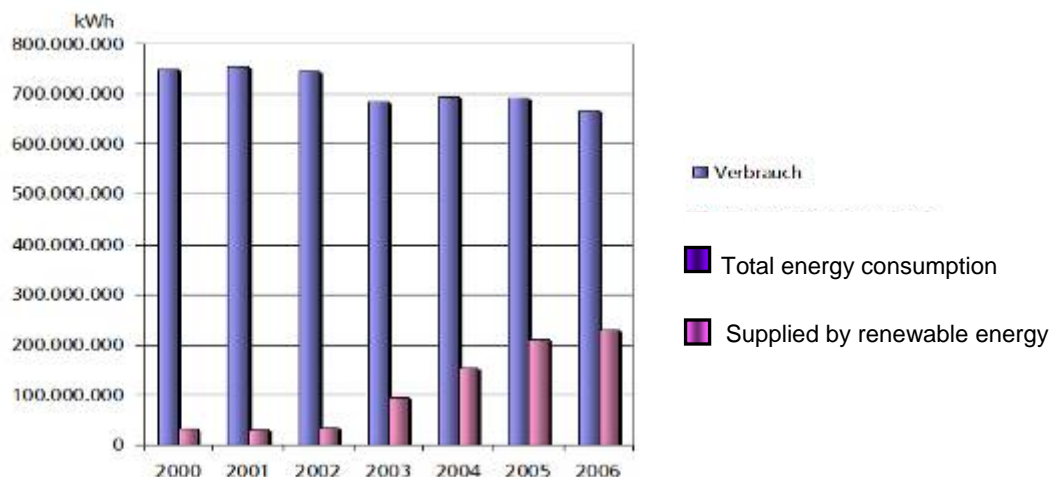
for its several peaks but also for its water scarcity. In contrast, the Havelland, located in the north of the county, is known for its enormous water resorts, since there are several lakes and rivers.

Located between Havelland and Fläming there is an area called Zauche. This term refers to arid lands - one can find many sandy areas, pine forests, and small fens. The whole county lies in a moderate climatic zone, but transition to a continental climate – in Germany to be found east of river Elbe - is already tangible in some areas. The yearly mean temperature is + 9° C and average precipitation rate is 500 mm (Landkreis PM 2009e).

On average, there are between 4.2 and 4.7 hours sunshine per day with an increasing tendency (Gerstengarbe et al. 2003: 11).

25 natural conservation parks lie in PM covering 13,990 hectare (about 5%) of Potsdam-Mittelmark's overall area. (Hartong et al. 2006a). The largest natural conservation areas are: Belziger Landschaftswiesen, Nuthe-Nieplitz-Niederung, Untere Havel Süd and Rietzer See. Additionally, there are 10 protected landscape areas, covering 141,731 hectare of PM's area.

Figure 4: Total electricity consumption and the increasing share of renewable energies in PM



Source: Landkreis PM (2009c)

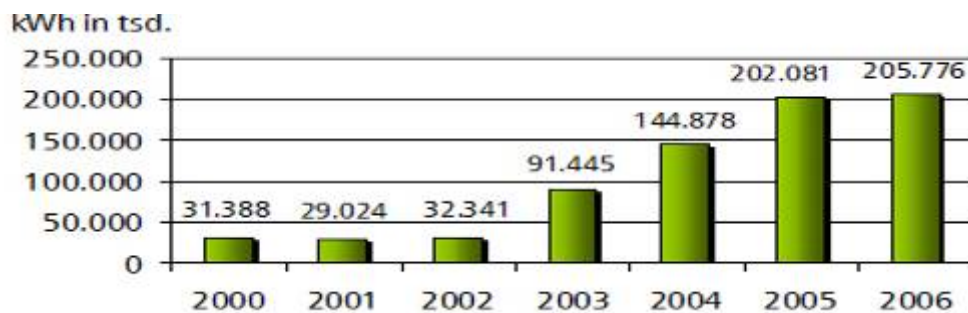
The use of renewable energy sources is becoming gradually more important in PM. In Figure 4: Total electricity consumption and the increasing share of renewable energies in PM

the purple bar represents the share of renewable energy and the blue bar shows the total electric energy consumption measured in kWh per year. The share of renewable energy (wind energy, solar energy, water energy, and biomass/biogas) the total electricity production has risen from 4.2% in 2000 to 34.4% in 2006. In a recent meeting of the Working Group on Renewable Energy new data for 2008 was presented. According to this, the share of renewable energy has risen to 47%. In some municipalities more electric energy is produced than

consumed, which is largely due to local wind parks (e.g. Amtsgebiet von Wusterwitz, Ziesar und Niemegek sowie in der Gemeinde Kloster Lehnin).

Hence, wind power is the most important renewable energy source in PM. More than 90.2% of renewable energy is produced by wind. As Figure 5 shows, the share of wind energy has sharply increased since 2003. In 2006 wind energy counted for 205.7 GWh.

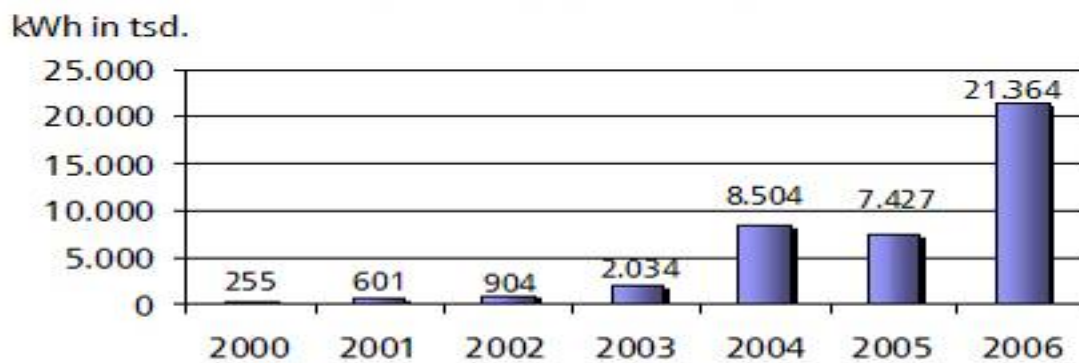
Figure 5: Electric energy produced by wind energy plants



Source: Landkreis Potsdam Mittelmark (2009f)

In 2006, about 21 GWh was produced by block heating power plants. It was thus the second largest renewable energy source in PM.

Figure 6: Energy production by block heating and power plants using biomass and biogas

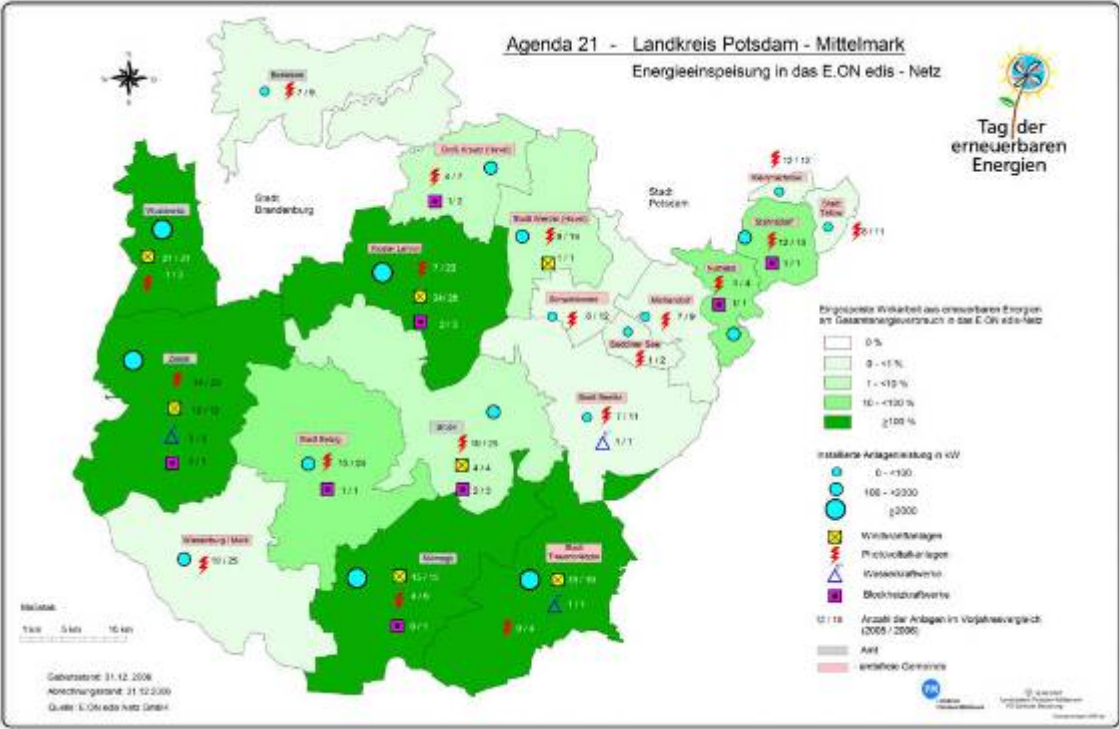


Source: Landkreis Potsdam Mittelmark (2009g)

Much less, i.e. 930 kWh was produced using by PV plants and 130 kWh by water plants in 2006. Overall, energy production of block heating power plants and photo voltaic plants has increased steadily since 2000.

Figure 7 shows places where renewable energy sources (RES) can be found in PM.

Figure 7: Electric energy map of PM



Source: Landkreis Potsdam Mittelmark (2009c)

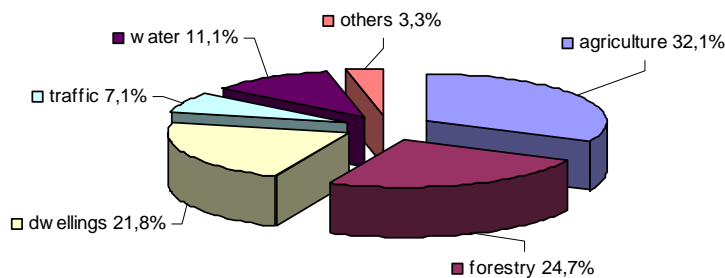
It is evident that due to the weather conditions in PM, wind energy is absolutely essential for emission reduction efforts. However, the space for new wind energy plants is becoming scarce. According to the Regional Planning Council (Regionale Planungsgemeinschaft), a planning committee that is, for instance, in charge of finding available areas for new wind energy plants, mentioned recently that there is just 1% of area left for new wind parks. Even though this planning council is responsible for several other districts besides PM, the situation in PM does not differ much from the general situation. Furthermore, the acceptance of wind parks is decreasing since people fear that more wind parks will have a negative effect on the landscape and will decrease the value of properties. Also, municipalities are sometimes not aware of positive financial outcomes (e.g. incomes through local business tax) (see chapter 4 Impact Assessment for more details).

Apart from large wind park farms, which are mainly constructed and owned by companies outside of the county (e.g. Enercon), there are some municipalities which are pretty engaged in climate protection and energy issues in PM. The most important project in the district is however that of Feldheim (municipality of Treuenbrietzen) where the council promotes a village with about 200 inhabitants who aim to use 100% renewable energy in the future (see chapter 3.2 for more details)

The city of Potsdam has a unique role within the Bundesland Brandenburg regarding its municipal energy supplier. As early as in 1995 the city decided to construct a gas-fired power plant with combined heat and power (Gas-und Dampfkraftwerk). The mayor and the city council held on to this decision against many protests of the lignite lobby which was very strong in Brandenburg at that time, and remains so today. As lignite was and is the major domestic energy source of Brandenburg—and an important economic sector with many jobs—the

city's decision was perceived by many as a hostile act of the Land's capital against the very interests of Brandenburg. This change of energy supply helped Potsdam to achieve relatively low CO₂ emissions per capita (3.3 tonnes/ CO₂ p.a. per capita – one of the lowest rates in Germany, not including transport) (see chapter 3.3 for more details on this).

Figure 8: Land use in Potsdam



Source: own draft, according to Land Brandenburg 2006: 252

2.3. Settlements and administrative structure

Potsdam is a municipality not associated with a county (Kreis) and the capital city of Brandenburg. The city council of Potsdam (Stadtverordnetenversammlung) is the citizen's representative body. The current mayor, Jan Jakobs, a member of the Social Democratic Party (SPD) was elected in 2002. The mayor is the head of the city administration and - more importantly - he represents the city internally and externally. In the past years he has supported many climate-related actions, which was considered to be crucial for their success by many local stakeholders.

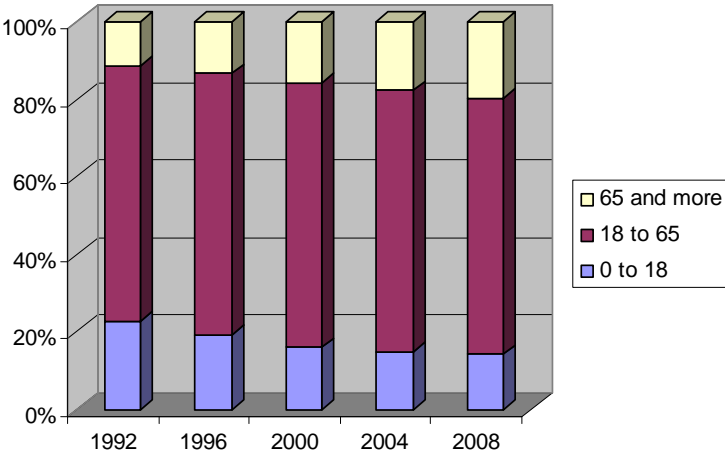
Regarding the institutional structure of Potsdam-Mittelmark, the highest institutional body is the county's council (Kreistag). There is currently a 'big coalition' of the Social Democratic and the Christian Democratic Party (SPD+CDU). The head of the county's administration is the district chief (Landrat), who was elected in 2008 for a term of 8 years. Further details of the governance structure of PM will be given in chapter three.

Potsdam is part of the Metropolitan Area of Berlin/Brandenburg and situated on the river Havel. The city consists of three-quarters green space and one quarter urban area. On a surface of 187.28 km² Potsdam is divided in six historic districts and nine new parts (Ortsteile). The city has 151,725 inhabitants, with 78,783 female inhabitants (Landeshauptstadt Potsdam 2009). The population density is around 810 inhabitants per km² and thereby the highest in Brandenburg. The population is forecast to be 160,000 in 2020. Thus, Potsdam is one of the few cities in Brandenburg with a growing population figure (Landeshauptstadt Potsdam 2007: 20). In

Brandenburg only Havelland with +4% and Potsdam Mittelmark with +0.01% have also growing population figures. All other counties (Kreise) have a negative population development (-7% in Brandenburg).

The average age of the population is 41.84 (Landeshauptstadt Potsdam 2009a) much lower than the average of whole Brandenburg. Even though the group of those older than 65 years will grow, the old-age dependency ratio will not play an important role in Potsdam in contrast to other cities in Brandenburg (Landeshauptstadt Potsdam 2007: 22). In 2020 Potsdam is forecast to be the youngest city within all counties (Land Brandenburg 2006).

Figure 9: Population by age in Potsdam since 1992

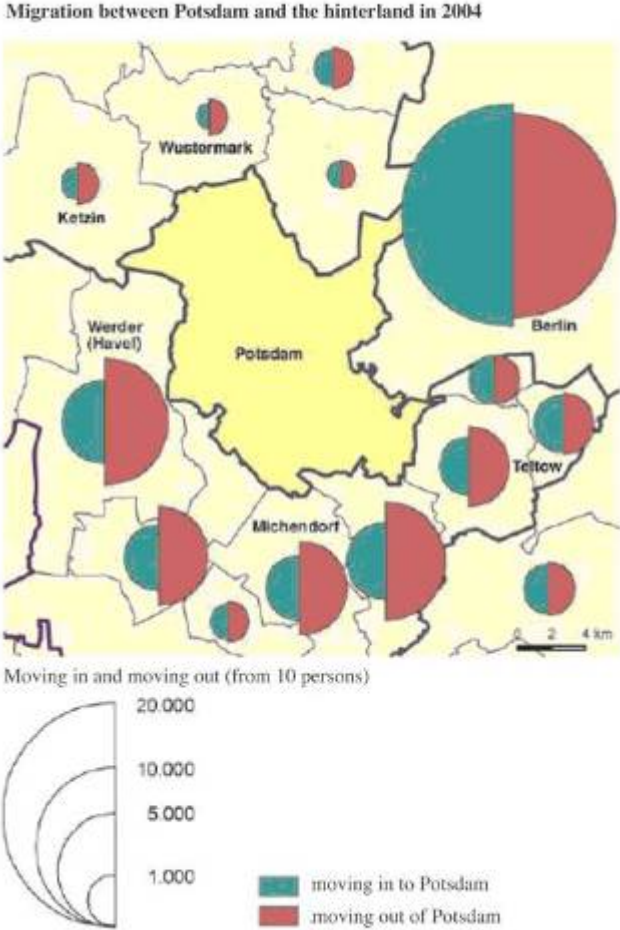


Source: own draft, according to Landeshauptstadt Potsdam 2009b

The migration balance in Potsdam is with 17 of 1,000 people (between 1991 and 2004) positive. Half of the moving in and moving out migration is within the Metropolitan area of Berlin/Brandenburg.

Between 1991 and 2004, 100.000 people moved to Potsdam, 98,000 moved out – high mobility. Only 15% of people moving out go to West Germany, more than 40% to the hinterland of Potsdam (without Berlin). The migration rate from Potsdam to Potsdam Mittelmark is higher than in the other direction (Land Brandenburg 2006).

Figure 10: Migration between Potsdam and the hinterland in 2004



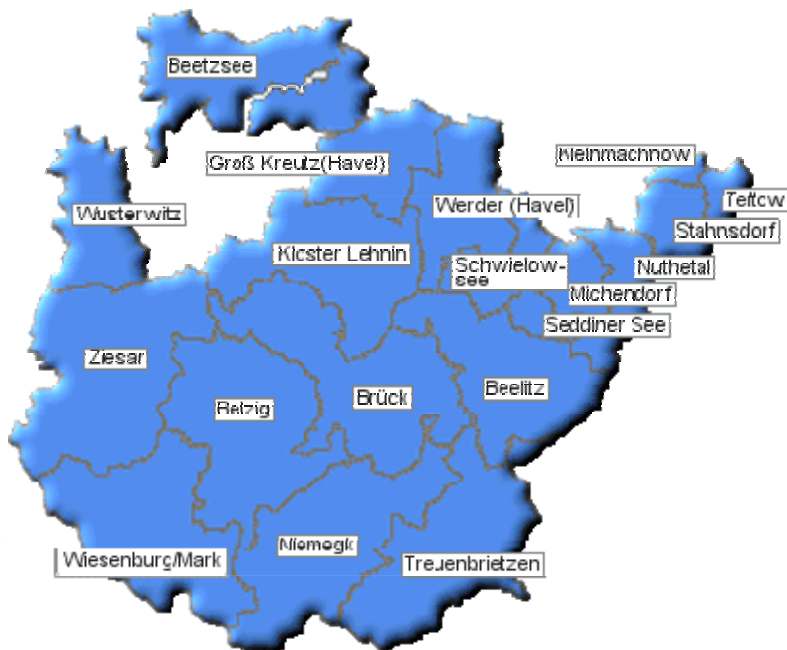
Source: Land Brandenburg 2006

Potsdam’s urban landscapes are diverse. Beside the historic city centre, various neighbouring quarters (Vorstädte) and large green spaces, the residential areas built since the 1960s in the former GDR (Plattenbausiedlungen) characterise the city. These latter buildings make up nearly half of today’s housing supply in Potsdam. The settlement structure is enclosed by the two new residential areas Bornstedter Feld in the north and Kirchsteigfeld in the south of Potsdam (Greenfield areas). Further with Grube, Eiche, Fahrland, Golm, Groß Glienicke, Marquardt, Neu Fahrland, Satzkorn and Uetz-Paaren nine new areas have been suburbanized between 1993 and 2003, where structures partly still have rural character (Landeshauptstadt Potsdam 2007: 25). As a consequence in some areas Potsdam is a city of long distances.

PM covers an area of 2,683 square kilometres, has about 204,510 inhabitants and is one of the few counties in East Germany where population is currently not shrinking. The district has a population density of 79/km². To compare: The population density in Brandenburg amounts to 86/km² and in Germany 230/km² (AfSBB 2009).

According to the last communal reform in 2003, PM consists of five independent cities¹⁷ with a total geographical area of 763 square kilometre and a density of 98 persons/km²; nine independent townships¹⁸ with a total geographical area of 775 km² and a density of 113 people/ km²; and five so called ‘Ämter’¹⁹ which represent as constitutional bodies 24 dependent townships with a total geographical area of 1,035 km² and a density of 36 persons/km². Altogether the county consists of 38 units. The capital of PM is Belzig.

Figure 11: Map of PM and its municipalities



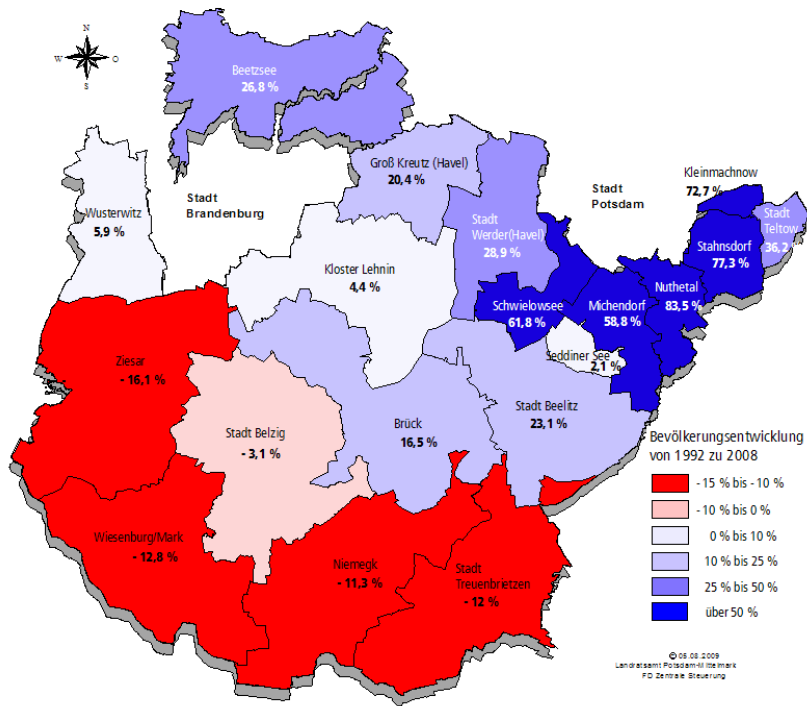
Source: Landkreis Potsdam Mittelmark (2009a)

¹⁷ Beelitz, Belzig, Werder/Havel, Treuenbrietzen, Teltow.

¹⁸ Groß Kreuz/ Havel, Kleinmachnow, Kloster Lehnin, Michendorf, Nuthetal, Schwielowsee, Seddiner See, Stahnsdorf, Wiesenburg/ Mark.

¹⁹ Beetzsee, Brück, Niemegeki, Wusterwitz, Ziesar.

Figure 12: Population development and migration dynamics in PM, 1998-2008



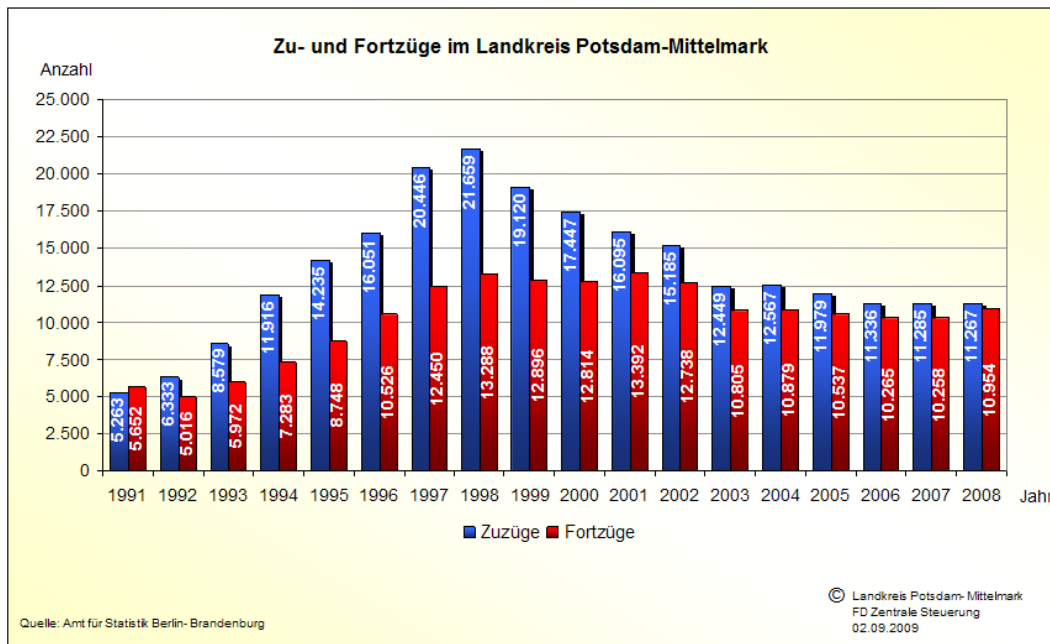
Source: Landkreis Potsdam Mittelmark (2009b)

The indicated numbers regarding population density already indicate that the population is not evenly distributed in PM.

As

Figure 12 depicts, migration flows from more rural areas in the south and west of PM to, for instance, the economic centres of PM in Teltow, Kleinmachnow, Werder, Stahnsdor, adjacent to Berlin and Potsdam. This dynamic led to an increased concentration of inhabitants there. Nearly 60% of the whole population is living in only 28% of the geographical area of PM. It underpins the fact that the farther the municipality/ city from Potsdam and Berlin, the higher the number of people leaving the more rural areas.

Figure 13: Moves in and out of PM



Source: Landkreis Potsdam Mittelmark (2009b)

Directly after the fall of the wall, the number of people moving out of PM was bigger than the number of people moving in. As it is illustrated by

Figure 13 this ratio has changed over the years in favour of many more people moving into the district. During recent years it has become almost balanced, in 2008 there were 11,267 'in movers' and 10,954 'out movers'.

The group of people aged 40 and above is the largest in PM. Mean age in 1991 was 39.6 years and in 2007 43.6 years (AfSBB 2008a: 30). The child quotient²⁰ in 1999 was 21.5 and has decreased to 18.3 in 2007. The ancient quotient²¹ has increased from 1999 to 2007 from 19.8 to 28.7. (LLSV 2009: 36 – 37). Accordingly, PM's society is ageing. Although over-ageing of population is particularly striking for most East German municipalities where younger people leave because of the lack of working opportunities, the situation at the national level does not differ much. In 2007 there were 103,073 females and 101,437 males in PM (AfSBB 2008a: 38). It is worth mentioning that in younger generations there are more men than women.

²⁰ The number of people from 15 to 64 years divided by the number of people from 0 to 14 years
²¹ The number of people from 15 to 64 years divided by the number of people of 65+ years

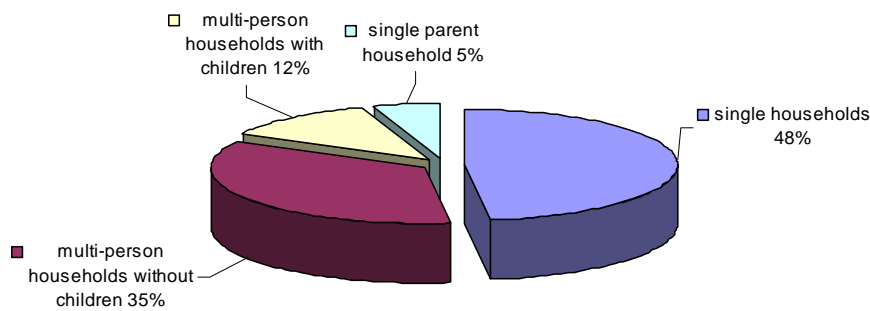
2.4. Consumption and transport of households

Potsdam

In 2008, 152,725 inhabitants had their principle residence in Potsdam and 6,505 their secondary residence. They lived in 85,007 households. As it is illustrated in Figure 14: Households per family status in Potsdam in 2008

therein were 40,275 single households, 30,157 multi-person households without children, 10,140 multi-person households with children and 4,435 single parent households (Landeshauptstadt Potsdam 2009).

Figure 14: Households per family status in Potsdam in 2008



Source: own draft, according to Landeshauptstadt Potsdam 2009

In 2003 the average household income in Potsdam amounted to 2,198.3 Euro and 3,165.9 in Potsdam-Mittelmark (Amt für Statistik Land Brandenburg 2006). The purchasing power in Potsdam in 2005 was 15,860 Euro per capita, which corresponds to 92.8% of the German average and which was the highest in East Germany (PNN 2005).

In 2008 the housing supply in Potsdam consisted of 81,843 apartments (against 72,614 in 1999), within 84.5% apartment buildings (92% in 1999), 12.9% one-family or town house (6.1% in 1999) and 2.5% other buildings (Landeshauptstadt Potsdam 2009d).

Table 1 and Table 2 show the trend since 1999 in size of apartments and square metres, rooms per resident and apartment and apartment per dwelling.

Table 1: Apartments by size between 1999 and 2008 in Potsdam

Year	Up to 40 square metres	40 to 60 square metres	60 to 90 square metres	More than 90 square metres	Number of total apartments
1999	12.6%	31.7%	43.4%	12.3%	72,614
2002	12%	31.6%	43.6%	12.7%	74,701
2005	11.4%	30.9%	43.2%	12.7%	78,950
2008	10.8%	30.3%	42.8%	16%	81,843

Source: own draft, according to Landeshauptstadt Potsdam 2009e

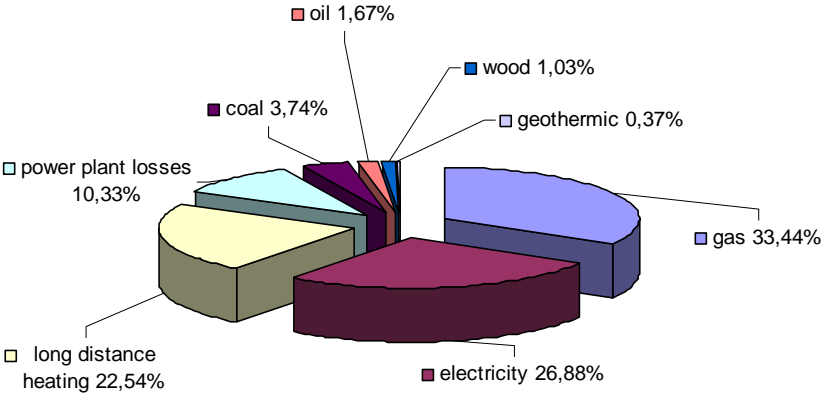
Table 2: Apartments by rooms, residents and meter square between 1999 and 2008 in Potsdam

Year	Rooms per apartment	Residents per apartment	Meter square per resident	Meter square per apartment	Apartments per dwelling
1999	2.67	1.76	36.97	65	5.47
2002	2.96	1.75	37.49	65.47	5.36
2005	2.73	1.85	36.05	66.87	4.78
2008	2.76	1.85	36.74	68.11	4.52

Source: own draft, according to Landeshauptstadt Potsdam 2009f

The main primary energy source in Potsdam is gas. In GDR times, the dominant fuel had been coal (lignite), and most households used one or more individual ovens. The dominant modernisation path after 1990 was to substitute individual coal ovens by a single gas unit per flat, if district heating was either not available or not feasible. Potsdam has a remarkable network of district heating; the municipal utility service (Energie und Wasser Potsdam GmbH, EWP) serves about 60% of households. EWP also provides electrical power and gas for individual combustion units (20,000 of 82,000 apartments use gas for space heating and hot water preparation) as well as gas stoves. In 2008, 2,062 GWh of gas were used. This gas is mainly imported from Russia. The electricity use in 2008 was 3,709 KWh per capita. Photovoltaic for power generation is gaining momentum, but its actual amount of 320 MWh total installed capacity is still very low. It can supply only 60 households (Landeshauptstadt Potsdam 2009g: 14 et seq.).

Figure 15: Energy sources in Potsdam in percent



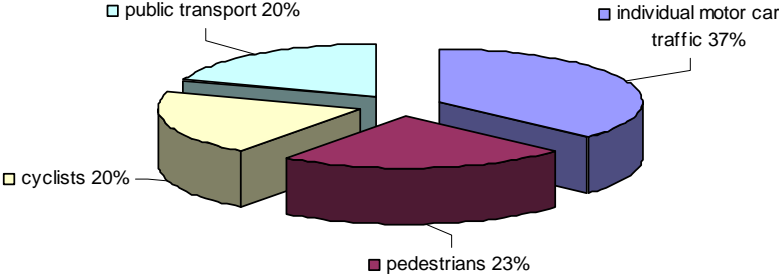
Source: own draft, according to Landeshauptstadt Potsdam 2009g

Regarding transport possibilities and infrastructure, due to the proximity to Berlin, Potsdam is well connected with the federal motorway network by three motorways: A 2 (Berlin-Hannover), A 9 (Berlin-Munich) and A 10 (Berlin Ring). Furthermore, the highways B1, B 2, B 102, B 107 and B 246 are accessible.

Potsdam and Potsdam-Mittelmark belong to the public transport association Berlin-Brandenburg (Verkehrsverbund Berlin-Brandenburg, VBB), which includes the public transport operators in Berlin and Brandenburg. Regular railways of the Deutsche Bahn connect the region with Berlin and its airports Tegel (only via bus) and Schönefeld. Potsdam is also connected to Berlin’s rapid transport system (S-Bahn). Furthermore, the Havelbus transport association connects Potsdam with more than 200 busses to its nine new parts and many places in Potsdam-Mittelmark. The municipal operator, Verkehrsbetriebe Potsdam (ViP), supplies various tram and bus lines in Potsdam.

As Figure 16 shows individual motorised transport is also important in Potsdam, but with 37% significantly less important than in PM (50%). Potsdam also is a city of cyclists (20%) and pedestrians (23%), probably due to the partial character of a city of short distances (e.g. in the centre and some districts, where living and shopping are mixed).

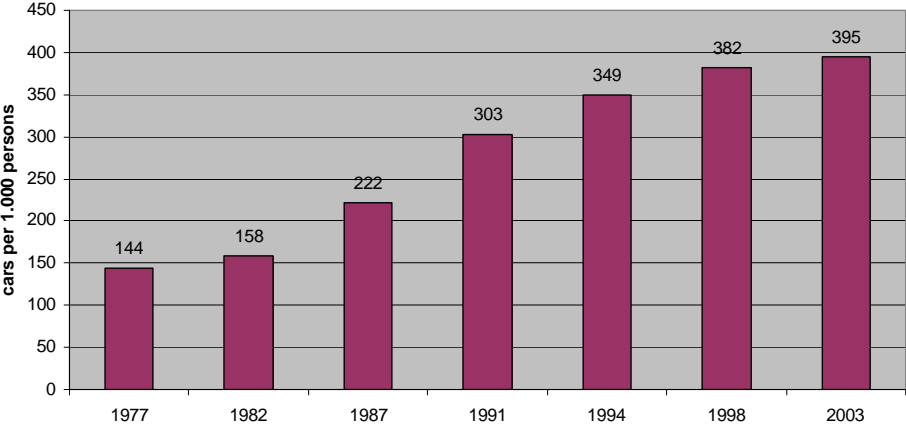
Figure 16: Modal Split in Potsdam



Source: own draft, according to Ahrens 2003

On average an individual passenger in Potsdam travels 3.1 times per day and 8.3 kilometres per trip. The car ownership in 2003 was 395 vehicles per 1,000 inhabitants, and the bike ownership 753 bikes per 1,000 inhabitants.²² Regarding the data it should be kept in mind that the study on which the numbers are based had just a small sample and Potsdam is a dynamic city. Due to growing population numbers car ownership and individual travel are expected to grow. Figure 17 shows the increase of cars in Potsdam since 1977.

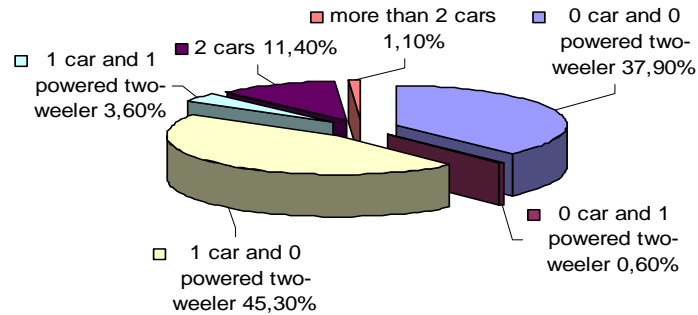
Figure 17: Increase of road vehicle stock between 1977 and 2003 in Potsdam



Source: own draft, according to Ahrens 2003

²² The survey included 600 households (1,134 persons).

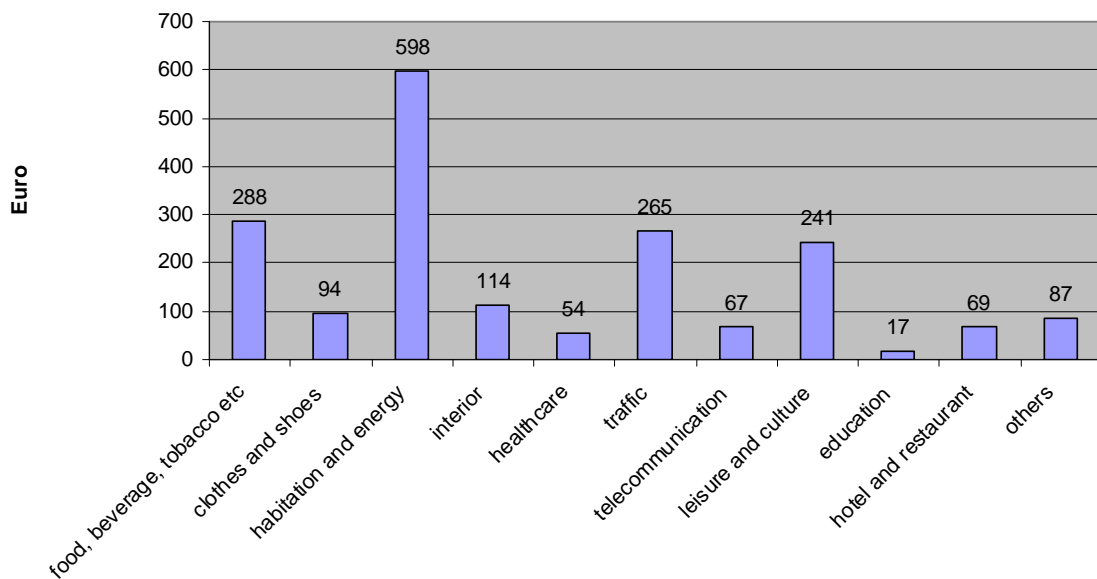
Figure 18: Households in Potsdam by motorisation



Source: own draft, according to Ahrens 2003

Regarding the consumption of private households there is no detailed data available for Potsdam and Potsdam-Mittelmark. Thus, expenditure figures for the Bundesland Brandenburg will be given. Consumer spending of households in Brandenburg in 2003 was around 1,895 Euro per month. Therein the most important item was habitation and energy (598 EUR), followed by food, beverage and tobacco (288 EUR) and traffic (265 EUR).

Figure 19: Household expenditure in Brandenburg by purpose per month in



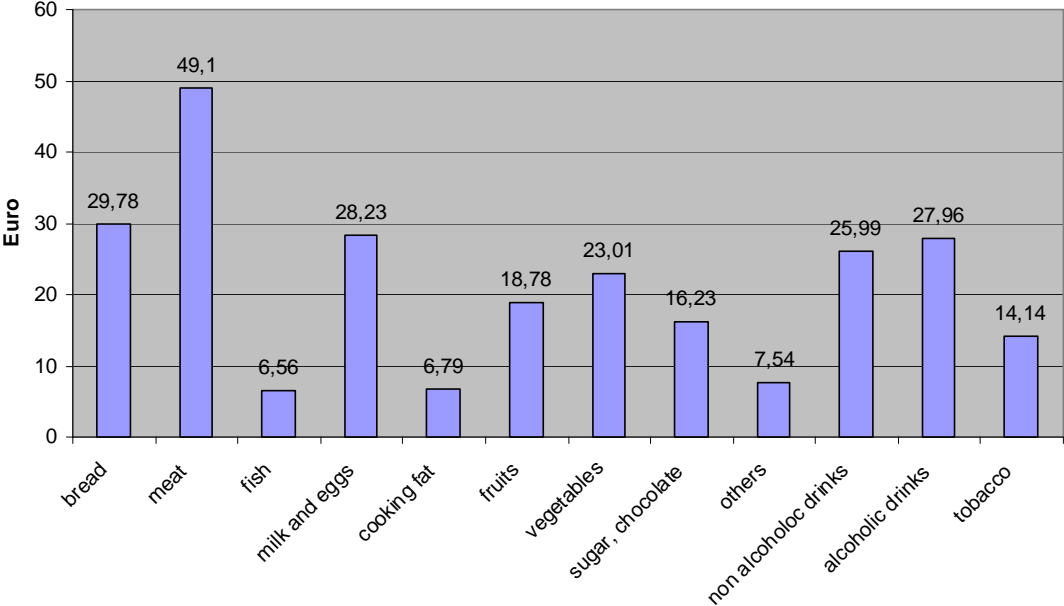
2003

Source: own draft, according to Landesbetrieb für Datenverarbeitung und Statistik Land Brandenburg 2005

There is no data available for annual quantity of food consumption in households. But from the expenditure for food, beverage and tobacco an inference can be made. Households in Brandenburg have a high consumption of products with a high climate impact like meat (49 EUR), milk and eggs (28 EUR). In contrast the consumption of vegetables is rather low (see Figure 20: Household spending for food, beverage and tobacco in Brandenburg by purpose categories per month in 2003

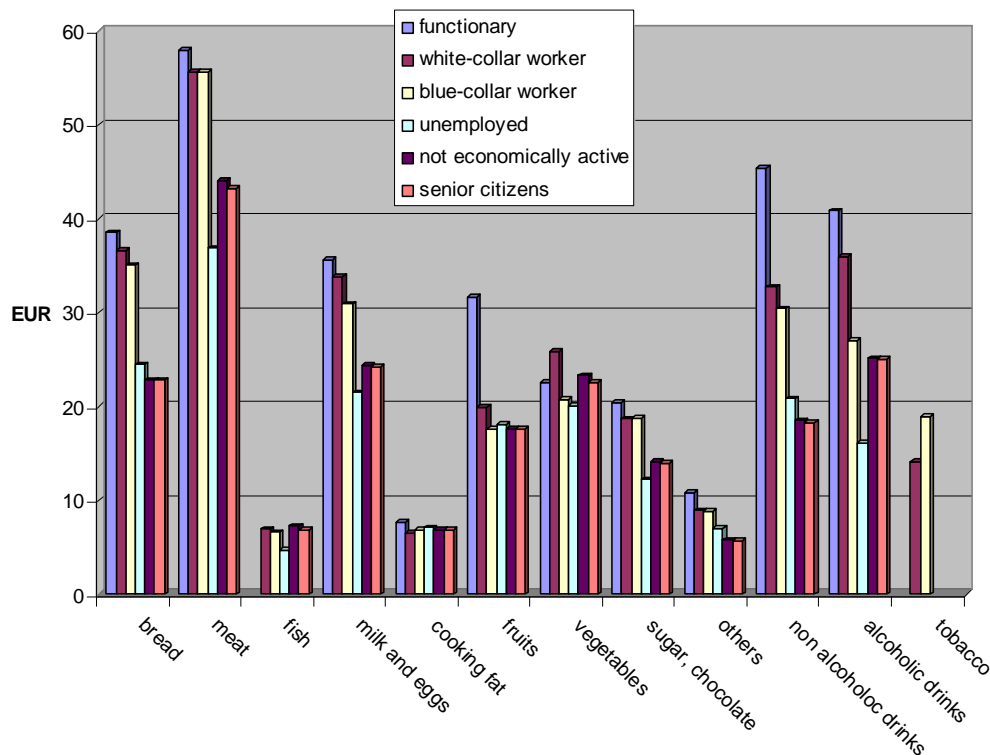
Figure 21 shows the household spending by social status of the main income earner.

Figure 20: Household spending for food, beverage and tobacco in Brandenburg by purpose categories per month in 2003



Source: own draft, according to Landesbetrieb für Datenverarbeitung und Statistik Land Brandenburg 2006

Figure 21: Household spending for food, beverage and tobacco in Brandenburg by social status in 2003



Source: own draft, according to Landesbetrieb für Datenverarbeitung und Statistik Land Brandenburg 2006

Potsdam-Mittelmark

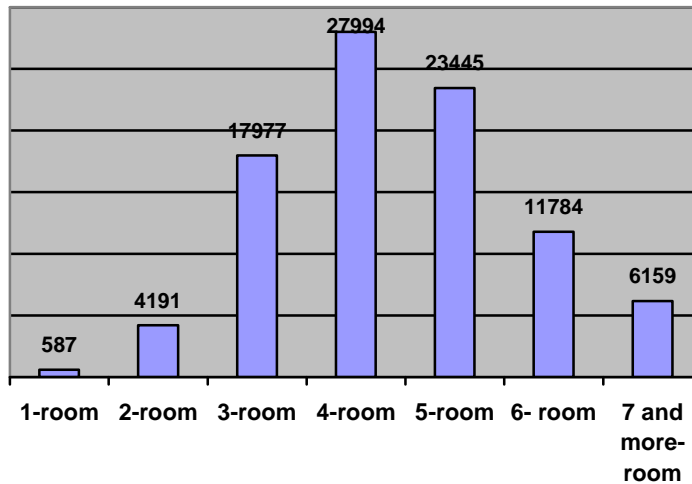
In PM there are about 91,100 private households. As Figure 13 shows there are 27,300 single households, 33,100 two-person household, 17,000 three-person household, and 13,700 four and more-person household. Thus, the share of single households is around 30%, and the average household size is 2.2 people (Data for 2007; AfSBB 2008: 51).

Since there was no data available for PM as regards the number of families, we can take the state of Brandenburg as a proxy, where we have about 394,200 families (AfSBB 2008: 45). In 2007, the mean household income in PM amounted to 1,850 Euro, GDP per capita was 3,450 Euro (LLSV 2009). With these figures, PM county can be regarded as a rather well-off region compared to other East German regions.

In total there are 56,417 residential buildings²³ with 92,147 flats. Most of these flats have four rooms (AfSBB 2008: 282).

²³ 43,368 of those residential buildings have one flat; 8,386 residential buildings two flats (16,772 flats); and 4,663 three or more flats (30,063 flats) (see AfSBB 2008: 284).

Figure 22: Number of rooms in flats, 2007

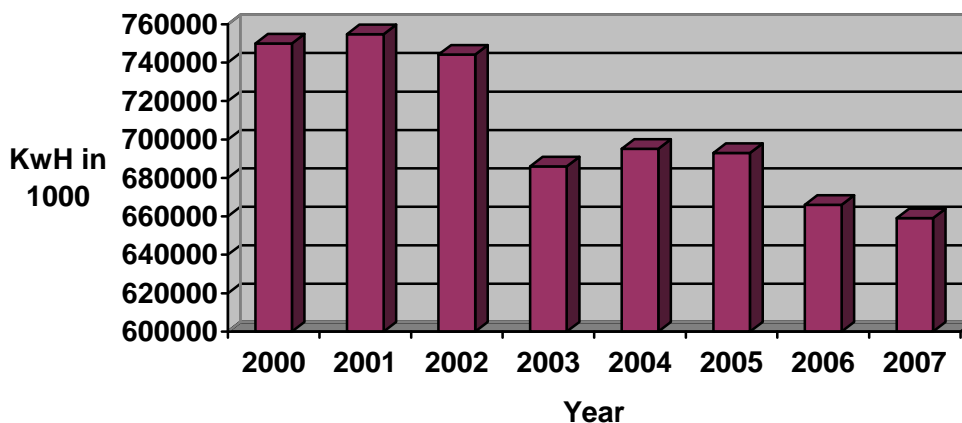


Source: own draft, according to AfSBB (2008: 282)

The living space has increased since 2000 from an average of 35.8 to 39.4 m² (LLSV 2007: 141).

According to data from the main regional energy provider eon.edis (cf. Landkreis PM 2009c), total energy use per capita (electricity, heating, gas) in PM in 2007 was about 3,200 kWh. As it is illustrated by Figure 23, total energy use in PM has decreased slightly since 2000.

Figure 23: Total energy consumption in kWh, 2000 – 2007



Source: Own draft, according to Landkreis PM (2009c)

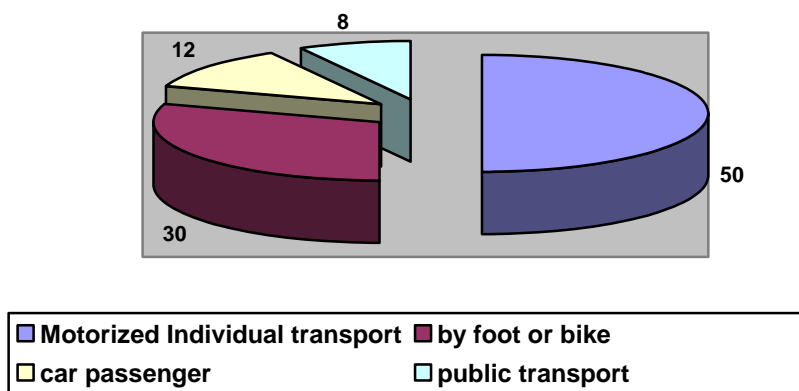
As regards transport possibilities and infrastructure, there is railway, public and private bus transport, and tram. These are however not accessible for every person in the same way. The north and east of PM are provided for in a comparatively good manner with all these types of transport. This corresponds to the fact that in

particular Potsdam and Berlin are focal points for commuter movements (Giehler et al. 2004: 8). In the south and west of PM infrastructure and transport is not as good.

In 1998 there were around 830,000 trips per day (Giehler et al. 2004: 22). This data is rather old and therefore it should be regarded with caution. Since then, population has grown and so transport demand too. While transport demand in the south-west of PM has decreased due to a decline in inhabitants, individual transport, in particular by car, is very important (cf. Giehler et al. 2004: 23). Most household interviews conducted in PM also confirmed this. The overall car density in PM is 550 cars per 1,000 inhabitants (German average: 610). Interestingly, the car density in the rural areas of PM amounts to 600 cars per 1,000 inhabitants (Giehler et al. 2004: 10), indicating that higher population and infrastructure densities lead to lower demand for motorised individual transport.

Figure 24 illustrates that individual transport is the most important transport type in PM. Data is from 1998 but much indicates that individual motorized transport has not reduced since then.

Figure 24: Distribution of traffic volume to different transport types, 1998



Source: own draft, according to Giehler et al. 2004: 23

Around 50% of the traffic volume corresponds to individual motorised transport. The share of public transport might be higher now but probably not much. Interestingly, many inhabitants of PM take the bike or go by foot.

According to the Statistical Office of the Land Brandenburg and Berlin (AfSBB 2008: 419), there are 131,972 motorized vehicles in PM. Most of these are cars (109,890).

There are three motorways (Autobahn) that connect PM with the national highway net: A 2 (Berlin-Hannover), A 9 (Berlin-Munich) and A 10 (Berlin Ring). Furthermore, the federal roads (major sub-Autobahn long distance highways, called 'Bundesstrasse': B1, B 2, B 102, B 107 and B 246 are accessible too. Last but not least, at least every hour there are trains between Berlin and Belzig, and Berlin and Brandenburg/Havel, linking the rural hinterland with Potsdam and Berlin.

There are different types and ranges of roads in PM. Motorways have a range of 148 km, highways account for 303 km, State roads have a range of 491 km, and county roads have 310 km. Most traffic takes place on the national highways. Concerning this matter PM has more roads than other counties in the region (Giehler et al. 2004: 23).

Transport (public and individual) in PM is increasingly influenced by the share of people travelling for leisure time. This may be deduced from the growing number of tourists travelling in PM. While 33% of all trips are for the purpose of shopping/purchase, 20% are for the purpose of working, 28% are for leisure (Giehler et al. 2004: 24).

Regarding long distance transport, there is no direct access to the Intercity or the Intercity Express in PM's railway stations. One has to travel to the cities of Brandenburg, Potsdam or Berlin first to get access to trains going to Munich (via Frankfurt or Leipzig), Hamburg or Hannover. This clearly makes public transport less attractive and may contribute to increased car use (Giehler et al. 2004: 14).

According to the transport development plan of PM's county (Giehler et al. 2004: 13 – 14), the promotion of the regional tram and rail service is one of the most important issues in the following years. Regional rail and tram service works comparatively well, in particular for the people in the north and east of PM. Since these forms of transport to and from Potsdam/Berlin offer advantages over car use (e.g. it is much faster), the improvement of this is high ranked on the agenda.

Regional – public and private - bus service is also important for the region. While in the rural areas it is overwhelmingly used for school transport, in the districts closer to Berlin and Potsdam it also serves commuters, shoppers, and tourists (Giehler et al. 2004: 14).

Business and commerce transport is generally carried out on the road through lorries. This holds for most parts of PM – with some exceptions in the economic centres at the borders of Potsdam and Berlin where a good infrastructure is available and goods can also be transported by rail.

The north of PM is crossed by four major water ways: Elbe-Havel-Kanal, Untere-Havel-Wasserstrasse, Havel-Kanal, Teltow-Kanal. There are also some smaller rivers that are accessible for ships.

There are two airports that people from PM can access fastest: Berlin Tegel in the northwest of Berlin (to be closed down in 2012), and Berlin Schönefeld, located southeast of Berlin (the future airport Berlin Brandenburg International, the then single airport of the German capital region). In PM there are some tiny landing places. One of this is to be considered as a future regional airport (Giehler et al. 2004: 21).

3. Description of the governance structure of the study area

In order to understand the decision making patterns within the city of Potsdam and the county of Potsdam-Mittelmark, it is necessary to briefly describe their scale of policy making within the multi-level governance system of Germany.

Based on this, the main institutions and organisations in the case study regions will be explained in further detail. This also includes a further analysis of governance aspects of relevant actors and their relationship towards each other.

The final part of this chapter will be a detailed power-interest analysis of these actors relating to energy and environmental policies and actions.

3.1. Administrative system in the case-study area

As a federal state, the salient characteristic in the political system of Germany is the range of competencies on the federal state (Bundesland, Land/Länder) and municipal level. As a federal system with its subsidiarity principle, the German constitution (Grundgesetz, GG) gives these Länder and their central political representation, the Bundesrat (Germany's second chamber), many rights to decide upon certain policy areas (e.g. education). Only in well-defined political domains the Federal Parliament (Bundestag, the first chamber) has legislative competencies (e.g. defence). A major reform regarding the federal competence split between national and federal level was passed in 2006 which aimed at simplifying the legislative procedure in Germany.

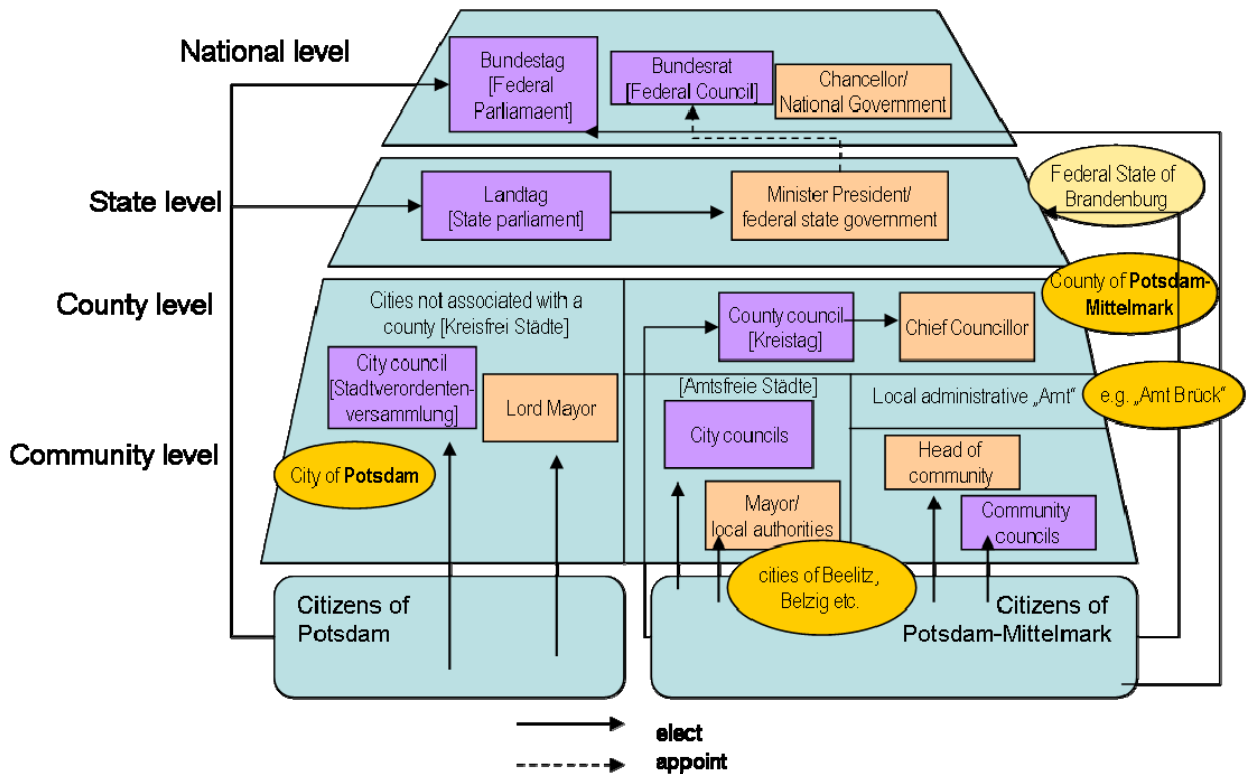
Legal Setting of Municipalities in Germany

The German constitution is also the basis for the self-regulation competencies of municipalities²⁴. In Article 28 GG municipalities are given the right to handle their own public affairs independently. This includes also direct responsibility for financial matters, especially the right to independently set local business taxes (Heinz 2000: 176).

In general, important actors within a multi-level-governance system can be subject to change – in relation to the thematic policy. Also, it is noteworthy that in practice not all levels are linked with each other, rather only specific institutions might cooperate (Hirschl 2009, 123).

²⁴ Here, communities are understood in the legal sense, as being the smallest administrative entity, and can comprise small municipalities associated to a county, independent cities – not associated to a county, and counties themselves.

Figure 25: Political-administrative system of Germany



Source: own graphic

Hiba! A hivatkozási forrás nem található. Figure 25 presents the political subdivisions in the German governance system. Even though municipalities have the right to handle their own matters, they are constricted by laws and regulations within this multi-level system. The governments of the Länder and the national level (Bund) have certain rights of supervision and authority.

The two main areas of municipal duties are:

- duties by assignment from higher hierarchical levels (*Auftragsangelegenheiten*)
- duties by self-regulation (*Selbstverwaltungsangelegenheiten*)

The first group of duties leaves municipalities with almost no room for manoeuvre. These duties comprise tasks such as civil services, passport- and citizen services, and policies dealing with foreigners.

The second group of municipal tasks can be split into mandatory and optional tasks. Mandatory tasks of the municipalities include, among others, land use plans, infrastructure, youth and social welfare affairs, and housing construction.

The range of optional tasks of a community can to some degree be freely determined by the local government and could include the promotion of social associations, youth clubs, constructions of public swimming pools and sport centres and many more.

Usually, the range of optional tasks taken up by a community is quite constrained. This is due to financial restriction of the communal budget and to growing mandatory tasks stemming from EU and national legislation

(Bougomil/Jan 2006, 103ff). In Potsdam 90% of all expenditures in the budget plan are bound as mandatory tasks and only 10% are spent on optional tasks (LHP 2009i). Given these constraints, it is rational for a community to utilise its resources in such a way that mandatory tasks are served first, while optional ones come later. Figure 26 and Figure 27 present the division of revenues and expenses of the City of Potsdam in the budget plan of 2009. The budget deficit is expected to be 5,5 million €.

Figure 26: Revenues of the City of Potsdam, Total: 413.2 Mio. Euro (2009)

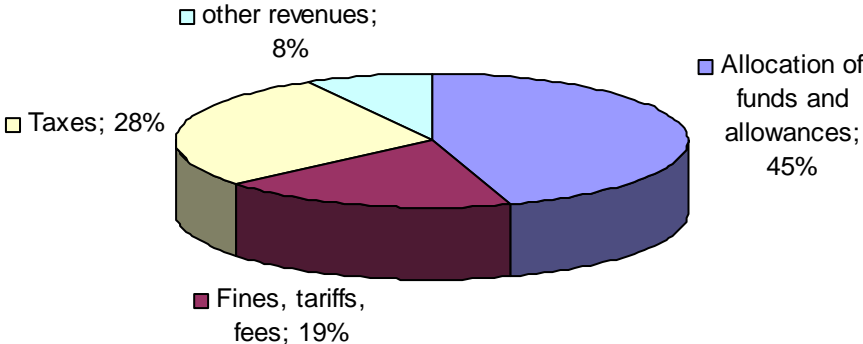
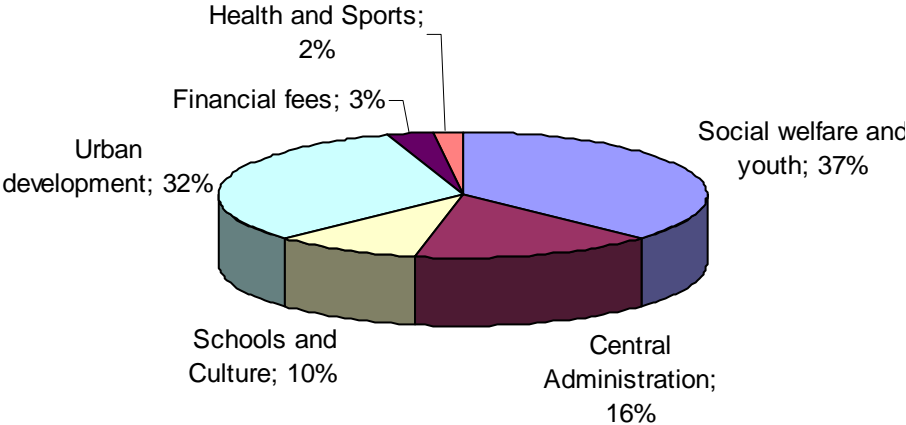


Figure 27: Expenditures of the City of Potsdam: Total: 418.7 Mio. Euro (2009)



Source: (LHP 2009i)

Range of Competencies in Potsdam and Potsdam-Mittelmark

The city of Potsdam is an independent town, i.e. a town not associated with a county (Kreisfreie Stadt). In Germany, normally cities with a population of more than 100,000 are independent towns. Legally, independent towns have similar functions as counties (Kreise), and the Lord Mayor (Oberbürgermeister) of an independent city has the same authorities as the Chief Councillor (Landrat) of a county.

In comparing the two case study regions it is important to note that both, the city and the county, belong basically to the same level of hierarchy within the multi-level system. The main difference between the two case study areas is that the independent town of Potsdam itself is a municipality – in the legal sense that a municipality is the smallest administrative area and is therefore responsible for its self-government (see above, Art. 28 of the constitution).

By contrast, the administrative levels in counties are much more diverse. The county of Potsdam-Mittelmark comprises towns, ‘Ämter’ (an administrative network of small municipalities with a population below 5,000) and smaller independent municipalities. Legally, the county is an association of local governments and acts as a framework for its independent cities and municipalities. The county does not have full financial rights, as municipalities do, and is bound to forward decisions to the community level where possible (§ 122 BbgKVerf). However, the county does serve as an important level in terms of planning decisions and financial balancing between its municipalities (Gröpl 2008). It is also responsible for the implementation of all duties which are beyond the scope of single municipalities and it should aim at the general economic, cultural, and social development of its region. See Figure 11: Map of PM and its municipalities

for the list of different municipalities and ‘Ämter’ within the county Potsdam-Mittelmark.

Thus, legally there are no hierarchical connections between Potsdam and Potsdam-Mittelmark. Both are legally independent entities belonging to the same regional planning association and belonging to the same federal state, Brandenburg. Political leaders of both regions do know each other, but they do not depend on common decision making procedures. The exception to this is the regional planning association as described in the next paragraph.

Financially, there are no direct dependencies between Potsdam and Potsdam-Mittelmark. Both regions are responsible for their own budget plans (to be decided by the respective legislative body). Both regions have strict financial constraints and are bound to set up a plan for future budget balancing (Haushaltssicherungskonzept). A municipality which has more expenditures than revenues and is thus indebted is required to set up such a plan in which the municipality describes on how to reach a balanced budget within the next four years. This normally implies deep changes in the municipal budget planning and needs to be approved by the federal state of Brandenburg (LHP 2009h).

Regional planning level

In addition to these two constitutionally fixed levels of the political-administrative system, there is one level between the federal state and the county level, which – in Brandenburg – is called ‘Regional Planning Association’. This level is not anchored in the constitution, it rather serves as an administrative institution to

bridge the planning gap between the federal state authorities and the counties. Potsdam and Potsdam-Mittelmark both belong to the same ‘Regional Planning Association’ Havelland-Fläming²⁵.

Figure 28: The five regional planning associations in Brandenburg



Source: Gemeinsame Landesplanung Berlin-Brandenburg 2009

In total, Brandenburg has established five such regional planning bodies. Their foremost responsibility lies with the setting-up of regional (i.e. beyond- and cross-county) land development plans. These plans are the most important basis for the development of renewable energy sources such as wind parks and solar power plants, and this is why we mention them here.

The main institution of the Regional Planning Association is the Regional Council. The council has 40 members and directly includes all (Lord) mayors, Chief Councillors and mayors of municipalities with a population over 10,000 citizens. Additionally, city councils and county councils can elect additional representatives. The regional council also elects the executive committee from among its members. Currently, the Chief Councillor of Potsdam-Mittelmark also serves as head of the Regional Association Havelland-Fläming.

As described the main task is to set up regional development plans. These are often crucial for the implementation of renewable energy projects across borders. The original idea of these Regional Planning Associations is that larger RES projects should be planned on a regional level, because the areas for which

²⁵ The regional planning association Havelland-Fläming includes also the counties of Teltow-Fläming, Havelland and the independent city of Brandenburg. It is thus the planning association of South-Western Brandenburg.

counties and cities are responsible are often too small. Also, often wind parks cross certain administrative borders and a higher planning level is hence useful.

In practice, negotiations between the 40 members of the regional planning association often prove difficult. This is because the members are again bound to their municipal level and to decisions regarding construction planning on city or town level. Hence, it has occurred in the past that a wind plan was decided on the regional level, but the municipal level voted against it. As a result, many investments plans for wind energy are still pending.

1.1.1 Local Governments in Potsdam and Potsdam-Mittelmark

The analysis of local governments in Potsdam and Potsdam-Mittelmark will mainly focus on the city- and county-level. As mentioned above, the county of Potsdam-Mittelmark comprises a number of independent towns and municipalities, but their power relation can only be briefly highlighted when relevant for a certain context.

City council in Potsdam

The two most important political institutions in Potsdam are the city council as the highest legislative institution and the Lord Mayor as the head of the city's administration. Both are directly elected by the citizens of Potsdam. Serving term of the mayor is eight years and the city council is elected every five years. The job of city councilmen and -women in Potsdam is largely honorary, although they do receive a small monthly remuneration of about 200 Euros and an attendance fee during sessions (Entschädigungssatzung 2001). The Lord Mayor and his/her deputies as well as the Chief Councillor and his/her deputies are so-called elected civil servants.

The most important tasks of the city council in Potsdam include:

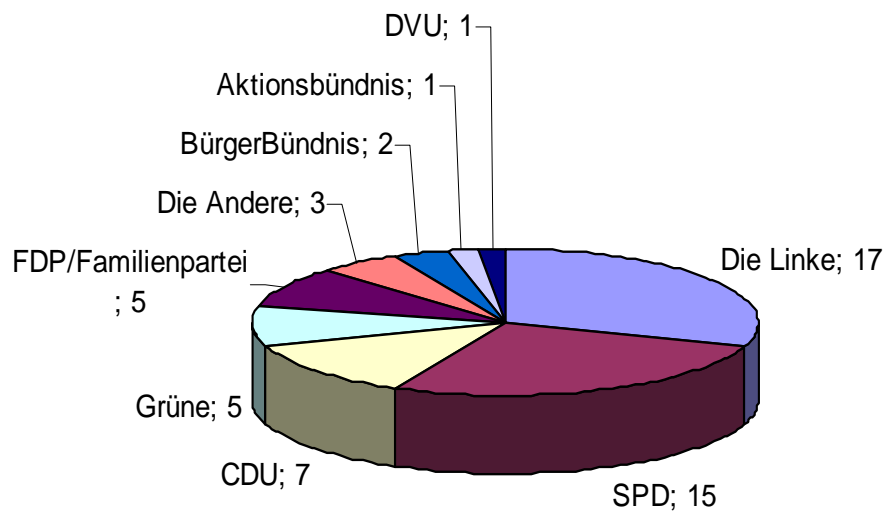
- adopting statutes of regional institutions
- control of budgetary planning
- electing deputy mayors and agree on leading administrative personnel
- controlling administrative work of the city's departments
- uptake of new tasks with no legal binding, and forwarding tasks to other public institutions

(Kommunalverfassung Brandenburg)

Similar to federal and national parliaments, members of the city council can form political factions (Fraktionen) according to their political party affiliation.

Since the last communal elections in September 2008, the seat allocation according to political parties is as follows (Figure 29).

Figure 29: State of the Parties in the City Council of Potsdam



Source: Amt für Statistik Berlin-Brandenburg, 2008

Even though the left-wing party ‘Die Linke’ has the plurality in Potsdam’s city council, it is not part of any government coalition. The head of the city council, a member of the Green party, was elected by a so-called ‘civic coalition’, which is a coalition of Social Democrats (SPD), Christian Democrats (CDU), the Green Party, and the liberals (FDP/Family Party). Media reports and interviews with councilmen in Potsdam suggest that a coalition between social democrats and left-wing ‘Die Linke’ could have been possible if it has not been for the influence of the former Lord Mayor candidate of the left party. In 2002, this candidate (Mr Scharfenberg) lost by a very close vote to his opponent from the SPD, Jann Jakobs, and is very likely to take his chance again in 2010. There have been tendencies within the party of ‘Die Linke’ to cooperate with the social democrats, but the influence of Mr. Scharfenberg seemed to have ruled this out. Right after the communal election results in 2008, when ‘Die Linke’ won the plurality, he neglected the possibility to have exploratory discussions with the social democrats (Metzner 2008). As a result, the strongest local party in terms of votes finds itself isolated from political power, and confronted with a ‘civic coalition’, the composition of which is rarely found elsewhere in Germany.²⁶

For purposes of its daily work, the city council is subdivided into several committees which are related to certain topics. The central committee is headed by the Lord Mayor, who has also the voting rights in the council. His four deputy mayors don’t have voting rights, but can actively participate in plenum or committee sessions.

²⁶ It should be noted, though, that party coalitions in German municipalities offer a somewhat more flexible and ‘colourful’ picture than at Länder or Federal levels, as local conditions and particular problems as well as traditions give room to a more ‘experimental’ approach. It should also be noted that, while the quasi non-communication between the Left party and the Social Democrats reflects a more general line in the country, the overall climate between the two parties seems to have experienced major changes since the last federal elections in September 2009, when the SPD has lost votes dramatically, whereas the ‘Linke’ gained ground—even in Western Germany, where it used to be difficult for a ‘post-socialist’ party with Eastern origins. However, the next regular elections for the Potsdam city council are scheduled no earlier than 2013.

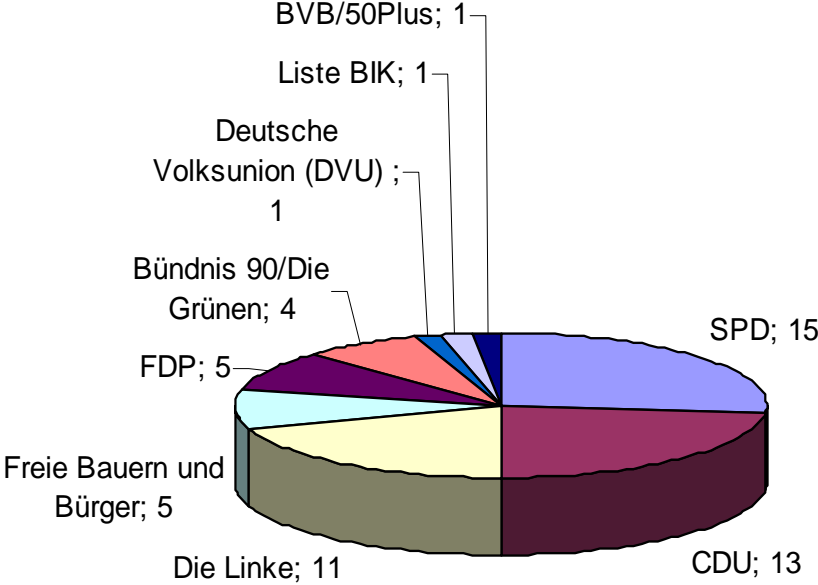
Sessions of the plenum or committees are generally always public except if matters relating to personal or corporate interests are discussed. Dates and topics of sessions are published online and interested citizens can freely participate if they wish to (online information is available here: <http://egov.potsdam.de>). Due to seat constraints of certain committees it is however necessary to register beforehand. Most committees also invite expert citizens to support and advise the councilmen- and women in technical or simply civic matters.

County Council in Potsdam-Mittelmark

At the same communal election when the city council in Potsdam was elected, the votes in Potsdam-Mittelmark showed a different picture. In the county, the Social Democrats (SPD) took the lead ahead of the Christian Democrats (CDU) and the left-wing party 'Die Linke'. As is typical for communal elections a number of small regional parties are also represented on the county council. This includes the party of farmers (Free citizens and farmers), a section of the supra-regional 'Free Voters' (List BIK) and a regional group named 'Brandenburg Civil Movement'. It also has to be noted that – in the city as well as in the county council – one representative of the rightist extremist party 'German National Union' (Deutsche Volksunion) was elected. In general, the small number of seats of these parties does not affect the general policy setting in the county, but it reflects the diversity of local groups.

As in the city council of Potsdam, the left-wing party 'Die Linke' is not part of the coalition, which is formed by Social Democrats (SPD), Christian Democrats (CDU), Liberals (FDP) and the Farmer Party (CDU 2008). The Greens are not part of the coalition, mainly because SPD and CDU have reached a comfortable majority without any other party, but also because of issues in the past elective period, when it was not possible to settle disputes between Greens and the ruling coalition. The Green faction is hence in the opposition and – like the other opposition groups - follows closely the policy formulation by the grand coalition of SPD and CDU (PNN 2004, Grüne Kreistagsfraktion).

Figure 30: State of the Parties in the County Council in Potsdam-Mittelmark



Source: Amt für Statistik Berlin-Brandenburg, 2008

The county council has quite similar rights and duties as the city of Potsdam. Yet, as the council is rather the representative of an association of municipalities, committee and plenum sessions have a somewhat more general focus. More detailed matters, which are in the scope of the self-regulation traditions of single municipalities and towns, are dealt with by the respective subsidiary city/community councils. The division of committees of the council is also similar to the city council. This includes that expert citizens are invited to sessions of the respective committee and generally, sessions are also open for the public

Lord Mayor and city administration (Potsdam)

As mentioned above, the second most important institution within the cities’ politics is the Lord Mayor. He is not only a member of the council (being the legislative element), but – more importantly – he is the head of the city’s administration. As the head of the central committee of the city council he co-ordinates and oversees the council’s work in other committees. It is also his responsibility to prepare resolutions for the council, and if a resolution is agreed, to activate its implementation in the city’s administration. Thus the Lord Mayor is an extremely important link between council and administration. In addition, the Lord Mayor represents the city at any official occasion, and he is a well-known and highly visible public person. If lay people express their view that ‘the city of Potsdam’ should do this or that, they usually have Jann Jakobs in mind, although the city council is the major legislative body.

The administrative set-up in Potsdam has the mayor as its head and four major departments – analogous to ministries. The Lord Mayor as well as the separate departments co-ordinate separate staff-units, which are not

in the direct hierarchy, e.g. the climate coordination group is a staff-unit subordinated to the third department (Environment), and business development is directly connected to the bureau of the Lord Mayor.

The subdivision of administrative departments is as follows.

- Department I: Central Services
- Department II: Education
- Department III: Youth, Environment, Health
- Department IV: Urban Planning

The respective heads of departments are at the same time deputy mayors and elected by the city council for eight years.

Following an administrative tradition in Potsdam, deputy mayors are normally elected because of their expert knowledge, but – according to the majority of the current coalition - political party affiliation also plays an important role.

The central administrative institution concerned with climate change is the Climate Coordination Unit (Klimakoordinierungsstelle, KKS). The KKS was formed in 2008 in order to express, bundle and reinforce the city's climate protection goals. The KKS is a staff unit connected to Department III (Youth, Environment and Health). Interviewed stakeholders tend to see this administrative setting as a constraint, because the climate group does not have full executive powers within the line-organisation of the administration. Also, the personnel of this group were reduced from 3 to 2 staff members in 2009. It is debated that the climate group should be moved from Department III to Department IV. The latter is now headed by a Green Party member, who was elected by the city council only recently and started his job in September 2009.

Generally, interviewed stakeholders mentioned that Department IV was more powerful than the second or the third department. This is probably because urban planning is concerned with rather larger city development projects which have a strong financial impact, and require local regulation. The other departments are somewhat rather regarded as 'soft' administrative powers (except for the first department which is responsible for the overall budgeting and financial planning).

A change in the administrative structure – i.e. making the KKS a staff unit which is connected to department IV - could hence be an improvement in terms of power, but it does not solve the general problem of a staff unit, which is not embedded in the executive system (see chapter 3.2 for background information on the development of climate policies in Potsdam).

The KKS initiated a number of public and internal events to raise attention and actions for climate protection. The most significant project is the foundation of the **climate council** of Potsdam in summer 2008. Basically, all major stakeholders related to energy issues and climate issues – governmental as well as non-governmental actors – are members of this advisory board. This committee will be discussed in more depth in 3.2 and 3.3.

Another important player connected to the city administration is the municipal real estate service (Kommunaler Immobilien Service, KIS). The KIS is the management body of all municipal buildings (e.g.

schools, kindergarten, administrative buildings etc) and is connected to the Department I Central Services. Compared to other municipal entities, such as the municipal energy supplier (Stadtwerke Potsdam, see under “Enterprises”), KIS does not have a legally independent status and the city is the sole operator. Thus, KIS acts as a representative of the city and – compared to other municipal enterprises with legal independence – strongly dependent on financial constraints in the city’s budget plan. KIS is important for the city’s energy balance, because most of the city’s energy expenditure for electricity and heat is consumed through municipal buildings. This is also why KIS has created the job of an energy manager in January 2009 who is responsible for the identification of energy saving options in buildings. It has been found that an energy manager is profitable when expenses for energy are above 5 million Euros per year (LHP 2009).

Chief Councillor and council administration

Unlike the Lord Mayor of Potsdam, the Chief Councillor of Potsdam-Mittelmark is not directly elected by the citizens, but by the county council.

Apart from this, most functions and duties are fairly similar. The Chief Councillor also has voting rights in the council, but he is not the head of the central committee of the coordinative functions between council committees.

Like the mayor he is the head of the administration. Under his direct order are a number of staff units, most importantly the staff unit of business development. One employee of this unit was formerly in charge of the environmental office within the council administration, but has now shifted his responsibilities to combine business development and smart energy supply. This merger of two formerly opposing goals – economic progress and sustainable energy supply – indicates how interests and worldviews can change.

The order of departments is slightly different than in Potsdam. The most important difference is the strong focus on farmers’ and land development issues which are bundled in a separate administrative department.

In contrast to Potsdam, Potsdam-Mittelmark has only one deputy mayor. He is not head of one of the departments, but is rather responsible for the whole management of the administration. The current deputy mayor is a member of the CDU, whereas the Chief Councillor is a member of the SPD, both thus reflecting the political power situation in PM.

The current Chief Councillor was elected into office early in 2009, and is at the same time the head of the regional planning association, as mentioned above. His forerunner, also a member of the SPD, has been in office for 19 years, and, among environmental activists, was known for his open-minded manner towards the development of renewable energies—and a capability of ‘making things happen’. Hopes are expressed that his successor in office will follow his route. It is too early to judge.

There is no institution similar to the Potsdam Climate Coordination Unit or the Climate Council in Potsdam-Mittelmark. However, the above mentioned staff unit of business development is in charge of many similar activities. For example, the annual prize for environmental activities is issued by this unit. Also, it

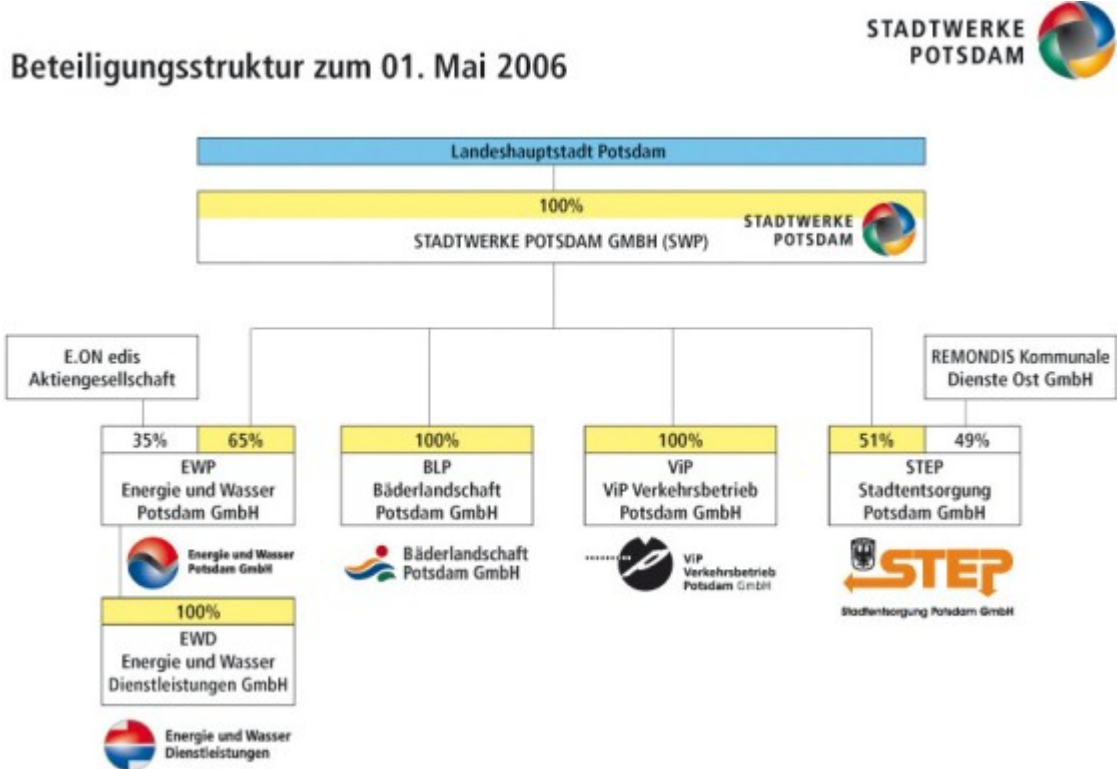
prepares the renewable energy strategy of the county and supports the general renewable energy projects currently in place in PM.

1.1.2 Non-Governmental Actors in Potsdam and Potsdam-Mittelmark

Potsdam Enterprises

The two largest employers in Potsdam are municipal enterprises, namely the local energy supplier (Energy Water Potsdam, EWP), and the largest local residential building cooperative (Pro Potsdam GmbH, with its main subsidiary GEWOBA GmbH). Other important enterprises in the field of climate policy are the local real estate service (Kommunaler Immobilien Service, KIS), and the municipal transport service (Verkehrsbetrieb Potsdam, VIP). Both, EWP and VIP are part of the same municipal utility SWP (Stadtwerke Potsdam). Other enterprises under the umbrella of the SWP include the STEP, company for refuse collection service, and a company responsible for municipal swimming-pools. As can be seen in Figure 31, the city is not the sole owner of EWP. E.ON edis, the private and main energy supplier in Germany, holds 35% of its stocks. This holding structure is quite commonly found in cities with a tight financial situation; other cities often have a higher share of stocks of their energy supplier (PWC 2008,16)

Figure 31: Holding Structure of Potsdam's municipal utility (SWP)



Source: www.potsdam.de

The city of Potsdam is the sole shareholder (except for EWP) of these municipal enterprises, but the legal forms differ, i.e. the local real estate service (KIS) is a city-owned enterprise without an independent legal status. By

contrast, GEWOBA and SWP are also city-owned but they have a separate legal status as limited liability companies (Ltd).

All mentioned municipal enterprises are crucial for the success of the city's climate programme, because these are the main municipal players which need to implement the most important measures to reduce CO₂ emissions.

Although city-owned, the city's influence is somewhat limited, because the enterprises are equally bound by financial and logistic constraints.

Among the mentioned major enterprises GEWOBA stands out as an especially forward-thinking company. Its CEO (Mr Westphal) is quite engaged in improving energy-efficient building methods and tries continuously to mainstream climate protection measures and adaptation issues into the daily working practices of his company. For example, the CEO has started a research programme as part of the company's risk strategy. In general, he strongly believes that the scientific knowledge of today needs to be implemented by the construction of buildings which will have to be adapted to the environment of 30 to 80 years time. The gathering of knowledge is hence basically aimed at finding out how regional climate change will affect the buildings of GEWOBA. As part of this programme he was also interested to know the number of trees on the premises of GEWOBA. As nobody before had ever asked this there were only rough estimations about this, but a co-worker of GEWOBA has found that the company is responsible for over 8,000 trees. For a company like GEWOBA this is interesting for liability reasons, i.e. the likelihood that trees, and especially old trees, might be damaged or damage something else due to an increased likelihood of heavy storms in the future, needs to be taken into account. There are also other actions, which aim at a more direct influence on mitigation. In the headquarters of GEWOBA, information sheets in bathrooms indicate during which times the lights should be switched off or kept on and in every room a thermometer shows the appropriate room temperature and potential energy savings. According to Mr. Westphal these and other measures such as internal training workshops aim at raising awareness of climate change and energy saving among his employees. Another human resource strategy aims at fostering the knowledge of his employees through the management of energy-efficient show-cases. Realizing that some of his employees finished their education 20 or 30 years ago, he clearly supports training programmes for building up the knowledge of his staff. Especially in the field of adaptation, where new scientific evidence is just developing (e.g. how organic construction materials such as wood in older buildings will react to increased moisture due to wet winters etc).

Most other companies which could be considered to have a stake in the city's climate policy are small and medium sized enterprises. These include for example PV project developers, or biotech companies. The scope of these individual enterprises is however limited. Nevertheless, under the umbrella of the Chamber of Commerce and Industry (IHK), Potsdam seems to be developing as a promising location of green industries. Besides being a cultural centre in Brandenburg, Potsdam is also known for its science institutes and universities. It was noted during field research that the cooperation between companies and scientific institutes should be utilized more intensively.

It has to be noted that most of the above mentioned enterprises (or at least staff members who deal with climate change and energy issues) do know each other quite well. Some of them have close connections to the city's administration, and cooperate with the KKS. Hence, some boundaries between corporate and civil interests in the city are not very sharp-edged. Instead, we observe a network character of activities and attitude formation.

NGOs

Several NGOs in the energy and climate scene are active in Potsdam. The most important ones are arguably the Energy Forum Potsdam (EFP) and the Solar Club (Solarverein).

The Energy Forum was established by engaged citizens, most having professional background knowledge of energy issues and some having a leading position of one of the municipal enterprises (GEWOBA, tenants association).

Many members of the Energy Forum are also members of the climate council and vice versa. The Forum meets regularly and discusses local energy options. Main aim of the Energy Forum Potsdam is to raise public attention in Potsdam to climate and energy issues and to coordinate existing initiatives and information about these topics. The Forum has started a number of different activities, e.g. in 2008 before the municipal elections they conducted interviews with political party leaders about their opinion about concrete energy and climate policies (Energie Forum Potsdam 2008). Recently, it initiated also a scenario workshop, which took place at the premises and with participation of PIK. The three-day workshop brought together about 25 experts and stakeholders of various institutions and organisations in Potsdam (e.g. enterprises, political party members, scientific institutions, NGOs) to develop an energy and climate vision for Potsdam. The scenario resulted in different future possibilities of which the positive version of a low carbon Potsdam was considered most desirable. While the workshop was positively received by the participants, it was also mentioned that this was a first step in the process of closer cooperation and more action towards a Potsdam "Sanssou-CO₂". (the palace of Sanssouci is the most famous attraction in Potsdam and was hence adapted to reflect the idea of the city of Potsdam "without sorrows and without CO₂").

The solar club in Potsdam is a citizen-led initiative which initiated the construction of two photovoltaic power plants financed by citizens' loans. It is continuously looking for further construction sites and aiming at increased awareness for rational energy use. For historical reasons, in Potsdam the issue of monument conservation is an important one. Very often related laws and regulations—as well as supporting attitudes in public administrations—prevent the installation of renewable energy devices in or even around historical buildings.

A Short Story on the Financing of Renewable Energy Projects in Germany

Financially, the solar club depends on the national feed-in tariffs which are legally guaranteed for 20 years. Based on the German Renewable Energy Law (Erneuerbare Energie Gesetz – EEG) all owners of transmission

grids are required to take up electricity produced by renewable energy plants – regardless of their actual energy demand (§ 2 Nr. 1 EEG). Further, feed-in tariffs for the operator of the power plant are legally fixed for a minimum of 20 years. The feed-in tariffs vary according to the renewable energy source used and according to the year of installation. For example, a biogas plant (which also produces electricity, not only heat) installed in 2008 would receive a feed-in tariff of 7.79 Cent (5-20 MW_{el}). A PV plant (30-100 kWp) in 2008 receives a tariff of up to 44.48 Cents. In 2009 this tariff is already reduced to 40.91 Cent. Based on the year of installation the feed-in tariff will be the same for the next 20 years (disregarding inflation rates). However, the later a renewable energy plant is installed and connected to the grid, the lower will be the feed-in tariff - it is set to decrease by each year by 1% (www.erneuerbare-energien.de).

In relation to technology there are various differences between the tariffs, e.g. for wind power plants there are special tariffs for repowering (enlarging the capacity of already existing wind power plants), or for biogas there exist a number of bonuses for renewable plants or for combined heat and power installations. In September 2009 a new parliament was elected in Germany and as a result of the conservatist/liberal coalition, some of the current tariffs might be further reduced. Price developments in the EEG generally aim at influencing the development of certain renewable energy technologies.

The concrete business case for the Solar Club Potsdam and its most important PV plant up to now reads as follows:

The members of the Solar Club agreed with the local Montessori School to use their roof in order to install a PV plant. The roof surface of 600m² allowed the Solar Club to construct a PV plant of 60 kw capacity which is expected to provide an annual 55,000 kWh (in fact in 2009 the annual expected capacity was already reached in October!). The installation of the PV plant cost 280,000 € of which 55% was collected by shares of the 60 members of newly founded “Energy Cooperative” and the remaining 120,000 € was paid off with the help of a long-term bank loan from the GLS Bank (one of the large environmental banks in Germany). The “Energy Cooperative” (a partnership under German civil code – Gesellschaft bürgerlichen Rechts) with its 60 shareholders was especially founded for the purposes of financing this PV plant, because it was estimated to be the most practical legal organisation.

Based on the expected annual electricity produced by the PV plant of Potsdam’s Solar Club, the Energy Cooperative can expect a annual return of 24,464 € from the grid owner. After paying the amortisation of the bank loan and including additional costs such as the connection charges to the grid, interest rates, insurances etc, the shareholders expect annual revenues of 4% (depending of annual sun-shine hours).

The CO₂-free electricity produced by the PV plant is expected to amortise its own CO₂ production emissions after 2-3 years. From then on it will be virtually CO₂ neutral.

While conservationists and renewable energy promoters remain strict opponents in most cases, the Foundation of Prussian Castles and Gardens (SPSG), owning and managing most Potsdam castles and historical parks, has started to develop pilot projects in order to demonstrate how this opposition might be overcome. At this point it is still too early to assess the success of these projects.

Potsdam is also home of local branches of nationwide environmental NGOs, such as BUND (German branch of Friends of the Earth), Nabu (Nature Protection Union), and Greenpeace. These organisations also

actively engage in climate policy. However, up to now, they do not play a major role in municipal energy and climate policy. Their main focus is the general environmental and energy-related policy of the Land of Brandenburg, which is a particularly burning matter for the Eastern and Southern part of Brandenburg, where lignite mining and two large coal power plants are situated. Much of the local NGO potential for our issue is—at least for now—channelled through the Energy Forum, with remarkable overlaps to the city’s Climate Council. It seems that contacts between the – one could call them “new” initiatives such as the Energie Forum and the Solar Club – and the “established” environmental NGOs are not very relevant up to now. There have been no cases of cooperation yet between these different organisations. This is probably due to different foci and limited personal capacities among different groups. However, it might well be possible that different organisational set-ups might effectively cooperate more closely with each other in the framework of an enhanced climate awareness campaign initiated by the programme of the city.

Local media

There are two major local newspapers in Potsdam – the ‘Potsdamer Neueste Nachrichten’ (PNN) and the ‘Märkische Allgemeine Zeitung’ (MAZ). PNN covers mostly stories in Potsdam as does the MAZ, the latter however also covers topics in the region of Potsdam-Mittelmark.

In the past years, both newspapers reported about climate issues on an irregular but steady basis, including news about the local research institutes (including the Potsdam-Institute for Climate Impact Research, PIK), but also municipal governance actions, such as the formation of the climate council. Without simplifying too much one can say that, in former years, climate change was a major issue in Potsdam newspapers mainly due to PIK’s national and international reputation, while since about 2007 the issue is dealt with also as a local (policy) issue of its own right.

A local TV broad caster (PTV) is serving a TV niche market for the city, but so far has not dedicated too much attention to climate issues. Potsdam is home to a couple of radio and TV stations, most of which local branches of nation-wide broadcasting chains. Most importantly one would have to mention the Rundfunk Berlin-Brandenburg (rbb), a regional radio and TV broadcaster which is a member of Germany’s First TV Channel (ARD). The rbb covers climate issues on a regular basis, and is home to the most traditional environmental TV magazines in Eastern Germany. Potsdam is also home of a film and TV university. Most of these mass media organisations and branch offices are located in Babelsberg, a Potsdam quarter directly neighbouring the West of Berlin.

Potsdam-Mittelmark

Enterprises

The major energy supplier is Eon.edis ltd., a subsidiary company of Eon, one of the four important players in the German energy sector. Other major energy companies in Germany are Vattenfall, RWE and EnBW. Eon.edis is the largest local energy utility in Brandenburg and Mecklenburg. The regional subsections for Potsdam-Mittelmark are split into ‘Teltow-Fläming’ and ‘Fläming-Mittelmark’. Many areas in the region

even produce more renewable energy than they consume due to large wind energy plants. Most of the central renewable energy plants, such as the wind parks, are owned by eon.edis and electricity is fed into the grid as required by the national renewable energy act (EEG). Consumers in PM subsidize unknowingly the export of electricity to other German Länder.

There is a small number of innovative firms which are involved in research and implementation of renewable energy solutions, such as the company Energiequelle, which was involved in the renewable energy project of Feldheim (see 3.2).

Farmers

In a rural area where 80% of the land is used by agriculture or forested, farmers play an important role. The farmers in PM have even formed a political party which has won five seats in the last county council elections. Closely connected to this political representation is the county's farmer association (Kreisbauernverband), which bundles the interests of its members. The farmers generally play an important role when it comes to the implementation of renewable energy solutions, such as biomass/biogas, but also for providing land for potential solar plants. For example, in 2007 the Farmer's cooperative Golzow has decided to sell land in order to install biogas plants. The electricity produced has significantly helped to reduce general electricity costs (which normally add to be paid to the local energy supplier). More importantly, biogas plants can help farmers to calculate business plans in times of unstable agricultural prices, because of the fixed-feed in tariffs (see box above) (MAZ 2009). Next to this, there are also a handful of farmers who adopted an organic portfolio in their agricultural business.²⁷

An association acting as an umbrella organisation for organic farmers is the Association for the Promotion of Organic Farming (Fördergemeinschaft Ökologischer Landbau) Berlin-Brandenburg. This association regularly informs households about possibilities to procure organic and regional products, organises different promotion events, and channels the interests of its members to the political sphere (FÖL 2009).

NGOs

The 'Renewable Energy Working Group' (Arbeitsgemeinschaft Erneuerbare Energie, ARGE) bundles the main activities in the county in relation to energy-efficiency and renewable energies. ARGE is a network of people from energy-related organisations and members from the county administration. Hence, it is best described as a active network of citizens and administrative staff (see also 3.2). This group is headed by a current council member from the Green Party who is actively engaged in the promotion of renewable energy across the county. The co-founder of ARGE is the representative who was formerly in charge of the environmental office at the county administration, and who is now affiliated with the county's business support unit. This close, while informal link to the administration indicates that networks of professionals and engaged citizens play a crucial role in promoting new developments.

²⁷ Another increasingly popular form is direct marketing of agricultural products, either through direct sales on the farm or on regional market stands.

There are several groups that are involved in the broader environmental policy making process in PM. In many cases, the Local Agenda 21 process was crucial for the emergence of groups that are working now on energy and climate issues (see also chapter 3.2). In some municipalities, like in Teltow and Kleinmachnow, climate protection concepts were already passed independently of the county council's activities. The local key actors here are involved in city planning issues such as road and bicycle lane planning. For example, a long discussion in the municipality of Kleinmachnow was about a solar plant financed by citizens. Similar to the initiative of the solar club in Potsdam, citizens of Kleinmachnow are willing to pay a grant for investing in a PV plant which is planned to be constructed on a school's roof. An important person behind this initiative is also the member of the municipal council (Green party). He has also participated in the 1st Climate Conference, which was organized by the Local Agenda 21 Group (see Chapter 3.2 for more information on the Local Agenda 21 process) in Kleinmachnow in 2009. The conference bundled many on-going activities relating to climate protection and energy saving measures (www.klimakonferenz-kleinmachnow.de).

As mentioned above, the renewable energy forum (ARGE) is active on a more central level including initiatives from the whole county. The forum meets regularly every few months with citizens who have different backgrounds in energy management (e.g. members include city staff (municipal buildings), energy supplier (energy-efficient street lightning), and energy audit consultants).

After the fall of the Berlin wall, an eco-community was founded in PM's capital Belzig, with the programmatic title Centre for Experimental Social Design (Zentrum für experimentelle Gesellschaftsgestaltung, ZEGG). This group could also be considered as a kind of a micro-region since they bought some buildings in Belzig and founded their own eco-village. The group is actively engaged in all kinds of energy saving initiative (own energy production via solar-panels; only organic and vegetarian products, etc.). ZEGG's contacts in the region are mainly concentrated on the trade of handcraft jobs and food or resource supply. Apart from these entrepreneurial relationships, some members of ZEGG have also tried to initiate cultural activities together with the city of Belzig. These endeavours seemed to have decreased in the past. On a more national or even international level some members of the ZEGG community are rather active (e.g. by regularly visiting network meetings and exchanging experiences about energy saving methods). ZEGG is also a member of a European eco-community network (www.gen-europe.org). Although the community is increasingly receiving visits by interested people, and some weeks ago also Belzig's mayor was there for the first time in fifteen years, they can by now not be considered to be an important actor in the local environmental policy field. One of the reasons can be found in the historical roots of ZEGG: Originally founded in West Germany during the 1980s by critics of capitalist production and the related family system, the community is still now regarded by many local people as somehow 'weird' or at least strange. This does not mean that a community like ZEGG, with their self-assessed very low carbon footprint due to their lifestyle, cannot in the medium term become a nucleus of regional change, or even for the transition towards a low-carbon future.

3.2. Progress state of government/governance change

Local policies are mostly bound to federal state or national laws and regulations. These are in turn often influenced by EU legislation, e.g. limits of respirable dusts or details regarding water quality. As explained above, municipalities have a number of duties which are already fixed by higher decision making levels.

Communal tasks which are voluntarily implemented by the city or the council are also determined by financial or personnel constraints. However, there are a number of municipalities who fully use the range of ‘optional duties’, and this is how municipalities can be differentiated. Some municipalities are very well known for their special engagement in climate action (e.g. Freiburg, Tübingen) and for exemplary cooperation with non-governmental stakeholders (e.g. Münster, Augsburg) (BUND 2009: 540).

In terms of governance shift and climate policies some developments in the case study regions can be depicted.

Foundation of the climate council in Potsdam

The foundation of the climate council and the KKS itself can be taken as an interesting example for a governance shift in city politics. Prior to the foundation of the climate council, the city council passed a resolution including the reduction goal of -20% of CO₂ emission (base year 2005) in 2007.²⁸ The goal corresponds to the common goals of the international Climate Alliance (Klima-Bündnis) – a network of Western city’s and indigenous people. Member cities of the Climate Alliance commit themselves to reduce emissions over a certain period of time and the network itself acts as an information resource and a support helpdesk.²⁹ The emission reduction goal is supposed to be implemented by the city’s administration. In particular, implementation plans are managed by the KKS (see chapter 3.1.1). The decision of the city council in 2007 to significantly reduce Potsdam’s emissions is a further step in a long series of different energy and climate policies. As early as in 1992 the city has started to adopt a “concept on energy policies”. The next major development in Potsdam was the decision to invest in a modern and – compared to the lignite produced electricity from the Eastern part of Brandenburg – environmentally friendly combined gas and steam power station in 1995. In hindsight this event is seen by some stakeholders in Potsdam as a very positive (and rare) action by the former mayor who has pushed this decision against the lobbying of the mighty lignite and coal industry.

In the same year, Potsdam’s city council has also decided to become a member of the above mentioned Climate Alliance.

The Lord Mayor and its administrative body were hence responsible for the implementation of the Climate Alliance goals. These include for example a continuous reduction of CO₂ emissions in order to reach 2.5

²⁸ It should be noted that Potsdam, due to the already mentioned substitution of coal by gas in the mid-1990s, had already then achieved a major reduction in GHG emissions. This is why, measured against the 1990 baseline, additional measures are not easy to achieve—given e.g. the amortisation time for a major power plant. However, the city of Potsdam did not argue ‘We have already done a lot’, but rather changed the base year (to 2005), and added a new—and in fact challenging—goal of 20% reduction on top of that.

²⁹ Up to now, the Climate Alliance has about 1,500 members (of which 1,200 cities, the rest are associated member (e.g. eNGOs)). The majority of members is recruited in Austria (816), Germany (456) and Italy (165) (October 2009 – www.klimabuendnis.org).

tonnes per capita in the long run. At a member's conference of the Climate Alliances in 2006 the goal for member cities was updated as follows:

„The members of the Climate Alliance commit themselves to reducing their greenhouse gas emissions continuously. The aim is to cut CO₂ emissions by 10% every 5 years. The important milestone of halving per capita emissions (baseline year 1990) shall be achieved at the latest in 2030.” (Climate Alliance 2006)

Based on the responsibilities connected to the Climate Alliance membership, the political faction “Die Anderen” introduced a bill in the city council. The proposal calls for coordinated measures for reducing CO₂ emissions:

“The Lord Mayor is assigned to present a package of measures – either in the next Climate Report, but at the latest by September 2007, which will be the basis in the medium term – and in the long term under consideration of the integrated town planning concept and its expected population development – for a reduction of CO₂ emission of at least 20%.”³⁰ (Stadtverordnetenversammlung 2007)

The proposal was accepted by all city council members with two abstentions from voting.

The first step to realise this package was to start a climate forum, which already included many relevant actors (such as relevant city departments, local power supplier, housing companies and the city's clinic). Each actor was asked to develop a rough overview of reduction options in its field of action. The results of this first inventory were injected into the first Potsdam Climate Protection Report, including those reduction measures that had been published by the city administration in 2007.

In 2008, the above mentioned KKS (Climate Coordination Staff Unit – see chapter 1.1.1) was established with originally three staff members (in 2009 only two). Also, the Climate Forum was given a more formal setting: it changed its name to Climate Council, included more members, and developed a more structured session plan (at least twice a year, subgroups about every two months). Probably most importantly, the Lord Mayor is the president of the plenum, i.e. the main forum of the Climate Council. The plenum has 20 members from different leading actors, mostly the CEOs of municipal enterprises, heads of political parties, environmental NGOs, representatives of local agencies such as the Chamber of Commerce and Industry, and different science institutes (PIK is represented by GILDED project leader Dr. Fritz Reusswig). Next to the plenum, four subgroups were established, dealing with specific issues in more detail, namely mobility, energy, urban planning, and buildings/housing (see Annex III for an overview of the organisational structure).

The primary task of the subgroups is to discuss current planning options within the city administration and to check whether climate aspects are relevant—or, if not, could be included. Another task of these subgroups so far is also to support the work of the staff unit by providing information about respective topics.

³⁰ Original text of the city council decision: „Der Oberbürgermeister wird beauftragt, mit der Vorlage des Klimaschutzberichtes, aber spätestens im September 2007, ein Maßnahmenpaket vorzulegen, mit dem mittelfristig und dauerhaft unter Berücksichtigung der im INSEK zu Grunde gelegten Bevölkerungsentwicklung eine Absenkung des CO₂-Ausstoßes um mindestens 20 % erreicht werden kann.” (Decision No: 07/SVV/0221)

As explained above, a variety of NGOs are active in the field of energy and climate protection. These are not only the ‘classical’ environmental NGO branches such as BUND or Greenpeace, but rather specifically local organisations which were founded because of a specific task or theme. The solar club formed itself to install the first citizens’ solar plant on a school roof in Potsdam. The Lord Mayor participated in the opening celebration of this first solar plant. Through activities like these the chair-woman of the solar club is well known to many staff members in the city’s administration and further she is an active member of a number of sub-groups of the climate council. The same is true for the Energy Forum of Potsdam, which is engaged in the climate council and its chairperson is quite proud that “eight member of the Energy Forum are also members of the climate council of Potsdam” (group discussion Energy Forum). This is of course also an example of how organisational membership overlaps. Also, in some cases, heads of political parties or even companies (such is the case for the housing company GEWOBA) are members of particular forums or environmental NGOs which in turn increases the cooperation and communication between those actors.

Although different NGOs – especially including entrepreneurial actors – were already involved in certain policy formations, mostly by communication to city administrative staff, the city’s climate policy has been enhanced by this forum.

3.2.2. Local Agenda 21 in Potsdam and Potsdam-Mittelmark

Next to the climate council there are other initiatives which represent the shift from classical government to governance. Like in many other regions, the Local Agenda 21 (LA21)³¹ was also quite important both in Potsdam and Potsdam-Mittelmark. As early as in 1996 the city council adopted a resolution to set-up a separate LA21 bureau within the city’s administration. This LA21 bureau was subordinated to the city’s security division under department III. The situation in Potsdam-Mittelmark was quite similar. The council mandated the council administration to set-up a LA21 office under the environmental office. Also, a number of smaller municipalities started with their own LA21 activities, e.g. Teltow and Kleinmachnow. The period with the highest activity level of LA21 in Potsdam and the council was during the 1990s. After this the activity levels (and website updates) seem to have stopped at the latest around 2002. Only in the few mentioned municipalities does the LA21 process seem to be going on. Presumably, these smaller cities have managed a way to link the overall issue of sustainability to ongoing activities, and found an organisational form to continue their work. In Teltow, for example, a climate protection analysis founded by the national Ministry of Environment was started, which was initiated by the LA21 office. Another reason for the relative success of LA21 might be that smaller municipalities simply do not have capacities to establish additional expert committees such as the Climate Coordination Unit in Potsdam. So – apart from the mentioned exceptions – the LA21 processes have largely lost their importance for the climate and energy dialogue in our case study regions. However, the LA21 process can be regarded as a good ‘seedbed’ for a variety of local climate policy activities.

³¹ Local Agenda 21 is a sustainable development programme which was initiated during the world summit in Rio de Janeiro in 1992. It focuses on local sustainable development and stresses the role of civic participation groups in the process of sustainable development. In Europe, over 5,000 communities have been engaged in the Local Agenda 21 process (in Germany about 2,600) (ICLEI for a further description of LA21 activities see <http://www.iclei-europe.org/index.php?id=616>)

3.2.3. Participatory Budget in Potsdam

One very interesting and currently running example is the development of the participatory budget process in Potsdam (Bürgerhaushalt). This idea was initially introduced during an LA21 event as early as in 2002. A lecture with the title ‘Learn from Brazil-Porto Alegre’ was held in the city hall of Potsdam with further discussions on how this model could be implemented in Potsdam.

This idea was then actually implemented in 2007. The participatory budget was from then on established annually by the city administration. Every year citizens of Potsdam have the possibility to suggest projects which the city should implement. Common examples of suggested projects in 2008 are cost-free public transport – either for all, for youngsters, or for the elderly, investments for youth clubs or refurbishment or constructions of leisure facilities, such as swimming pools. Suggestions by citizens refer to one of 10 thematic topics (“Beteiligungsgegenstände”). The different thematic topics included in the participatory budget are part of the voluntary and controllable by the city (see chapter 3.1). Current topics are normally decided by different members of the administration, but a core group within the administration heads this process. For the first time in 2009, citizens had the option to suggest projects in the field of climate protection. This is probably because the issue of climate change has become a “formal” topic of the city’s agenda which is reflected in the city’s climate staff unit and the climate council. Currently, suggestions related to this topic include the switch to green electricity for urban electricity demand, use of PV power on municipal premises, having a bus fleet using electricity or gas instead of petrol, or the reduction of private car traffic within the city.

Until mid-October citizens can read the suggestions made by others and then vote. Eighty suggestions which received the highest agreement rates will then be studied by the city administration. Based on economic and political evaluations, the suggestions will be either rejected or taken into account where possible. Most suggestions made in 2008 were rejected due to financial constraints or it was claimed that the administration is already involved with the suggested project (City of Potsdam 2009). Realized projects include the refurbishment of a cultural centre in the city district of Babelsberg, construction works of a main road. Further, the development of a cycling strategy was largely influenced by high voting results during the participatory budget process (LHP 2009 i).

It will be interesting to see what kind of suggestions regarding climate protections are going to be evaluated. Interviewed city council members valued the participatory budget as a useful ‘seismograph’ to capture political opinions, values and pressing issues.

Another ongoing example of cooperation between city administration and citizens is the ‘Traffic-Roundtable’ of Potsdam. This group meets up monthly and discusses current hotspots in the traffic development of Potsdam. The constitution of this traffic group is also rooted in the LA21 process, as the responsible city division led the development of this group in 2002. The group itself is not as well known as the climate council, and it seems that the climate council’s traffic subgroup’s concerns overlap with those of the ‘traffic-roundtable’. One representative of the roundtable is also a member of this subgroup.

Generally, it seems that in Potsdam the foundation of the climate council synthesized many other earlier activities and bundles different actors under one umbrella forum.

Many interviewed stakeholders found it too early to judge the efficiency of the rather new institutions (Climate Council and Climate Protection Unit). However, first impressions suggest that it can be a useful tool to channel opinions and interests of different actors so that the work of the responsible departments can be improved.

3.2.4. Renewable Energy Projects in Potsdam-Mittelmark

In Potsdam-Mittelmark, there is no similar institution to the climate council. However, the above mentioned renewable energy group ARGE represents in many ways a forum which bridges the gaps between citizens and council administration. The members of the quite informal group belong both to city and council departments and to private sector enterprises or small environmental NGOs. Meeting of ARGE aim to inform its member about recent developments in the energy sector in their region and include reports of the local energy supplier about their energy strategy or of the regional planning association about the regional wind energy plans.

Another example of a governance shift is the model project of Feldheim. Feldheim is a small part of the community of Treuenbrietzen in the South-Eastern part of the county and is home to about 200 people. With the support of the project developer 'Energiequelle', a renewable energy concept was developed with the aim to become energy-independent in the near future (Ziller 2009), mainly due to biogas and wind energy (see Figure 32). The project of Feldheim recently won the county's LA21 prize for implementing innovative energy strategies. Feldheim is now being promoted as a promising example by the county's business development staff. The main message of the case study of Feldheim is that renewable energy projects can have positive economic effects. The fact that new jobs were created because of the energy project and that a young family moved to Feldheim in the term of the project seems to add more value to the project. This might have not been the case if 'only' the environmental advantage had been emphasized.

The leading actors in Feldheim are the already mentioned project developer "Energiequelle", the regional Farmer's cooperative, and the county's administration. Energiequelle was responsible for the engineering and planning part of the biogas and wind parks.

Even though Feldheim is the best practice case in the region, it seems that renewable development projects are still rather isolated. This has also been realized by the county's representative who has identified missing links between different municipal projects. It seems that only by participating in special events (such as the regular meeting of ARGE or irregular climate conferences) do certain actors get to know about the projects of other municipalities.

Feldheim's renewable energy projects are again largely financed by the feed-in tariffs based on the Renewable Energy Law (see box chapter 3.1.2). In addition, the project developer will set-up a special energy supply system to which 95% of all households will be connected. Via this supply network, heat and electricity produced by the local biogas and wind power plants will be provided to the households of Feldheim. For this reason a new company, the "Feldheim Energy GmbH & Co KG" has been set up. A local district heating network of about 3000 meter length was finished in 2009 and connects private households as well as a few agricultural business and a production hall. Customers of the locally produced electricity and heat pay a lower price as compared to conventional energy suppliers (Energiequelle 2009).

Figure 32: Biogas and wind power plant in Feldheim



Source: Energiequelle.de

3.3. Environmental governance and energy use of households: actors and networks

Stakeholder Map of Potsdam and Potsdam Mittelmark

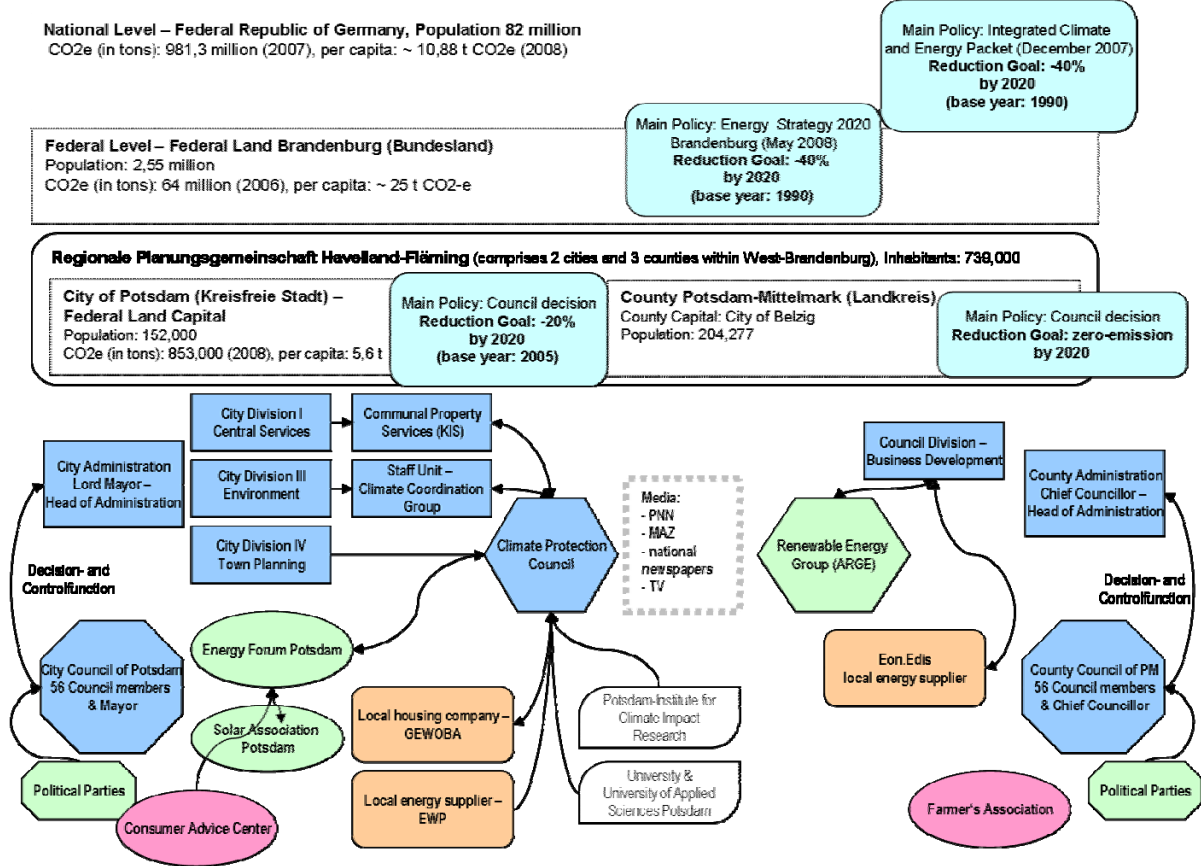
Many stakeholders in Potsdam and Potsdam-Mittelmark are involved in the policy processes concerning climate change and energy issues. As explained in chapter 3.1, many regulations for local actors are already fixed on the federal state, the national, or even the EU level. However, in order to better understand the local political framework, we have drafted an overview of linked actors in Potsdam and Potsdam-Mittelmark (Figure 33).

On the one hand the figure shows that the local levels are embedded in higher hierarchical levels. This is also connected to the respective reduction goals of CO₂-emissions that each level has agreed upon. Here, it is important to note that there are no direct commitments, i.e. even though Brandenburg, as a federal state, has agreed on a 20% reduction goal of CO₂, this does not mean that every lower hierarchical level has to do the same. By contrast, we observe quite ambitious goals can be found on lower levels (e.g. zero-emission strategy by the county).

In both case study regions, reduction goals have been decided by the local legislative body, the city council and the county council respectively. The central policy in Potsdam is the decision of the council which binds the city to reduce CO₂-emissions 20% by 2020 (base year 2005). As explained in chapter 2, considerable efforts have already been made in the 1990s, so that it is quite an ambitious task to continue CO₂-reductions. PM has agreed upon a zero-emission strategy which was also adopted by the county council in 2009. However, it has to be noted that the original text of this council decision (council decision of 12.03.2009) is rather vague. Even though the council has decided to “aim for a forerunner position in the field of renewable energies” it is not specified what kind of reduction levels are targeted. It has to be noted that the administrative structure for climate change issues in Potsdam is much more developed than in PM. One reason might be, that climate change is a topic for many actors in the city of Potsdam and it is not reduced to energy issues (although energy issues widely dominate discussions, see Figure 35).

In PM renewable energies play the dominant role in the climate change context. Other aspects such as traffic and housing standards/insulation play a rather minor role or are of subject to other hierarchical levels.

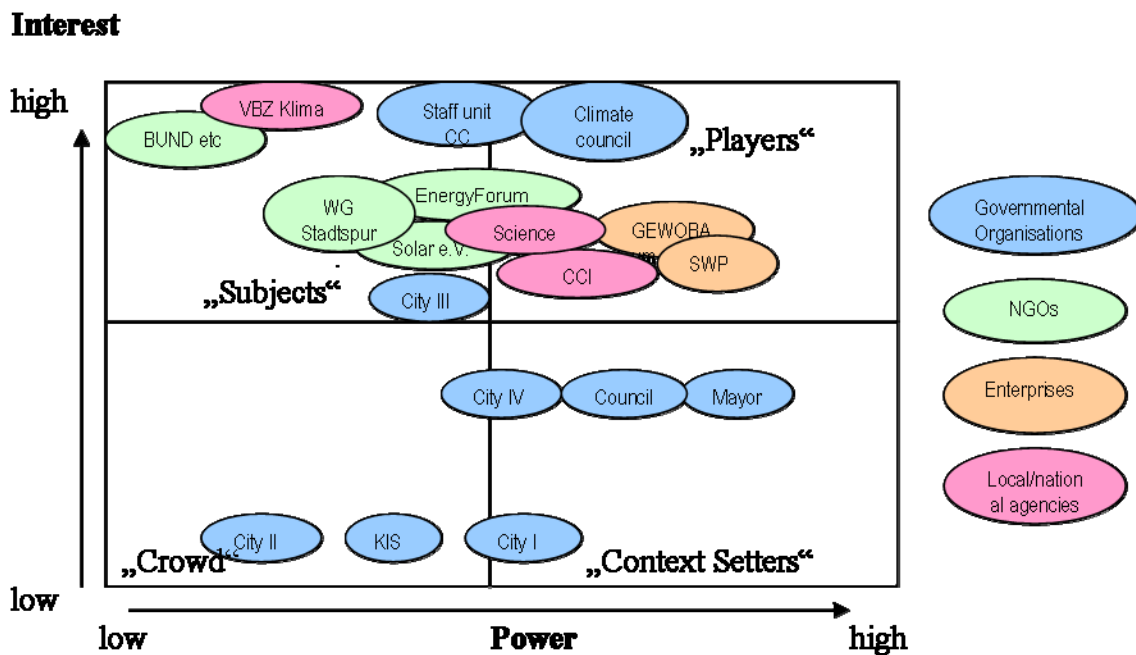
Figure 33: Stakeholders in Potsdam and Potsdam-Mittelmark



Based on the above analysis it is possible to identify specific actors according to an interest vs. power grid. This categorization is based on Bryson (2004) and is a useful tool for the categorization and visualisation of stakeholders in a certain policy area. Based on the desk-study and expert interviews we evaluated the relative power and interest of each stakeholder. We decided to split the category of ‘power’ into three subgroups: political, economic and network power and to then calculate an aggregated power indicator. Thereby, a more holistic picture is drawn of the full range of possible power sources of relevant actors and it is ensured, that other sources of power (than typically political power) are taken into account. These categories were again summarized to the index value of ‘aggregated power’, which is used for the following power vs interest maps. Based on a qualitative assessment each stakeholder was ranked between 5 (highest level of power or interest) and 1 (lowest level of power/interest). The qualitative assessment is based on the expert interviews as well as the desk study. Methodologically, all relevant stakeholders were listed according to their group affiliation (e.g. government, NGOs, enterprises, science) and were hence ranked from 5 to 1. In order to have a baseline, we typically started to assess the power and interest rank of the most influential political player (which were in our cases either the Lord Mayor or the Chief Councillor). In relation to the most powerful players we started to evaluate the rest of the stakeholders (see Annex II for the overview of results).

As already mentioned climate change issues on the local level can be depicted in a number of somewhat separate policy arenas. Hence, next to the general category of “interest in climate change”, we have also analyzed each actor’s role in the categories of energy, mobility and food (according to the methodology of GILDED).

Figure 34: Potsdam Stakeholder Map - Relevance of Climate Change in general

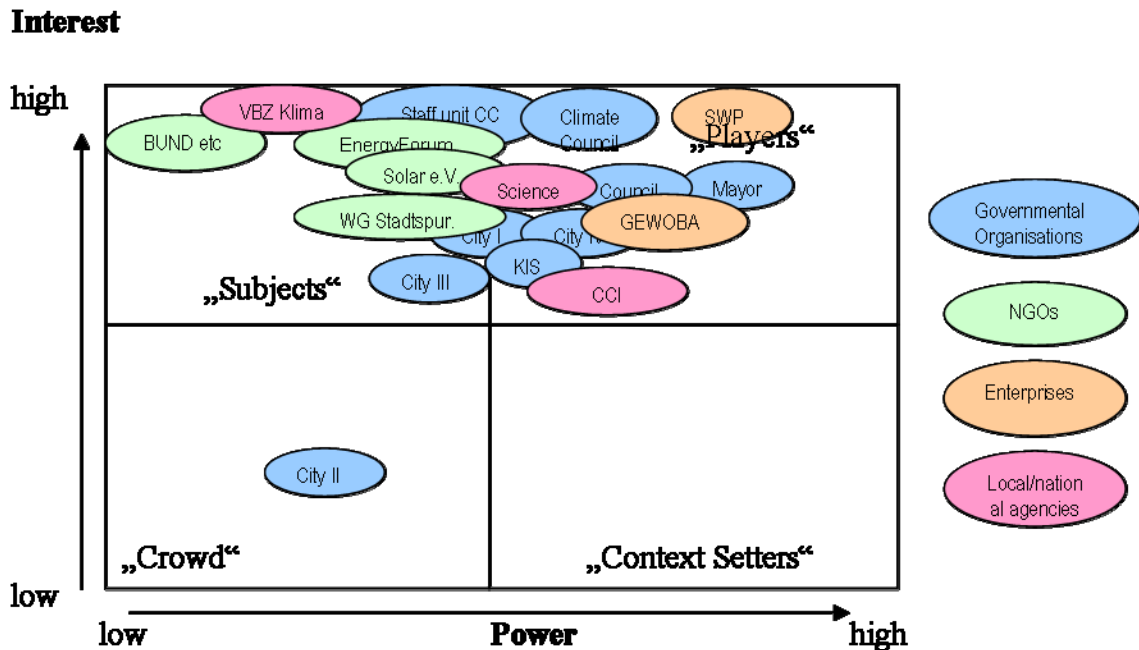


Relating to the general relevance or interest of stakeholder in the field of climate change it is notable that the local authorities, mainly the council and the mayor, are the most important “context setters”. This means that there are able to “set the frame” for the policy dialogue with others. Other notable organisations such as the climate council – and closely connected to this – the staff unit climate change, have a very high interest but lower “power levels”. Although the climate council is not an official decision-making body of the city administration, it shows relatively high power rates. This is due to the number of important representatives who are members of other important organisation in Potsdam, thereby the climate council achieves high “network power” levels.

Typically, environmental NGOs are found in the category of “subjects” – displaying high interest in the subject of climate change.

Other stakeholders such as the climate team of consumer advice centre (VBZ Klima), science bodies (such as PIK, universities and other institutes³²) and the CCI are rather dispersed in this matrix. This is because of different financial options, their respective members or customers and their thematic focus.

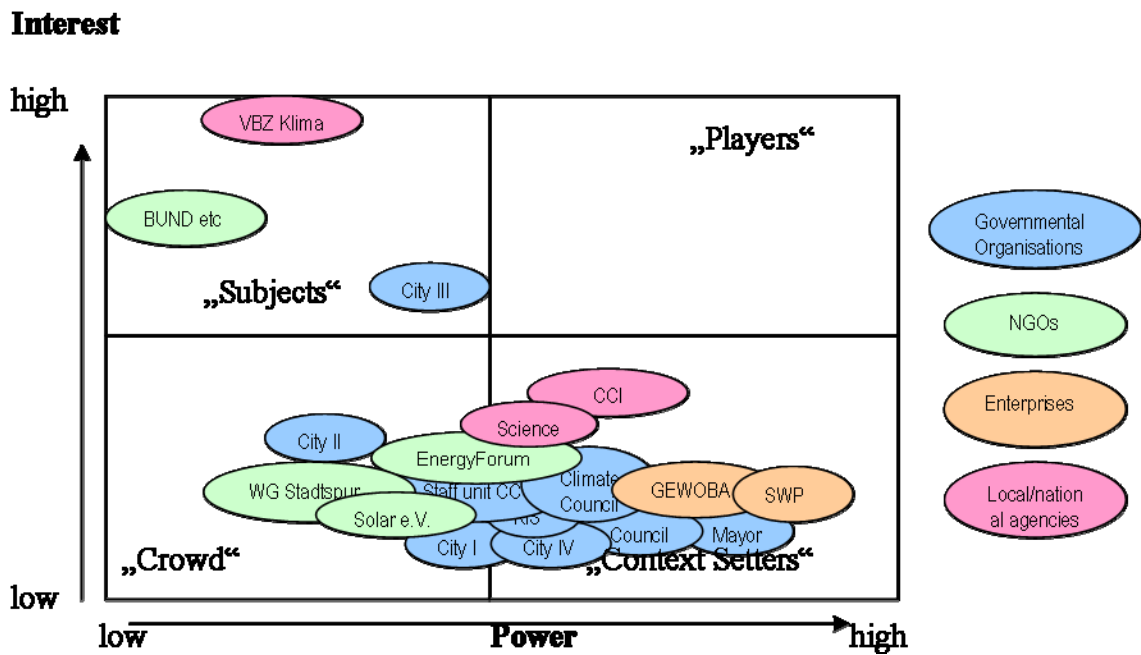
Figure 35: Potsdam Stakeholder Map - Interest in Energy Issues



With respect to energy issues, interests of almost all stakeholders rise considerably. Presumably, this is because most stakeholders have a direct connection to the field of energy – be it to ensure energy security for customers, to ensure low prices for ones’ own consumption, or simply because, direct energy consumption is the central topic around climate change.

³² We decided to comprise different scientific bodies under one category of „science“ in order to simplify the analysis.

Figure 36: Potsdam Stakeholder Map - Interest in Food Issues



Regarding climate change and food issues the matrix shows a directly contrary picture. Besides the consumer advice centre (which regularly informs consumers about food issues), the BUND and the city department with is responsible for health and youth issues, all other stakeholders have little more than no interest in questions relating to food production and their CO₂ impacts.

Figure 37: Potsdam Stakeholder Map - Interest in Traffic Issues

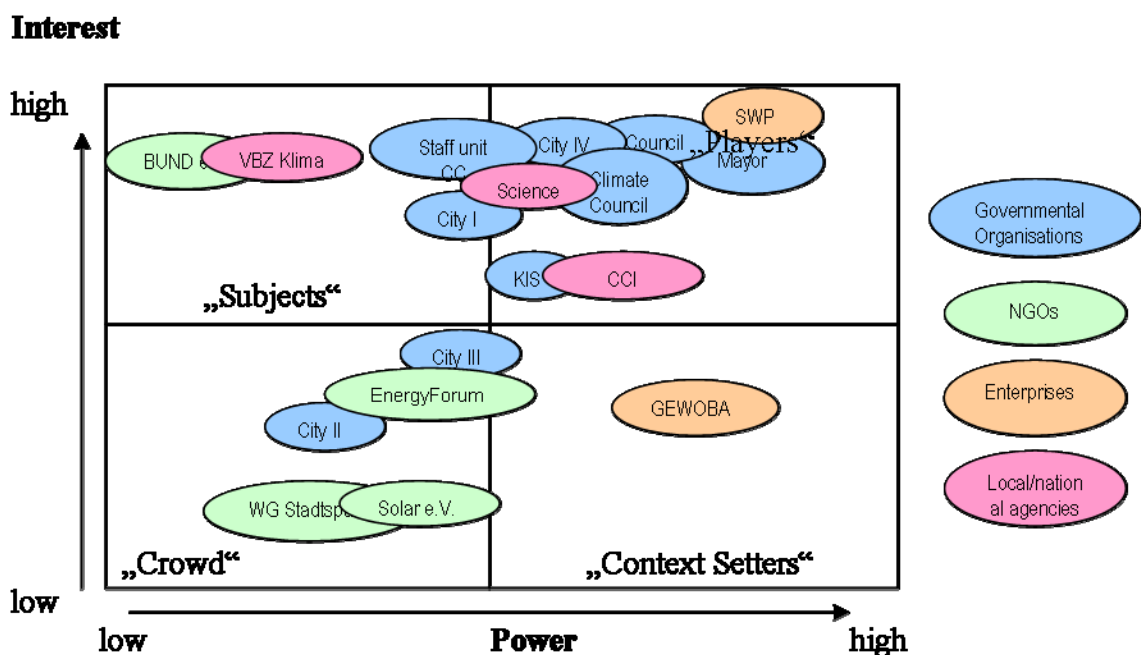
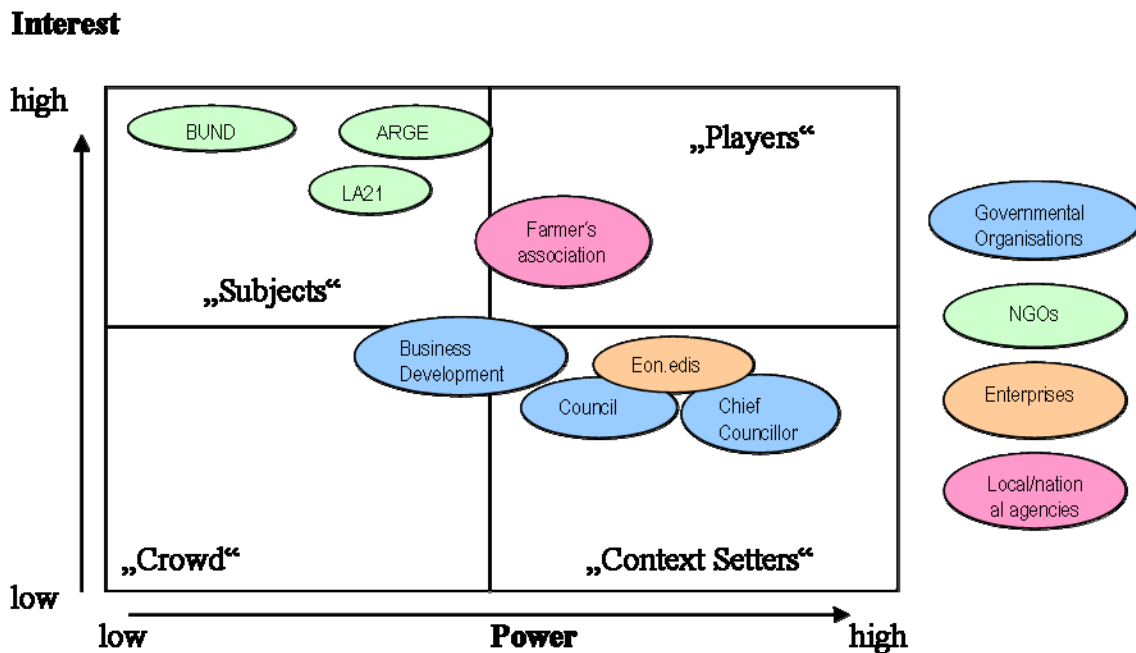


Figure 37 visualizes stakeholders in a matrix focussing on interest in traffic and mobility issues. Here, we observe a mixed interest vs. power relation. The main player on the local level is the SWP (the local energy supplier), which is also responsible for Potsdam’s public transport. Next to the Lord Mayor and the city council, it shows the highest rates – both for interest and for power.

Figure 38: Potsdam-Mittelmark Stakeholder Map - Relevance of Climate Change in general



The matrix of PM in regard to the general interest of stakeholders is quite similar to the one in Potsdam. However, there are some differences between those two case studies. In the rural area of Potsdam, the farmer association plays an important role on many different levels. In order to install new renewable energy capacities farmers are important players: either they might sell land to a project developer or they construct decentralized renewable energy plants (such as mini-CHP units, biogas plants or even PV plants). Also, farmers play an important role in the production of food. Regarding organic food production and sales there are some organisations which act as information networks between farmers themselves and customers. One important network in this area is the Association for the Promotion of Organic Farming” (FÖL, see chapter 3.1.2). Within the FÖL, farmers are in contact with processors of their products, with retailers as well as wholesale companies and with other environmental network organisations.

In contrast to the situation in Potsdam, in some municipalities of PM, LA21 groups are relatively active, and have - not surprisingly – high interest, but lower levels of power compared to local authorities etc.

For the above mentioned three sub-categories of energy, mobility and food, PM shows quite similar levels of interest vs. power, which is why these matrixes can be omitted.

3.3.2. Stakeholders' tools to influence household energy consumption

Local Governments:

Overall, the city and the council government possess a variety of possibilities to influence the energy consumption of households. Because local governments have the widest range of options these tools are again subdivided into sections on direct energy use, mobility and food.

Energy

Regarding direct energy use of households, the two most important areas are electricity consumption and heating demand.

There are some ways local governments can indirectly influence the CO₂-emissions by private electricity demand. These can be roughly divided into two groups: the first one targets the end-consumer and appeals to his or her willingness to save energy and to behave in an energy-efficient way (role of advisor & promoter). The second group rather includes technical options which either increase energy efficiency of appliances, raise the share of renewable energy sources in the overall electricity mix or set isolation standards for efficient heating (role of planner/ role of supplier) (Fischer 2008:180):³³

- the first option includes awareness raising and informational campaigns about energy saving options. In Germany, there are already awareness raising campaigns in place, such as radio spots and billboards advertising energy-efficient household equipment and tips such as turning off lights and appliances. On the local level in Potsdam, the city provides an initial consultation at the climate coordination group where interested households can also borrow an electricity measurement appliance. The KKS (see chapter 3.1.1 and chapter 3.2) has also initiated a number of public events such as the 'ice cube bet', to raise people's awareness about climate change and energy consumption (Lippert 2009). With regard to more detailed information the city's climate coordination group refers to relevant tools and information packages provided by the local energy supplier, the consumer advice centre or the tenants' association (see below).
- The second group of options is rather technology-based. The local possibilities to increase energy-efficiency of appliances and products is somewhat limited, because labels of energy-efficiency are shaped on the national and EU-level. However, the city can take on a model-role e.g. by switching to energy-efficient equipment in city-owned premises or switching to green electricity in general. The city and council administration is also able to improve conditions either for increased usage of renewable energies or for improved energetic construction of new and old buildings. The land use and town plans are the central basis for improving energetic conditions of private and public buildings.

³³ There is also a range of regulations which set legal requirements of energy demand standards for newly constructed buildings (e.g. Energy saving regulation – Energieeinsparverordnung). These kinds of legal frameworks are set on the national level, but the city administration has the possibility to fix stricter requirements for new building. The city of Freiburg, for example, requires house building companies or private persons to build according to the latest energy saving standards (Lippert 2009:34).

Currently, a project „Energy-efficiency in town-plans” is being developed in Potsdam, which aims to set energy-efficiency standards for project developers.

Compared to other cities, Potsdam is not yet using its full spectrum of options to fix energy aspects in its land-use plan. However, it is on the agenda of the climate council and its subgroups. Also, the city has recently received funds to draft a comprehensive energy and climate plan. Many details which are relevant for improved housing insulations will be based on this plan and will then influence the city’s town plan (Lippert 2009: 34).

Since many municipal land-use plans are decided upon at municipal level it is difficult to fully assess the activities of the county government in Potsdam-Mittelmark. The main field of action seems to be the promotion of RES instead of fixing regulation of housing conditions.

Mobility

The city of Potsdam is trying to improve the modal split by increasing the number of trips undertaken by foot, by bike, and by public transport. Potsdam expects increasing traffic volumes. Potsdam’s goal is to increase the share of bicycle traffic from currently 20% to 27% in 2012. The strategy to reach this aim encompasses the following action points:

- new bicycle user groups, for shopping and leisure activities
- completing the network of bicycle lanes
- create a bicycle-friendly atmosphere by targeted PR and advertising for the use of bicycles
- promoting bicycle tourism
- securing a financing option to increase bicycle traffic

On the county level, there are currently no significant efforts undertaken to decrease CO₂ emissions from the transport sector. There is no comprehensive mobility concept for the whole county. A major problem compared to densely populated urban areas is the dispersed population structure in the county. To serve people’s transportation needs and – at the same time – to secure economic and environmental mobility services, flexible public transport measures are needed. Some minor initiatives such as bus-by-call services and mini-bus routes have been discussed among stakeholders. However, these measures were not holistically approached on a county-level and further action by county administration is needed here.

Nevertheless in smaller municipalities such as Teltow and Kleinmachnow, there are interesting endeavours to increase the share of bicycles users. These initiatives are mainly linked to LA21 activities (see 3.2). Kleinmachnow even tries to become a role-model for bicycle users and has adopted a number of regulation favouring cycling.

Food

The role of local authorities to reduce the CO₂ footprint of households in municipalities is – except for the advisor and promoter role – quite limited. City and county authorities can provide information about climate-friendly nutrition, but it is hard to specifically promote behaviour on a local basis.

Neither Potsdam nor Potsdam-Mittelmark authorities seem to conceive food as an important field of action to promote climate protection. City officials of Potsdam rather refer to available information at the consumer advice centre (see interest vs. power matrix above, Figure 36).

Civic organisations

Tools of civic organisation mainly fall into the category of the advisor and promoter role. Most environmental NGOs in the case studies aim to raise awareness of consumers and households. Also, they mostly focus on direct energy aspects, such as energy efficiency in households and slightly omit the food sector. Mobility aspects are only considered in the range of relevant organisation, e.g. in Potsdam, a branch of the „General Bicycle Association” is active in promoting improved condition for cyclists. Other than that, again LA21 groups in above mentioned municipalities, are also campaigning for more secure and climate friendly road conditions.

However, most of these activities rather target the local political level and not consumers or households. An exception to this is the emergence of citizens’ solar plants. Especially in Potsdam, new forms of cooperatives developed as a result of the first construction of a PV plant on a school roof.

Entrepreneurs

The most important enterprises in the field of energy are the above mentioned local energy supplier (in Potsdam: EWP – Energy Water Potsdam, Potsdam-Mittelmark: eon edis). Both suppliers offer a range of information for households which is similar to comparable offers from other energy suppliers. The usual information package for private customers includes energy saving tips, rental of electricity measurement equipment, and information about the Energy Performance certificate for buildings. Additionally, the EWP also provides explanations on how to read the electricity or gas bill and e.on edis offers a large collection of useful links and online tools to improve and check heating systems. Thereby it is possible to calculate investments costs of new appliances (instead of using old ones), e.g. for a new refrigerator or new heating pumps. They also provide useful databases where households can inform themselves about suitable promotional programs (www.eon-edis-vertrieb.com/html/19896.htm).

The main player in the housing sector in Potsdam is the above mentioned GEWOBA, a housing cooperative which manages 16,400 apartments. This is about a quarter of all housing units in Potsdam and makes the GEWOBA its largest housing facilitator. Next to GEWOBA, smaller cooperatives, such as the „Karl-Marx-Cooperative” or „Potsdam Cooperative 1056” manage much smaller numbers of apartments. All housing cooperatives in Potsdam are members of the working group „Stadtspuren”, which acts as an network organisation between these cooperatives. The working group „Stadtspuren” has just signed a cooperation agreement with the city officials concerning climate change. All members of the working group are thereby responsible to strengthen further awareness programmes for tenants and private members on how to save energy and costs. Also, they pledge to continue with a „benchmarking bill” and to publish interesting results thereof. The benchmarking bill was first introduced by the GEWOBA. On this bill households receive a ranking of their consumption rates of gas and water (electricity is usually supplied by the EWP). These rates are compared to rates of other households in the same house, or in the same street or even city. It is thereby possible to realize at

first sight if consumption rates are high, low or fairly normal to similar-sized households. GEWOBA has initiated this extra-information to its customers in 2008. GEWOBA has large data sets about the individual consumption patterns of tenants in its flats (acquired by meter readings) and it is therefore fairly possible for them to compare statistical data and provide tenants with individualized information. Up to now, not every GEWOBA household has received this individual extra information, but there are planning on extending this service.

Next to these innovative benchmarking bills, GEWOBA is also involved in a number of other activities which target the energy behaviour of GEWOBA tenants. In its company magazine GEWOBA reports regularly about possible heating saving tips and also about its offers such as purchasing a power saver for a lower price and the option to visit GEWOBA's prototype flat which presents a range of modern technological options for reducing heating energy and electricity (GEWOBA 2008).

Local and national institutions/agencies

The leading institution active in the field of information provision is the consumer advice centre in Potsdam. The local branch of the climate team (nationally funded by the emission trading funds) is responsible for all municipalities in Brandenburg, but focuses on some larger cities and is beginning to cooperate with a number of counties, too. The head of the climate team, originally based in Potsdam, is also in contact with the Chief Councillor of PM and a number of other mayors/administrative leaders outside our case study regions.

Apart from the climate team, which just started in 2009 with an awareness raising campaign, a lot of already existing information material is available for consumers and households. Information provided includes brochures about specific energy saving options for tenants, information for landlords on how to best use RES in new houses and also personalized advice. During an energy advice session, energy consultants with a background in engineering can individually identify saving options in one's house. These offers are funded and households pay only a small fee to take part in information programmes (e.g. for the individual advice session only 5 €).

The consumer advice centre is also one of the few organisations which take food consumption into account and inform consumers about the impact of certain styles of nutrition. A well designed webpage was published in 2009 which focus on food and mobility aspects and ways to reduce the CO₂ balance. The webpage is part of a larger campaign under the motto „For me. For you. For the climate”. As in the other federal states, the climate team in Brandenburg undertakes a variety of informational events throughout Brandenburg.

Another important institution is the Chamber of Commerce and Industry. The CCI plays an important role while representing its entrepreneurial members. Since they do not specifically focus on household information, but rather act as an intermediary institutions their role for 'direct' consumers is not salient.

4. Impact assessment of different governance methods

As described in chapter 3.3 a number of different actors are active in the field of energy consumption and climate protection in Potsdam and Potsdam-Mittelmark. The leading role of local authorities, namely the Lord Mayor/the Chief Councillor and the respective legislature bodies (the city and county council), have also been identified and analyzed.

Both the urban and the rural casestudy region adopted a CO₂-emission reduction goal (Figure 33). The city of Potsdam has committed itself to reduce CO₂-emission by 20% by 2020 (base year 2005, not 1990 as for most other reduction goals). The county of Potsdam-Mittelmark has not promoted quantitative numbers, but generally aims for a zero-emission strategy as decided by the County Council in 2009. This decision was prepared by Mr Lorenz, now part of the business support unit of the council's administration and expert for renewable energy issues in the region. It was largely him who then prepared the zero-emission bill, with the support of the deputy councillor and the Chief Councillor. His proposal was accepted by the elected representatives in the County Council. The strategy of the county is much more focused on regional economic development for which renewable energy sources play an important role. Renewable energies are primarily seen as an economic tool to enhance regional businesses and projects. Further, they are also conceived as a leverage to create jobs and to stop migration into cities from already sparsely populated land strips. Hence, climate protection is only one reason for the promotion of a low-carbon energy supply and it seems that it is the least important one in the rural areas of Potsdam-Mittelmark. More important seems to be practical project management which can produce quick economic results. As stated by a county official it is more successful to build on these project results in order to have a positive snowball-effect of more renewable energy projects.

Judging by a number of discussions and visited events in the region, this approach seems quite meaningful and up to now promising. The county officer for renewable energies and the head representative of the county were recently invited to another nearby independent city (Brandenburg an der Havel) to present the current success of this strategy. In so-called low-developed areas with high rates of unemployment it seems that renewable energy projects are a lot more effective when their positive economic value is emphasized. This economic reasoning is of course also important for a city like Potsdam. However, it seems that there is a more general feeling of environmental responsibility which plays a more dominant role in discussions in Potsdam. This is also reflected by the fact that new scientific evidence about threshold values of global emissions is critically discussed in the city's respective bodies (e.g. city council meetings, see Annex I).

So in terms of strategic approaches of the two case study regions it is interesting to note the difference between the procedural approaches. Governmental and non-governmental actors in Potsdam are engaged in climate protection in a number of different ways. This process has developed over time and began as early as in 1995 with the membership of the Climate Alliance. Since then climate change was a topic on the city's agenda (sometimes more present, sometimes less) and a number of multiple actors, including political parties, business entities, environmental groups and citizens' initiatives, are involved in this process of climate protection (see chapter 3.2).

As explained above, the county of Potsdam-Mittelmark decided to take up a fundamentally different strategy by having a major focus on renewable energies. Even the terms “climate change” or “climate protection” hardly play a role in local politics. Local authorities and even citizens’ initiative rather concentrate on development of renewable energies, energy efficiency and energy innovations (e.g. this year’s Local Agenda 21 prize promoted innovations in renewable energies). Some local initiatives on municipality level do focus on climate protection measures (see chapter 3.2), but the general strategy on county level is rather economically driven. There are of course also initiatives which have a broader focus beyond energy issues, but these are rather smaller, municipality-driven, and not (yet) relevant for the whole of Potsdam-Mittelmark.

Regarding the chances of achieving the above stated local reduction goals it is important to note that both goals will most probably not be reached. In its latest climate protection report, the climate coordination group of the city of Potsdam reckons that the currently proposed reduction will be not feasible until 2020. This is mainly because of the too ambitious reduction goals compared to the already achieved CO₂ reduction as the result of the gas-fired power plant. Also, emission reductions in the transport sector are difficult to calculate.

Same is true for the county of Potsdam-Mittelmark. Any quantitative assessment of CO₂-emissions on a county-level is only valid for the energy sector. The goal of “zero-emissions” is therefore connected to the further development of renewable energies and a calculation of electricity and heating import/export numbers of fossil fuels vs. renewable resources. Due to the high share of current wind power plants the county of PM has already reached a high proportion of green electricity. Further options include installing new biogas plants, solar plants and geothermal. It is probably not feasible to reach a complete substitute of fossil-fuelled plants by 2020. A major problem will be the further development of wind power plants, because many citizens are not in favour of wind farms. This is because they fear that wind farms will disturb them if built too close to their homes. There are many examples of citizen groups which are rather spontaneously initiated to directly prevent the construction of nearby wind parks. In the run of the previous Federal State elections (27. September 2009) even a political party named “The People’s Initiative”³⁴ was formed. The main aim of this initiative is to fight for a minimum distance of wind power plants of 1,500 meters from any other dwelling. Currently, the standard distance in Brandenburg is set to 1,000 meters. The party was not successful during the elections and only received a marginal share of votes of 0.32%. This low representation in votes should however not diminish the fact that local groups against wind power can influence the general public opinion. The municipalities, which are in the end the ones responsible for issuing the construction rights to wind farm projects, are often ignorant about the advantages of wind farms for their communities (revenues from local taxes) and have often not succeeded in alleviating fears and resentment of many local citizen groups against wind farms.

With regard to the development of a low-carbon society it is difficult to describe the whole picture of possible paths to it. This is because a low-carbon society will comprise a lot more areas of citizen’s life than currently assessed by the city and the county. Many material flows, e.g. of food, resources and consumption

³⁴ Full name of this political party is: The people’s initiative – against mass construction of wind power plants in Brandenburg and failed water policies. (German: Die-Volksinitiative gegen die Massenbebauung Brandenburgs mit Windenergieanlagen und die verfehlte Wasserpolitik). The main political goal of this party is to raise the minimum distance of wind power plants to 1,500 meters from any dwellings.

products, can not be determined by a city itself, but they are rather determined on the national and even the global level.

Hence, these areas cannot be determined in a coherent way by the municipality – in contrast to other areas such as the provision of well-working public transport or the supply by renewable energies on a local level. As described in chapter 3.1 these topics belong (to a certain extent) to the areas of responsibilities of local authorities and can therefore be shaped by authorities in its roles of “planner/regulator” and “provider/supplier”. In Potsdam, these two roles can be formulated somewhat more rigorously than in Potsdam-Mittelmark. In contrast to Potsdam-Mittelmark, the city of Potsdam owns after all 65% of the local energy supplier (the remaining 35% share is owned by the private company E.on edis). In PM, E.on edis is the sole owner of the electricity grid and serves also most of its citizens as an energy supplier. Hence, although the current share of renewable energies is fairly high in PM (2009: 47%, Lorenz 2009), the further development of fossil and renewable resources is connected to strategic decisions of Eon.edis. This is because Eon.edis has the resources of either strengthening or impeding decentralised renewable energy options by making it easier or more difficult for renewable energy developers to connect to the electricity grid.

With regard to the other roles of local authorities, namely the “model” and “advisor” roles, both the urban and the rural case-study region are active in a range of loosely connected fields, such as promotion of sustainable transport modes and fostering regional economic circles. The role of a “model” for citizens is however somewhat limited at the moment. Neither in Potsdam nor in PM do there exist significant examples of outstanding climate-friendly activities when compared to some leading cities in this field (e.g. where it is commonly known that the mayor cycles to work (city of Münster), or where the whole city administration uses green electricity and special energy saving appliances (city of Tübingen)). However, local leaders can sometimes effectively act as promoters. For example, the renewable energy project in Feldheim was often promoted and visited by local and regional officials and therefore gained a certain (positive) status. This was also the case for a innovative energy business which was supported by the Chief Councillor – not financially, but through positive press echoes and administrative support.

Finally, the advisory role to its citizens may be the most extensive and important one in view of the general development of a low-carbon society. This role is not only determined by local authorities, but rather by a broad range of organisations with different stakes and expertise in different topics. E.g. consumer information about eco-friendly mobility, food and energy supplier is provided by the local consumer advice centres (see. 3.3.2). Some local solar clubs provide information about renewable energy and also the opportunity to invest in a local solar plant. Other organisations again focus on organic and regional food products and offer direct sale points on farms as well as on regional markets.

Other successful examples suggest that a close cooperation with many local stakeholders contributes to a holistic development of a low-carbon society. The city of Tübingen, for example, combines smart measures in different roles (e.g. the local administration being a role model for energy saving and car sharing/using bikes, having an advisory role of fuel-efficient heating pumps and green electricity, and a supplier role by providing green electricity and a smart car sharing system and well-developed public transport).

As the county of PM is only the association of different municipalities it is in some ways more difficult to adopt such a comprehensive and straight approach as is possible in a city. However, in many ways the county can set a certain “climate”, which is so far not as rigorous as in the above examples, but can nevertheless show interesting results by its “hands-on” approach.

The city of Potsdam is in a somewhat more fortunate situation, because of the number of already existing forums and capacities for climate protection. Although Potsdam is comparatively rather a “late-runner” in terms of public awareness raising of climate issues, this may change partly at the moment. In a press release of the 4th of September the Lord Mayor has announced the tender for developing an integrated climate concept for the city. He hopes that this concept will be a first step to picture a city in a “post-fossil” time. Further, he also pledges that the city administration will take its model role seriously and looks forward to the discussions in the thematic departments and the public (Landeshauptstadt Potsdam 2009h).

Concluding remarks

In view to the three main areas of GILDED we concentrate on recommendations in the fields of household energy, mobility and food. We also adapt the general topics to the four roles of a municipality as explained in the introduction (supplier, model, planner and advisory role).

Household energy:

In order to effectively influence household energy demand, local authorities need to adopt a multi-fold strategy. Local administrations can bring the CO₂ footprint down by increasing the share of renewable energies in the total energy mix and by increasing energy-efficiency. Possible actions in accordance to different roles of local authorities include:

Supplier role:

- In order to increase the implementation and use of renewable energy in the city, additional policies (additional to EEG at the federal level) need to be implemented. Cities and municipalities could release mandatory quotas (e.g. for solar thermal modules in private buildings), e.g. via their construction legislation, and combine them with flexible ways of implementation for private households and enterprises (e.g. invest in own rooftops or buy shares in public utilities). If possible, these programmes should be combined with incentives.
- Cooperation with local industry and craftsmen.³⁵
- planning and investing in renewable energy projects (e.g. mostly wind energy (PM), biogas plants, solar plants and geothermal energy (PM and Potsdam)).
- In order to safeguard against the fluctuation of renewable energy systems, municipalities could (together with other actors) design incentives for micro-cogeneration.

³⁵ Many people decide about the type of their heating system according to the recommendations of local industry and craftsmen. If they are neither aware of renewable alternative systems nor able to implement and maintain them, their diffusion rate will suffer.

- Provide financial incentives for switching to green electricity for households (e.g. for new citizens 1 gratis monthly bus ticket when switching to green tariffs and 50,- Euro extra (city of Tübingen)).

Model role:

- Switch to green electricity in all administrative buildings, buy energy-efficient equipment.
- The municipality should train unemployed people as multipliers for energy saving in low-income households. A re-financing by energy saved should be intended.

Planning role:

- In general: In times of tight public budgets, local governments should check whether or not to invest in prestigious non-sustainable projects (such as motorways and car traffic bridges), and instead imagine alternative and less costly solutions.
- The German *Bauordnung* (construction law) has been designed under the (implicit) condition of urban expansion. It should be either modified or applied in a flexible manner in order to better adapt to the goals of a more condensed city.
- Set legal frameworks for enhanced renewable energy usage, implement an overview of available roofs suitable for PV and solar plants (Rentzing 2009).
- Clarify legal issues in view to preservation of historic monuments (Potsdam -Heup 2009).
- Foster wind development in regional development plans and inform municipalities about revenue possibilities because of wind farms.

Advisor & promoter role:

- Increase awareness and information campaigns for households.
- Establish energy agencies in order to bundle energy related information for investors and inhabitants.
- Foster co-operation with relevant partners in the city to form a strong and city/county-wide alliance for climate protection, e.g. Municipalities should try to align with the (local) financial sector in order to design credit programmes for energy saving and renewable energy systems.
- Promote energy-efficient appliances and energy-saving, increase acceptance of wind farms by informing citizens about pro and cons at an early state and by finding solutions to let citizens take part in the planning process of renewable energy projects, inform citizens when their roofs are suitable for a PV plant (based on a solar land register).
- PM should develop additional information packages (if possible combined with incentives) to increase the awareness of the EEG as a funding instrument for renewable energy. It should be demonstrated how local municipalities can capitalise on their allotment of land for renewable energy.

Mobility:

In the area of mobility local authorities can influence households by providing a safe, fast and well-working public transport system.

- *Supplier role:* invest in bicycle lanes and improve bus and tram lines in Potsdam and bigger cities in PM, support civic initiatives to create new bus lines in sparsely populated areas (e.g. BürgerBus – CitizenBus in PM, which is driven by volunteers), create incentives for new citizens, families and elderly people to use public transport, provide a smart car-sharing system (in the city), provide flexible working hours for buses by call-service (in sparsely populated areas).
- *Model role:* leading local officers use their bikes or the bus to work and make it known to the press.
- *Planning role:* set priorities in the urban/regional development plans for public transport and bikes, create “environmental zones”, where private cars are not allowed to drive when not meeting certain environmental standard, increase parking fees for cars and provide better parking facilities for bike riders, simplify public transport tickets and provide reduced fees for children and elderly.
- *Advisor & Promoter role:* raise public awareness and information about public transport opportunities and bike usage.

Food:

The area of climate-friendly nutrition is often neglected by many actors in the field of climate protection. Also, food and consumption decisions of households are often embedded in a broad context of either lifestyle choices and/or complex food supply and demand relationships (e.g. the availability of organic food products) which are often beyond the scope of the local levels. The actual effect of governmental activities in this field is difficult to determine on this level. However, there is also a number of ways where local authorities can try to influence household decisions.

- *Supplier role:* support local brands which produce regional food products, increasing the local added value while keeping transportation emissions and costs down.
- *Model role:* promote organic, regional and seasonal food in all city and county canteens, promote climate-friendly food in schools and kindergartens.
- *Planning role:* set – where possible – incentives for organic farming, engage in more broad discussions of the federal state and be involved in the sustainable development process of the federal state (Land Brandenburg 2009).
- *Advisor & Promoter role:* raise public awareness by promoting regional food events, emphasize health, taste and environmental advantages of climate-friendly nutrition, promote the delivery of so-called local vegetable and fruit boxes to households.

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Annex I: List of Interviewees and visited events

Interviews:

Potsdam

City staff/Local authorities:

- director of the city's climate coordination group (Leiter der Koordinierungsstelle Klima, Stadt Potsdam)
- employee of the city's climate coordination group (Mitarbeitering der Koordinierungsstelle Klima, Stadt Potsdam)
- member of the city's council/head of the green party faction (Stadtverordneter, Fraktionsvorsitzender der Grünen)
- head of Urban and Traffic development, faculty of department IV „Urban Planning“ (Leiter Fachbereich Stadt- und Verkehrsentwicklung)
- head of traffic facility, department IV „Urban Planning“ (Leiter Verkehrsanlagen)
- head of urban land-use planning, department IV „Urban Planning“ (Leiterin Verbindliche Bauleitplanung)

Non-governmental actors:

Municipal Enterprises:

- CEO of residential building cooperative (GEWOBA – largest housing company in Potsdam)
- CEO of urban development firm (Entwicklungsgemeinschaft Speicherstadt Potsdam), planning low-carbon quarter
- employee of municipal energy supplier (Stadtwerke Potsdam, Beschaffung - purchasing unit)
- employee of Chamber of Commerce and Industry, environmental unit (IHK)

NGOs

- chairman of the Energy Forum Potsdam (NGO)

Science

- head of the Institute for Sustainability and Mangement (University of Applied Sciences, Potsdam)

Potsdam-Mittelmark

City staff/Local authorities:

- Chief Councillor (Landrat)
- County administration staff – communal business development (Leiter Wirtschaftsförderung)
- deputy mayor of county (1. Beigeordneter)
- member of regional planning association (Regionale Planungsgemeinschaft Havelland-Fläming)

Non-governmental actors:

Municipal Enterprises:

- staff of the local energy supplier (eon.edis)

NGOs:

- member of the green party/chairwoman of a renewable energy group
- members of a communal eco-village in Belzig (ZEGG)
- chairwoman of the Local Agenda 21 in Teltow (one of the more active municipalities)

Local Events in the case study region, with participation and contributions of GILDED team members

Date 2009	Title/Topic	Type of Event/ Place	Participated by
12. February	Adaptation to climate change in urban regions	Impulse speech to members of Potsdam's city administration	Fritz Reusswig (Speech) Corinna Altenburg
18. February	Development of integrated climate protection plan, Potsdam	Regular meeting of Climate Council Potsdam	Fritz Reusswig
18. February	Climate Protection – new challenges for municipalities	Urban Institute Dialogue Berlin, participation of Potsdam's city administration	Corinna Altenburg
31. March	Energy Plans Potsdam	Regular Meeting Energy Forum Potsdam	Fritz Reusswig, Corinna Altenburg
30. April	City Forum Potsdam – Climate and climate protection plans of Potsdam	Public regular event which deals with current issues in Potsdam's urban development plans	Fritz Reusswig (Speech)
5. May	Sinus-Milieus and their representation in Potsdam	Workshop co-organised by SINU Sociovision and Microm at Potsdam	Fritz Reusswig
25. May	ARGE-Meeting Presentation of GILDED Project	Regular meeting of Renewable Energy Group in Potsdam-Mittelmark, Belzig (county capital)	Corinna Altenburg
16. June	Municipal climate protection	GILDED SAG event, Potsdam	Fritz Reusswig (speech) Corinna Altenburg (speech) Peter Schmidt
23. June	Public value through urban governance	Workshop organized by Social Science Centre Berlin	Corinna Altenburg
27.-28. June	Scenario-Workshop for Potsdam's Energy Future	Workshop organized by the Energy Forum Potsdam/PIK with participation of local stakeholder	Fritz Reusswig, Corinna Altenburg, Peter Schmidt
8. July	Development of integrated climate protection plan, Potsdam	Regular meeting of Climate Council Potsdam	Fritz Reusswig
8. July	Presentation of topics for the next participatory budget plan	Presentation of topics (including climate topic) in Potsdam's townhall	Corinna Altenburg
11. July	Wissenschaftsmarkt Potsdam	Exhibition of science organisations in Potsdam's City centre	Corinna Altenburg, Peter Schmidt, Vera Peters
9. September	Division group of the climate council Potsdam – energy efficiency in urban planning	Presentation of results regarding energy efficiency in building development projects	Corinna Altenburg
21. September	ARGE-Meeting: Regional Planning authorities, zero-emission plans by PM	Regular meeting of Renewable Energy Group in Potsdam-Mittelmark, Belzig (county capital)	Peter Schmidt
12. October	1. municipal climate conference Brandenburg	Conference organized by the consumer advice centre of Brandenburg	Corinna Altenburg (speech), Vera Peters
12. October	Scenario-Workshop to discuss an international building fair in Sachsen-Anhalt	First consultation about details on building exhibition with regard to climate topics	Mirjam Neebe
15. October	Municipal climate protection – organized by Green Party Faction	Conference with different guests from scientific institutions and local administrations	Fritz Reusswig (Speech), Corinna Altenburg Vera Peters Peter Schmidt, Mirjam Neebe

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List of Abbreviations

AfSBB	Amt für Statistik Berlin Brandenburg (Statistical office Berlin-Brandenburg)
AfSLB	Amt für Statistik Land Brandenburg (Statistical office Federal State of Brandenburg)
CDU	Christian Democratic Union
CEO	Chief executive officer
eNGO	Environmental Non-governmental organisation
FDP	Federal Democratic Party Germany
GG	Grundgesetz (Federal Constitution)
KIS	Kommunaler Immobilien Service (Municipal Real Estate Service)
KKS	Klimakordinierungsstelle (Climate Coordination Unit)
Landkreis PM	Landkreis Potsdam-Mittelmark (County Potsdam-Mittelmark)
LBGR	Landesamt für Bergbau, Geologie und Rohstoffe (State office of mining, geology and resources)
LHP	Landeshauptstadt Potsdam
LLSV	Landesgesundheitsamt im Landesamt für Soziales und Versorgung (State public health department)
LKRPM	Landkreis Potsdam-Mittelmark
NGO	Non-governmental organisation
PM	Potsdam-Mittelmark
RES	Renewable energy sources
SPD	Sozialdemokratische Partei Deutschland (Social-Democratic Party Germany)
VBZ	Verbraucherzentrale (Consumer Advice Centre)

Energy demand, Governance and Infrastructure in Hajdú Bihar County The Hungarian Case

Bernadett Csurgó – Imre Kovách – Anna Légmán – Boldizsár Megyesi

Introduction

The structure of this report

The Hungarian National Report consists of two major parts. In the first, we present the general characteristics of the case-study area. Here are presented the historical background, the infrastructure, main socio-demographic data. All are analysed in the context of CO₂ emissions.

The infrastructural part starts with a short, general description of the case-study area, paying special attention to climatic conditions. Then a short introduction follows, on traditions, history and the mentality of local people. This first part also presents the settlement structure of and transportation in the case-study area. Here, general consumption habits are presented.

In the second part, we present the general structure of the Hungarian environmental governance system, the energy policy and the local governments, and an analysis of the shift between local government and governance. The main questions defined in the WP2 Input Paper and the DoW of the GILDED Project are focused on.

After the general description of the government system, a detailed description of the research area follows. We analyse the institutions according to their role in environmental issues, their function, networks, goals, and discursive performance. First, we present the Central Authority, then the Regional Development Agency and the county council. After presenting these organizations a, thorough analysis of the following local governances follows: Debrecen, the Hajdúság micro-region, and the Bihar Region: Berettyóújfalu micro-region and Komádi.

Methods

This report is based on document analysis and on 18 interviews, conducted in Berettyóújfalu and Komádi, with local decision-makers, local entrepreneurs and members of local civic associations. In Debrecen, we conducted six interviews at the City Hall, at the county council, at a central Authority and at civic associations. In the Hajdúság part, there were five interviews: two with local entrepreneurs, and three with members of the city council. The interviews were semi-structured, done by the members of the research team. Most were tape-recorded, and analysed without transcription.

Part 1. Infrastructure

General characteristics of the Study Area

The Hungarian National Report was conducted in Hajdú-Bihar County. Hungary is subdivided administratively into 20 regions: 19 counties (*megye*) and the capital city, Budapest. These are further subdivided into 174 sub-regions with Budapest comprising its own sub-region. There are 23 towns with county jurisdiction, sometimes called urban counties. The local authorities of these towns have extended powers, but they are not independent territorial units.

Hajdú-Bihar County lies in the north-eastern part of Hungary, right on the border of Romania. Its territory is 6,211 km², which ranks it as the fourth-largest county in Hungary. The topography of Hajdú-Bihar County is characterised by the Great Plain; arable land, meadows and settlements can be seen as one travels through the countryside. Forests are not typical here, unlike lakes and wetlands, which are famous for their birdlife. The county is well connected to central Hungary by train or car. Debrecen even has a small international airport.

The county has more than half a million inhabitants (547,357 inhabitants; population density, 88.1 inhabitants/km² in 2005). 78.1% of local people live in towns. Natural reproduction is higher here than the country average, although the number of inhabitants would decline without immigration. The city of Debrecen is the second-biggest in Hungary.



Main economic data of the county

The number of employed people was 119,000 in 2002 (in enterprises, and state institutions); the number of economically active inhabitants was 170,000 or 54%. This is around the national average, despite the county having below-average wages. The unemployment rate has grown in the last year; it is around 15.6% (September 2008 figures), which is among the highest in the country. Most people only have elementary-level education, but in the last year the number of unemployed graduates has also grown.

Although Hajdú-Bihar County has been an agricultural region for centuries, agriculture and food industry pharmaceuticals and some other industries are important. This is especially so in Debrecen, while smaller industrial sectors can be find in smaller towns. Educational institutions are also an important sector in the county, while the tourism industry is developing steadily. The south-eastern part of the county is somewhat undeveloped.

Weather conditions

The weather in the county is characterised by a lot of sunshine (2,000–2,100 hours per year) and low precipitation. The annual average temperature is 10.5°–11° Celsius. Summers are hot, the average temperature in July being 21°–22° Celsius, while winters are very cold: in January the average temperature is minus 2.5° Celsius. Hajdú-Bihar County is one of the most arid parts of Hungary: the annual rainfall is less than 500mm. Droughts are very common.

Year Average temperature in °C

	Debrecen (in the town)	Kőrösszakál (the countryside)
2000	11.5	12.1
2004	10.2	10.6
2005	9.8	10.1
2006	10.5	...
2007	11.9	12.1

Table 1.1 Average temperature

Average temperature has increased in Hajdú-Bihar County from 2000 to 2007, but data show there are warmer and colder years and the warming process is not linear.

Historical background

Hajdú-Bihar County as an administrative unit was established in 1950. The county consists of two historically different parts: the Hajdúság region with Debrecen city has bourgeois traditions – people in this area used to live in towns for centuries – while in the Bihar region people used to live in villages.

The Hajdú towns represent a peculiar settlement type. The urban privileges and specific forms of urban institutions have been mixed with dominantly agricultural employment over centuries in many settlements on the Hungarian Great Plan. This peasant democracy and urbanism, the urban-dwelling peasants, an autonomy-based

urban consciousness, and (in the case of Hajdú towns and Debrecen) the Calvinist religion have given birth to a 'civic' identity that still fundamentally orients people's behaviour and consumer habits. Contrary to other regions, it is not the large (landlord) estates, but small and middle peasant units which dominate the farming and land-use structure; the population of Hajdú towns has not been strongly or personally subordinated to any institution or individual (except from the state). That is the basis of Hajdú individualism: the strong value of autonomy in institutional and private life, and a modest willingness to co-operate with anybody who doesn't regard them as an equal partner. They are quite individualistic, but community control over behaviour is still rather strong. This means that traditions in individuals, family life and consumption still influence their behaviour. They can rarely be convinced about what doesn't fit their ethos or about matters where they have no personal experience. This is not an extreme inflexibility, but some kind of autonomy and 'self-made man' ethos based self-protection against negative influences. They can be adaptive and innovative when convinced of the benefit or pertinence. Family and children, the self and social prestige are basic values, and these are represented in consuming habits: traditional meat-based dishes, social representation, moderate spending and a kind of conservatism.

The villages of Bihar were under the influence of the Bishop of Várad (today, Oradea) between the 11th and 16th centuries. Most of the inhabitants of these villages were serfs under the Bishop.

Differences in historical heritage result in different mentalities. They determine the contemporary identity and culture of the two different parts of the county. Descendants of peasants and agricultural workers are the most important basis of contemporary society. The economy of the seven Hajdú towns has been also based on agriculture since the middle ages. Towns consisted more of urbanised peasants, while in the villages lived smallholder peasants or agricultural workers. In addition, the mentality and habits of different strata of peasantry were very similar. Thriftiness a symbiosis with nature, self-government, and the capacity to assess and take risks were the main elements of the peasantry. These also determined their contemporary values, attitudes and behaviours concerning their behaviour regarding energy use.

Possible low-carbon energy sources

There are several possible low-carbon energy sources in the county: wind-energy, solar-energy, thermal water, biomass and straw-power plants. Although there are plans to establish new wind-power plants, this could be one of the most important possible low-carbon energy sources. Many experts emphasise the region's capacity for using wind power. It is evidenced by the several windmills which were located there in the 19th century. 95% of Hungarian windmills were located in the Great Plain, which includes Hajdú-Bihar County. Another important alternative energy source could be the thermal waters which can be found in almost all the villages. Nowadays, the thermal waters are used by the tourist industry. In addition, several scientific and innovative projects are aiming to discover the possible uses of thermal water as an energy source. Several settlements and sub-regions are conducting feasibility studies on the exploitation of thermal water as an energy source. The relatively high importance of agriculture in the region provides good opportunities for using biomass as energy source.

Environmental conciseness can be based also on the fact that the biggest part of the Hortobágy National Park (which is the first and largest national park in Hungary) belongs to Hajdú-Bihar County. It significantly determines the attitudes of local society toward nature conservation and environmental protection. In addition,

because of the long-term position of the national park in the county, we can find several conflicts between it and locals (e.g. farmers). In the territory of the park, a large farm (formerly state-owned) is certified as organic. It has a powerful position regarding organic farming and food (meal) production, which determines its relationship with the park. Interviewees emphasised that local farmers are in an unequal position in this situation. Most of the local farmers farm intensively using chemicals, because they feel that conversion to organic farming is too risky. The presence of the national park has affected the attitudes of locals toward environmental issues and creates an important knowledge base for the agenda.



Figure 1.1. National parks and Nature protected areas in Hungary

Settlements and administrative structure

Differences of settlement structure can also be attributed to diversity in historical development. Hajdú-Bihar County is one of the most urbanised counties in Hungary. The number of settlements is 82, which is much more than the average settlement number per county in Hungary. The capital of the county is Debrecen, having 200,000 inhabitants. The city’s development has determined the development of the whole county. In addition, in 2001 there were 17 towns and 65 villages in Hajdú-Bihar County. The average population of the settlements is 7,000, which is double the Hungarian average.

	Hajdú-Bihar County		Hungary	
	N	%	N	%
Urban	17	20.7	237	7.6
Rural	65	79.3	2898	92.4
Total	82	100	3135	100

Table 1.2 Settlement Structure

There were 552,998 inhabitants in Hajdú Bihar County in 2001 and the number of households was 204,086. Most of the inhabitants live in towns and 35.9% live in Debrecen.

	Number of inhabitants	% of total
Towns	402,242	72.7
Of which Debrecen	198,905	35.9
Villages	142,340	27.3
Hajdú Bihar county (total)	552,998	100.0

Table 1.3 Population in Hajdú-Bihar County

The population age distribution of the county is more favourable than the country average. The number of children per 100 adults is little bit more than average (Hajdú-Bihar: 28; Hungary: 25), while the number of old-aged people per 100 adults is little less (Hajdú-Bihar: 30; Hungary: 34).

Year	Hajdú-Bihar County		Hungary	
	Number of children per 100 adults	Number of old-aged people per 100 adults	Number of children per 100 adults	Number of old-aged people per 100 adults
1980	40	26	36	28
1990	37	28	34	31
2001	30	30	26	32
2005	28	30	25	34

Table 1.4. Age structure

The Hajdúság region is characterised by neighbouring small and middle-sized towns having well-developed and independent administrative functions. In contrast, the eastern part of the county (and especially the Bihar region) is characterised by a dense settlement network with smaller and less populated villages. Berettyóújfalú with 25,000 inhabitants has become the capital of the region.

Households

Statistics of households

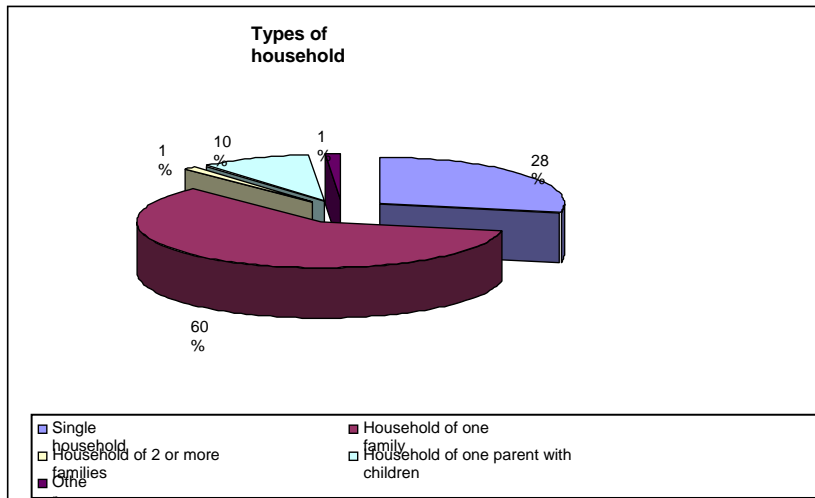
There were 204,086 households in the county in 2001. Most of them were in the towns (75.2%). The decrease in household size is an important characteristic of the Hungarian household structure. In Hajdú-Bihar county, there were 255 persons per 100 households in 2005, which is more eight more persons than the Hungarian average. Most of the households are family-based (149,000 in 2005).

	Number of households	% of total
Towns	153,502	75.2
Of which Debrecen	81,323	39.8
Villages	50,584	24.8
Hajdú-Bihar county (total)	204,086	100

Table 1.5. Number of households

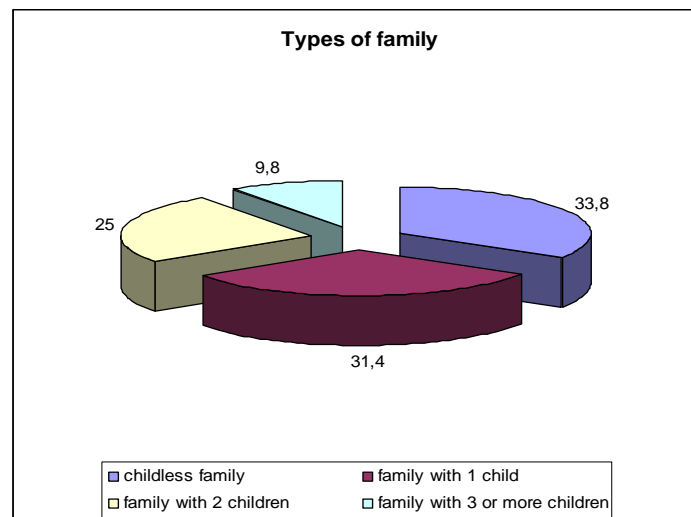
The increase in single households is an important demographic tendency: 28% of households were single households in 2005 in Hajdú-Bihar county. Most of the households consist of one family (60%); only 1% of

households comprise more than one family. 10% of the households are households of single parents with children.



The number of families in 2005 was 152,875, which is less with 708 than in 2001. The number of persons per 100 families was 255, which is 11 more than the Hungarian average.

33.7% of families have no children; 31.% of families are single-child families; 25% have two children, and only 9.8% of these have three or more.



The number of flats in the county was 212,036 in 2001, 39.3 percent of them are located in Debrecen. The average size is 72m². (Table 1.6) There are much more flats in towns than in villages, but the average size of a flat is bigger in villages. The changes in flat size are well-shown by the size of new flats. In the 1990s, the size of a newly built flat was 75–101m², while by 2005 the size of a new flat had increased to 7–35m². There are small towns and villages where lower-income households live where the size of new flat is less than the average, at only 90m². The new flat size is bigger in the villages and small towns of the Debrecen agglomeration, to where upper classes migrate.

	Number of flats	% of total	Average size of flat (m ²)
Towns	158,134	74.5	70
Of which Debrecen	83,423	39.3	65
Villages	53,929	25.4	76
Hajdú-Bihar county (total)	212,036	100	72

Table 1.6. Characteristics of flats

Household infrastructure

In the 1990s, only the urbanised settlements with a larger population size had gas pipes. All towns, and several villages in the county, had gas pipes by 1995. In 2005, average gas consumption in urban area was 45–59m³ per person. Gas consumption was lower than 45m³ in rural areas. This was caused by an underdeveloped infrastructure, and also by the easy accessibility of alternative energy sources like wood, etc. Trends in gas consumption represent the infrastructural development of settlements, and the social structure of the regions. The status of households determines their energy consumption.³⁶

We have regional data on types of heating from 2002. Hajdú-Bihar county is located in the Észak-Alföld (Northern Great Plain) region. The regional data on percentage distribution of dwellings by type of heating show that in the region of Észak-Alföld, the importance of district heating is relatively low. Only 7.4% of dwellings have district heating in the region, while the Hungarian Average is 17.4%, and in the Central Hungary region (including Budapest) 40.6% of dwellings use district heating. The most significant heating types in the region are gas or electric heating (33.9%) and the central heating of dwellings (30.9%) and coal and wood heating has a relatively higher importance in the region (19.1% use coal and wood heating, which is little bit more than the Hungarian average at 14.7%). There is a significant rural/urban difference concerning types of heating in Hungary. National data from 2002 on the distribution of dwellings according to heating and settlement type show district heating at 22.3%, central heating at 25.3%, and gas, electric, etc. heating at 32.8%. These are the most important heating types in Hungarian towns. In rural dwellings, however, the most significant forms of heating are coal and wood (29.7%), central heating (35.9%), and gas/electricity (27.1%).

Regional data on energy expenditure show that the use of traditional energy sources has a higher importance in Észak-Alföld, where the expenditure of solid fuels and heating oil is 122.7% of the Hungarian total. Bottled gas also is more significant (115.8%) in the region than in the country overall.³⁷

Consumption

National data from 2005 show half of the money spent on consumption in Hungary was spent on food and household maintenance. While food consumption decreased, the volume of household maintenance remained unchanged. On the other hand, the third-most significant consumption (transport and communication) increased. The share of food consumption was 26% in 2005. This amounts to 13,300 HUF (50 EUR) per capita,

³⁶ Csákberényi-Nagy 2005. Available online at: http://www.alterweb.eu/docs/korompai_cikk.pdf

³⁷ Berendi Horváth (2004) *A háztartások lakásfenntartási kiadásai* (Household expenditure on maintenance of dwellings) KSH.

and 35,200 HUF (130 EUR) per household. A decrease in the volume of home-grown food has continued for years. The volume of purchased-food consumption has remained unchanged in recent years in Hungary.

Regional data from 2007 on food consumption per person show that cereal and meat consumption is more in Észak-Alföld than the Hungarian average. Cereal consumption per person is 92.4 kilograms in the Észak-Alföld region, while the Hungarian average is 88 kilograms. The amount of meat consumption per person in the region is 61.5 kilograms, while in Hungary it is 57.3 kilograms. People in the Észak-Alföld region consume fewer fruit (42.5 kg/person) and vegetables (83.9 kg/person) than the Hungarian average (fruit 44.9 kg/person, vegetables 85.1 kg/person).³⁸

	Northern Great Plain Region	Total in Hungary
Cereals	92.4	88
Meat	61.5	57.3
Fruit	42.5	44.9
Vegetables and potatoes	83.9	85.1

Table 1.7. Food Consumption in 2007 (kilograms/person/year).

Transport

The county plays an important role in the east-west transport of Hungary. This is shown by the development of road transport, and also the railway lines in the county. The county can be reached by four highways and one motorway. Debrecen is located on the main Budapest–Záhony railway line. Debrecen and the county have the one of the best railway networks in the country. There is one main, and eight branch lines which cover the whole county and ensure connections between the settlements and Debrecen (and also provide connections with neighbouring countries). In contrast, the level of transport services in small villages is very low; mostly there are only two buses per day travelling to Debrecen, as several interviewees emphasized.

There is an airport in Debrecen owned by Debrecen City Council and operated by the Debrecen Airport Company. The airport plays an important role in the development of the county, as regards tourism.

The most important public transport company in the county is Hajdú Volán, providing mass transport throughout the county. The company provides local public transport in several towns in the county.

The number of passenger vehicles in 2006 was 148,975 in Hajdú Bihar County, which is 4.6 % of the total in Hungary. Most passenger vehicles are in Budapest (19.9%) and Pest County (13.4%). In Hajdú-Bihar County in 2006 there were 138,156 cars, 773 buses, 6,360 motorbikes and 226 caravans. The average age of cars

³⁸

KSH Statisztikai Tükör 2009/3. Available online at: www.ksh.hu

in Hungary was 10.34 years in 2006; in Hajdú-Bihar this is very similar, the average age of cars being 10.57 years.³⁹

	2000	2004	2005	2006	2007
Motorbike	5,102	5,669	6,051	6,360	6,660
Car	99,691	129,309	133,986	138,156	141,549
Bus	755	796	775	773	766
Total (passenger vehicles)	105,548	135,774	140,812	145,289	148,975

Table 1.8. Number of passenger vehicles (2000–2007)

The number of passenger vehicles has increased in the county; this rose more than 41% between 2000 and 2007.

The bicycle is traditionally a popular vehicle in the county, mostly in rural towns and villages; interviewees mentioned that the number of cyclists in Debrecen is increasing. Bicycles are an important part of local inhabitants' everyday transport; several travel agencies provide bicycle tour possibilities in the county. Several cycle path developments in the county are being supported by European Union Funds.

Part 2. Governance, power relations and energy policy

Theoretical considerations

First we shortly summarize the main results of the Input Paper, which comprises the theoretical and methodological back-ground of our study. Defining 'governance' is a rather complex task; as Stoker (1998, p.17) argues:

“Reviews of the literature generally conclude that the term – governance – is used in a variety of ways and has a variety of meanings (Rhodes, 1996; Stoker, 1997). There is, however, a baseline agreement that governance refers to the development of governing styles in which boundaries between and within public and private sectors become blurred. The essence of governance is its focus on governing mechanisms which do not rest on recourse to the authority and sanction of government. ‘The governance concept points to the creation of a structure or an order which cannot be externally imposed but is the result of the interaction of a multiplicity of governing and each other influencing actors’ (Kooiman and Van Vliet, 1993, p.64).”

Stoker offers five theoretical, complementary propositions to consider – a number of aspects of governance that we suggest using as a theoretical base:

- governance refers to a set of institutions and actors who are drawn from and also beyond government;

³⁹ Fancsali (2007) *A Nyugat-Dunántúl közúti gépjárműállomány* (Passenger vehicles in the Western Transdanubian Region) KSH.

- governance identifies the blurring of boundaries and responsibility for tackling social and economic issues;
- governance identifies the power dependence involved in the relationship between institutions involved in collective actions;
- governance is about autonomous self-governing networks of actors;
- governance recognises the capacity to get things done, not relying on the power of government to use its authority or command. It sees government as being able to use “new tools and techniques to steer and guide” (Stoker, 1998 p.18).

Applying these theoretical considerations, we argue that one of the most important aims of defining governance (reflecting back to a multi-layer concept of power (in 2.1) and accepting the above considerations) was to include in it the growing number of actors which may have an impact on household energy-related behaviour. Stewart and Jones (2003) say: “By appropriate governance we mean the policies, structures and processes that enable control and coordination of stakeholder decision-making and that will facilitate the development of a set of shared values concerning the issue in question” From this perspective of multi-level and multi-actor governance, we underline that:

- governance is a continuously changing complex of structures, institutions and actors (and their networks, values and interests)
- a majority of authors argue that it is necessary to involve local stakeholders and actors in governance.

As the continuously emerging literature on the shift from government to governance emphasises:

- while in government, most frequently, one stakeholder plays a decisive role – in governance many stakeholders are invited to express their interests (Viola, 2006; Kooiman, 1993);
- government is a vertically organised way of governing, while governance is a horizontally working system (Viola, 2006);
- replacing the hierarchical government by a multi-level, multi-centre regime, the notion and practice of partnership has a key role in disseminating the culture of new governance;
- contrary to uni-centre, hierarchical state-dependent government, multi-centre systems in pluri-centre governance, public institutions and actors co-operate with a multitude of interested organisations in well-organised social and political subsystems which interweave policy arenas and administration levels;
- governments and local governments are losing influence and therefore actively search for new techniques and methods of governance (Rhodes 1997, 2000, Kooiman 1993);
- complexity, interaction and bilateral dependency are present on each level of governance, resulting in continuously changing competency and responsibility;
- governance includes networks as a primary means of social coordination;
- network-based social coordination can efficiently assist government bodies in managing complexity that derives from bilateral dependence (Klijn et al., 1997; Rhodes, 2000; Murdoch, 2006);
- power relations, interests and pressure groups are more clearly manifested in governance, while in democratic regimes, government can be more transparent.

The shift from government to governance evidently reevaluates the civic sphere, the local stakeholders and actors. Hyden, Court and Mease (2003) suggest capturing various components of the political processes for a better understanding of the relationship that links civic stakeholders and actors to administrative bodies in new

governance. Their suggestion includes the following six arenas that can be found in any political system: “Civic society, where citizens become aware of and may raise issues for the attention of public authorities; Political society, where issues are aggregated by political parties and legislatures; Government, where the stewardship of the system as a whole tends to lie; Bureaucracy, where policies are prepared and implemented; Economic society, where relations between state and market are determined; Judiciary, where disputes are settled” (Hyden et al., 2003, pp.5–6).

Stakeholders and networks

The key question is who the actors are and the role of their activity in two layers of power related to the linkage of governance mode and household energy demand and use.

Administrative leaders

Administrative leaders play a central role in the governance system. In the non-local hierarchical model they have an autocratic power. Even in this model, administration without legitimacy cannot exist. Legitimacy is to be interpreted as a contract between people and state. The principles of this contract are: traditional, charismatic and legal authority. Parsons has added professional authority to this typology. “Professional authority is defined by its claims of substantive rationality, in contrast to formal rationality, which sustains legal authority”. (Lembecke, 2007) The legitimacy of formal rationality includes the elected politicians and the state officials. Professional authority includes institutional experts such as university professors, researchers, etc. The project takes into account only those administrative leaders who influence the energy policy of the region. In spite of the influence of politicians and state officials, professional authority does not depend directly on state hierarchy. The experts are members of other such organisations as universities and research centres. This position allows having critical ideas towards government energy policies.

Intermediate actors

The importance of partnerships in new governance and networks as principal tools of coordination (Rhodes, 2000) has led to the growing significance of new stakeholders who mediate between actors, and of the role of intermediate actors which are becoming cardinal in professionalised and project-driven developmental work (Sjöblom et al. 2006; Kovách and Kristóf, 2009). The transformation of policy from hierarchical policy networks to multi-level policy-making also underlines newly emerging roles of intermediating institutions and of intermediate actors between policy levels (Goodwin, 1998; Greer, 2005).

The project class

The project class is a new social formation in Europe (Kováč and Kucerova, 2006). There are three driving forces for the emergence of the new class: (i) reforms within administrative structures; (ii) change in the nature of developmental policies both on the EU and national levels; (iii) the increasing importance of the cultural and cognitive elements of territorial development (Kováč and Kucerova, 2006). There is an obvious link between administrative reforms and the increase of actors involved in development (including complex management of energy use) – mainly bureaucratic staff both in governmental regional, local offices and a civic sector that has resulted in a growing number of project actors who are capable of planning and designing projects (Anderson, 2006).

Civic organisations

According to the most general criteria of non-governmental, non-profit organisations, we emphasise the following: no profit distribution; independence from government (local or national); officially registered; has autonomous legal existence; main goals are for the common good; based on voluntarism; and a significant part of revenue comes from the private sector. Although political organisations are non-governmental, we do not include them in the list of civic organisations (Salamon, Sokolowski and List 2003)

Civic society can be an equal or a subordinate (state dominant) partner of the state. As a result of which, the relationship between the civic sphere and the state alters, and the role of developed and well-organised NGOs may increase in the activities of the cooperative state.

Networks

For GILDED research, papers on policy network analysis are important. These network studies break with the traditional interpretation of independent stakeholders' action; instead, they focus on the mechanisms of governance processes (Knocke, 1990; Laumann and Pappi, 1976; Laumann, Knoke and Kim, 1985; Marin and Mayntz 1991). Based on empirical data and other network theories, F. U. Pappi has created a comparative model. The research will use this model, as it integrates the networks between stakeholders and other actors such as households.

Governance models

Our analysis of governance should include all possible actors and stakeholders involved in planning, decision-making and management of local affairs. The typology helps to better understand the above-presented processes and the dynamics of change. On the one hand we present examples of autocratic government and classic democracy, while on the other we also present examples which show similarities with theories of deliberative democracy or discourse ethics (Ringen, 2007). Thus the typology also shows the government to governance shift; we do not evaluate different models as the typology does not represent any hierarchy. Its main goal is to help in describing the different level of government/governance structures and the organisational structure of different policies. The models are described in four main dimensions: (i) source of power and legitimacy; (ii) power relations; (iii) general patterns of decision-making; and (iv) territorial authority. Although the analysis of institutional roles and competences are not included in the following typology, these questions are also highly important in the case studies. The typology also allows us to discuss the most important hypothesis of the working package on infrastructure and governance (the impacts of different governance structures and the role of the different stakeholders) in order to better understand which policy measures are the most suitable and influential in energy use issues.

Based on results of contemporary research into local governments, local governance (Marsden 2006), new institutions of rural governance (Murdoch 2000, 2006), the challenge of environmental hazards and risks to governance structures, and also using the relevant literature of comparative political science and global ecological regimes, we have developed the following typology of governance models:

- non-local hierarchical model

- Dominating power positions – Local hierarchical model
- Formal democratic decision-making model
- Cooperative decision making: the local partnership model
- independent authorities
- self-regulated cooperation.

These six different types can be characterised on the above-mentioned dimensions. The legitimacy of a certain institution is based on the laws (decrees) of the country, of local authorities or by international agreements. Also, the method of selecting the leader of the institution is an important distinguishing factor: they can be nominated (by the central government), delegated or elected by a group of stake-holders or at free elections. With regard to power relations, the role of the leader can be different: the leader can be a champion and lead the institution without inner control and with as little consultation as possible; or can be inclusive. In this case the leader builds strategic partnerships with other members of the organisation and communication is based on dialogues and disputes.

Power relations are mirrored by the general patterns of decision-making. In this dimension, we focus on all of the elements and phases of decision-making, starting from defining different agendas, through brainstorming, planning and project management to implementation. The role of the leader influences, or defines the nature of decision-making. Although it is often prescribed which stakeholders have to be involved in decision-making, the way they are present in the process of decision-making is also characteristic of the organisation. The relevance of formal and informal decisions can be a distinguishing feature. Analysing the models of decision-making, some general methods can be described: negotiations, consultations, commands or instructions.

General Outline of the Hungarian governance Structure

First, we will present a general outline of the governance structure focusing on the common features of different government levels and institutions in the country level and in Hajdú-Bihar County and the energy policy in Hungary. Then follows a stakeholder analysis of the most important actors: the state, the City of Debrecen, the Hajdú towns, the town of Berettyóújfalu, Komádi and the County Council, two associations of local governments and civic organisations and entrepreneurs.

In the analysis, we present first the main tasks of institutions and organisations, then some organisational peculiarities and their relationships interests and conflicts. Finally we focus on the typical governance type. As the research is about the energy consumption of households, our interviews focused on the issue of how these institutions influence energy consumption.

In Hungary, the realisation of investment and development concepts of local governments depends on the state and EU funding. Moreover, entrepreneurs and civil society depend more and more on these resources. So, the examination of the municipalities' application system and the description of civil organisations' and entrepreneurs' funding is very important.

On the one hand, we will examine tasks of the municipalities in connection with energy (i.e. how and to what extent they are involved in energy). We will also scrutinise the plans and concepts of the municipalities as regards energy issues. Furthermore, we investigate the involvement of local entrepreneurs and civil groups in this process. We also deal with a specific programme aimed at reducing household energy consumption: the upgrading of prefabricated blocks is put out to tender by the state and formal offers are made by home owners. The municipalities are invited to submit proposals (e.g. insulation, modernisation of the heating system). The costs of renovation are shared by the state, local governments, and the households themselves. The municipalities have the right to decide on the amount of money they earmark for this programme, and also to limit the number of households involved.

Taking the above-mentioned criteria into account, we are going to outline the activities of the actors which have an influence on energy consumption of the following settlements: Debrecen, the Hajdú town of Berettyóújfalu, and Komádi. To highlight local processes, we present a description of cases in each area.

The government

The Hungarian Republic signed the Kyoto Protocol in 2002, with parliament passing an act on it the same year. The government measures mirror the general aims of international programmes and agreements, and it is hard to find any specific, peculiar or even location-based government project or action. The state-managed Environment and Energy Operational Programme aims for quality-of-life improvement through pollution reduction, protection and preservation of natural assets, harmonising social and environmental sustainable development. The managing of climate change is not a priority programme. From the six priority axes, one ('Increasing the use of renewable energy sources') is closest to a climate-change managing programme. This priority axis receives 5.2% of total funding.

Hungary aims to decrease CO₂ emissions by 25.4% in 2008–2012. In March 2008, parliament adopted the National Climate Change Strategy, which aims to reduce the environmental, economic and social impact of climate change, and increase public awareness about climate-change related issues. Another step is the adoption of the Government Resolution and Green Investment Scheme that established rules for trading carbon credits. To specify concrete actions, an Energy Efficiency Action Plan was adopted in 2008. The Action Plan will produce 1% energy savings for the period 2008–2016.

Hungary also agreed to bring to fruition a climate and energy package in 2008, according to which, Hungary will not increase by more than 10% its greenhouse gas emissions. The promotion of climate change management was launched in 2009. In this year, the government intends to spend 965,000 EUR raising public awareness of the negative impacts of climate change. The Ministry of Environmental Protection and Water announced programmes for events, films and publications, with further subsidies for newspaper ads promoting an environmentally friendly lifestyle. The 'Switch it off' campaign started at the beginning of January 2009.

Energy policy belongs to the Ministry of Economics and Development. But as a Report of the State Audit Office (Audit 1009) states energy policy, especially the problem of households' energy consumption is under represented in the governmental structure. Green energy (mainly biomass and wind power plants) investments were realized by state subsidies, but different lobbies and interests reshape long term plans. New tenders to invest in wind-power-plant were stopped after the change of government.

Regarding the management of environmental protection and climate-change-related issues, the state offices (the Ministry of Environment Protection and Water, the Hungarian Energy Office and a nationwide network of Green Point Offices) are the central institutional actors. There is no department responsible for climate-change management. The governmental organisation of environmental protection issues is rather hierarchical, and the Ministry follows its own bureaucratic interests. Co-operation between civil associations and governmental offices is occasional, and in many cases they have adverse purposes and interests. The work of state offices is policy-oriented, and does not impact on civil associations' activity. Environmental protection, and particularly the management of climate change, assumes a co-operation between the state and the civil sphere. The hierarchical power structure, which state offices enforce, is a barrier to common action with many civil associations involved in environmental protection. Green issues are not the focus of Hungarian public policy, which has turned toward climate-change management under the influence of international institutions and EU initiatives. The very occasionally (or not at all) co-operating governmental and civil institutions are frequently inefficient in the struggle for a better environment.

Regarding central authorities, we conducted an interview with the director of a local office of the Agency for Environmental Protection, Water and Nature Conservation. The director was nominated by the National Central Agency, which controls local industrial units (gas emissions, water pollution, etc.). They also control the environmental aspects of new building plans, and new investments. According to the legislation, they do not have to co-operate with local stakeholders, nor with local governments, nor investors. Despite this, the Agency has regular co-operation with the City Council of Debrecen. They are equal partners, and hold a monthly meeting. The institution also has contacts with the notaries of smaller settlements; it gives assistance in relevant fields to local governments, if requested, on a voluntary basis. Although the agency has dense local networks, it has very little ability to react to local affairs, as it has to follow central regulations. It is a typical example of an independent authority.

Energy policy in Hungary

The main regulating body of the Hungarian energy sector is the Hungarian Energy Office. Since 1994, when it was founded the Office has fulfilled its main tasks, the regulation of the natural gas and electricity companies and other companies generating electricity by cogeneration, the protection of the consumers' interests and the provision of stakeholders and the public with information. It also cooperated in the development of the

legal framework – laws and secondary legislation – of the energy sector. The Ministry for National Development and Economy controls the operation of the Office.

The Office also controls the energy market, energy companies(thus it has to keep tight contact with investors), energy end-users and residential consumers. It has connections also to the representative bodies that are getting stronger and stronger. The Office has evolved fair professional relations with the representatives of consumers and the energy industry, with investors, and with other organizations of the public administration.

The liberalization of the energy market started at the 1st of January 2003 in Hungary, with the gradual liberalization of the electricity market, and the liberalization of the natural gas market on 1st January 2004. At first, the free market sector was operating beside the public utility sector, this latter with regulated prices. Later, the new Electricity Act (passed in the summer of 2007) introduced further significant changes: by putting an end to the “single buyer” market model based on regulated prices the consumers/end-users became eligible to buy electricity under free-market circumstances and might choose from among the competing suppliers (traders) in the energy market. The new regulation regime also has increased of the number of tasks of the Office.

The Office is working in close cooperation with the energy regulatory authorities of the EU member countries and with their European associations – like the CEER (Council of European Energy Regulators), the ERGEG (European Regulators Group for Electricity and Gas) – on the common goal of the EU Commission and the national government of providing the energy consumers with appropriate security of supply and with a wide possibility of choice in the Single European Energy Market. The Office also cooperates with the energy regulators of the ERRA (Energy Regulators Regional Association) member countries considering the energy markets of eastern and south-eastern Europe, and Asia.

The National Energy Efficiency Action Plan for 2008-2020 defines action in the following sectors: households, institutions of central and local government, industry, transport and horizontal cooperation.

Insulation is among the most popular and well-known programmes; it obtained the most subsidies in the “Support for energy efficient modernisation of residential buildings built by industrialised technologies energy-related modernisation of panel apartments” programme. Similar to it there is an energy-saving programme for non-panel houses (“Residential energy savings assistance and credit programme – energy-related modernisation of traditionally built apartments”).

There are different measures for heating centres (individual and for whole blocks of flats), energy-related certification of buildings and household devices, for periodic inspection of households’ water heating appliances, and encouragement of replacement and renewal of boilers.

There is also an assistance service on energy efficiency, propagation of energy efficient lighting equipment (compact light tubes) and replacement of light fixtures; and an aim to produce energy efficiency-related training materials for application in primary and secondary education, creating the basis for energy-conscious conduct (for more details, see Action Plan 2008).

According to the above mentioned Audit Report: “The implementation of the Action Plan is risky due to the insufficiency of resources. The Action Plan estimated the total investment need of the implementation of energy efficiency measures as HUF 2295-2870 billion, the state aid for 9 years (taking into account an aid intensity of 10-30%) as HUF 230-860 billion. However, only the amount of HUF 38 billion coming from EU funds was quantified, the amount of the quota revenue and other resources was not presented.” (Audit 1009: 3).

To sum up, energy efficiency is not represented in the main aims of the government, and low-carbon sources are unlikely to reach 13%, for financial reasons, and because of the inflexible energy (especially electric) system.

The general structure of Hungarian municipalities

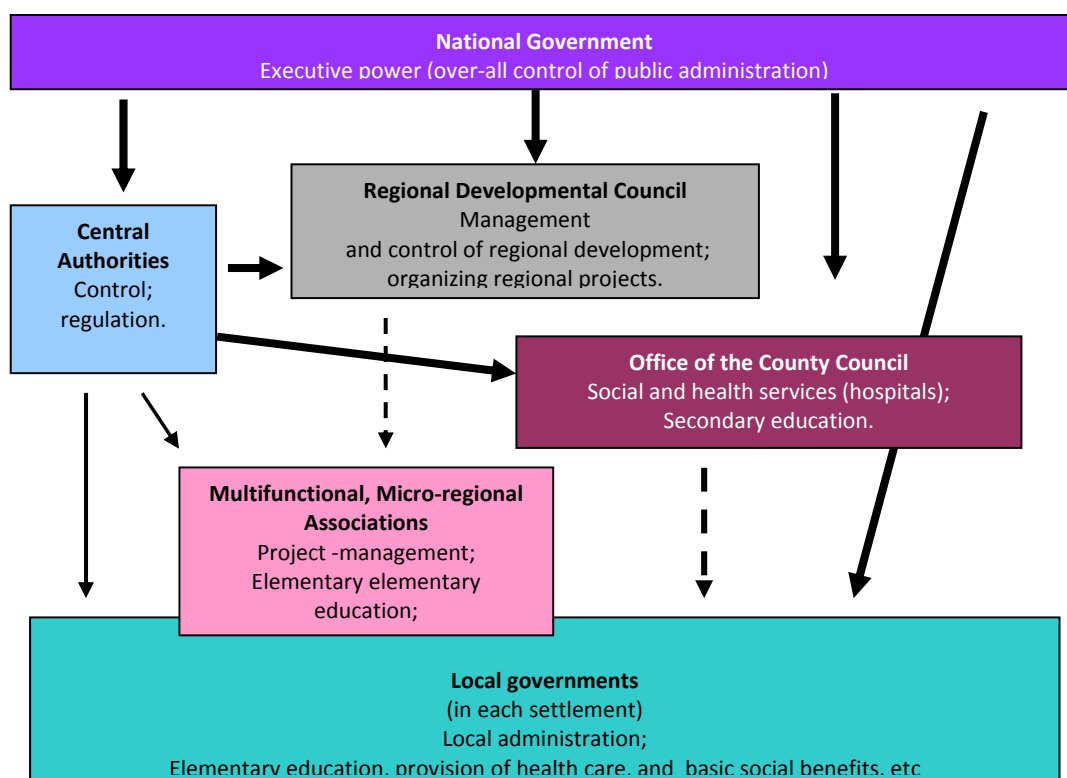
The municipalities have autonomous decision-making power, and their tasks and competencies in providing local public services are determined by law, or by themselves. The municipalities consist of delegates chosen by the citizens, and they decide their structure and functioning within the confines of the law. They establish a budget independently, and they possess the property necessary for their effective operation, and are not subordinated to any superior authority. Legal supervision over the municipalities is exercised by public administration.

The municipalities are divided into two main types: local governments (covering the capital, and district, town and village municipalities); and territorial municipalities (county municipalities). (For more details see Appendix).

Governance structure in Hajdú-Bihar County

The main actors of governance in Hungary are the local governments. While the role of county councils is declining, regional councils cannot replace them. Parallel to this, the association of smaller local governments is becoming more and more important because of changes to central regulations: these organisations provide different services and manage development projects. Their role is more important in regions characterised by small settlements, where the central regulations rule their activity. Beside local governments, offices of central authorities and regional development councils are important in governance structures. Central government not only defines regulations, but can also influence local affairs, as it partly nominates council members.

Overall scheme of governance in Hajdú-Bihar County:



(Figure prepared by the Hungarian team of the GILDED Project.)

Regional Development Council of Észak-Alföld (North Plain)

The council was established in 2000 to manage the development funds of the EU in the region. It has 19 members: nine were delegated by different national ministries; three by the micro-regions; three by the counties; and three are the mayors of the region's three main cities. As a result, the national government has overall control over the regional development council. The institution co-ordinates the preparation of regional development plans, and organises some developments as well. It also co-ordinates the development policy of different ministries. Analysing its composition, one may hypothesise that co-operation between micro-regional associations, counties and cities is smooth, thanks to the council. In fact, the council plays a minor role in mediating between the different institutional and governmental levels: the nominated members and representatives of the national government have an overwhelming majority in the council (it is therefore a battlefield for political parties).

Office of the County council

The county General Assembly is elected by the citizens, and is responsible for the effective operation of the county municipality. The chairman is elected by the General Assembly. Its organisational structure (committees, offices, notaries, etc.) and its types of tasks (voluntary, compulsory) correspond to those of local governments. It organises public forums and public hearings for the local population and bodies. It informs the population about local affairs with the help of the local media and the office board. Now there is a stable, right-wing majority in the General Assembly of the county.

The compulsory tasks cover areas which local government tasks do not. The county council is responsible for a large part of the secondary education and health-care services of the county. It has very little income of its own, most stems from the central, national budget, as a normative subsidy for the above mentioned tasks. The council participates in different projects, without which they would be unable to develop services. It has four departments, one of which concerns project management. They have a tight and strong relationship with the City Council of Debrecen. The president of the county council meets the mayor of the city every month to harmonise ideas and plans; the administrative staff consults more frequently. Energy consumption and decreasing emissions means energy saving for them. They have no direct impact on local energy consumption, although institutions run by them may have. Now there is a stable, right-wing majority (similar to Debrecen), co-operation is smooth. The governance model is between local hierarchical and democratic decision-making, because the president has to co-operate with other stakeholders outside the institution as well.

The development agency of the county defined the following main development goals:

- development of knowledge-intensive industry, especially in the areas of health care, environment and pharmacology, using local universities;
- tourism development, based on local cultural heritage and thermal water; creating a better business environment for small, medium-size and large enterprises;
- strengthening the agro-business sector, based on agricultural traditions, especially focusing on big agricultural enterprises;
- land development and raising living standards through strengthening the county's inner cohesion, increasing local identity, improving quality of life and infrastructural and social services.⁴⁰

Stakeholder	County Council
Interests in reduction of CO² emissions	reduce energy-consumption, save money
Relationship with each other (in general)	co-operation, continuous consultation with Debrecen
Conflicts with other stakeholders	no major conflicts
Discourse	consultative
Power relations	hierarchical within the organisation, non-hierarchical in the assembly
Type of governance (ideal type)	democratic decision-making model

Debrecen

The structure of local government

Regarding the local government of the city of Debrecen, its city council consists of 50 members. The mayor and his three deputy mayors belong to the same right-wing party which won the local elections. In 2006, other members of the council gained places in the city council only through the compensation list in Debrecen. The council has three civic members as well. The sessions of the council are public and citizens have the opportunity to comment on the agenda. The city council can elect aldermen. These control the provision of some municipal tasks. The mayor of Debrecen has been one of the leading figures of the right-wing Fidesz party (he is vice-president) since 1998 and the local city council is ruled by the members of the same party.

⁴⁰ Territorial Development Conception and Program of HAJDÚ-BIHAR County, prepared in 2006 by the MEGAKOM Strategic Advisory Agency, ordered by the Development Agency of Hajdú-Bihar County.

The city council establishes a conciliation committee to prepare and harmonise co-operation with the county municipality regarding common tasks. The city council elects members of this committee, which consists of delegates from civic organisations and local citizens.

The city council has 12 committees: Health Care; Ethical; Cultural; Educational; Financial; Sport; Social; Ownership; Procedural; Urban Development; Environmental Protection; and European Integration. These keep contact and co-operate with civic organisations determined by the city council. This indicates that the local government has established its own civic sphere. The main elements of the committees' operations are to contact and co-operate with different organisations. The city council and the committees may create working groups. The city council may establish settlement parts municipality from local delegates and local citizens. The council delegates power over some affairs related to that part of Debrecen, and may give financial tools for the settlement parts municipality.

The local government tasks related to energy issues are settlement development and the contribution of the local energy supply. The committees relevant to energy issues are: European Integration; Environmental Protection; Ownership; and Urban Development. The European Integration Committee participates in European Union projects and may have contact with the County Municipality, the University of Debrecen and other civil organisations which deal with European integration. The Environmental Protection Committee controls the town's traffic system, tasks related to local transport, and environmental education at educational institutions. It may have contact with dedicated civil organisations, authorities and offices, and contribute to putting out tenders connected to agricultural and environmental entrepreneurs. The Ownership Committee forms opinions about development and investment concepts. The Urban Development Committee forms opinions about the planning of urban investment concepts and proposals related to the district heating and hot water prices, and may have contact with dedicated authorities and offices.

The mayor's office is divided into six major departments, 18 smaller departments, 35 teams, the secretary and the public guardianship authority. Debrecen has the largest mayor's office in Hungary, the number of employees being 616. The departments and teams related to energy issues in the mayor's office are: the Economic Development Group; the Urban Planning Department; the main Urban Development Department; the Urban Building Department; the Urban Operation Department; the Financial Department; and the Transport Department. The Economic Development Group provides tasks related to tenders. The Urban Planning Department makes proposals on issues of urban development, infrastructure, settlement and transport. The Financial Department deals with the financial part of tenders. The main Urban Development Department fulfils tasks related to tenders, co-operates with ministries, other local governments and professional organisations, and organises public forums. The Urban Building Department has tasks related to investments, developments and environment protection, and has contact with bodies which work on urban utilities. The Urban Operation Department performs tasks connected to public lighting and energy. They preview proposals related to the development of energy management and the control of the town's energy consumption, and work out concepts related to the rationalisation of energy use. The Transport Department's tasks are to prepare and execute transport developments and plans, to contribute to transport developments, and to perform tasks related to public transport.

It seems that the local government of Debrecen operates and maintains its system efficiently. In the municipality, tasks are divided into many different parts and distributed between the departments and groups. This requires a high level of organisation and professionalism, and a continuous co-operation and communication between the different parts. The mayor of the city defines the most important development pathways for Debrecen, but also for the county. As we mentioned, the mayor's office has regular consultation with other offices. These consultations are dominated by the agendas of Debrecen's leaders, according to our interviewees. The governance model in Debrecen is local-hierarchical. However, to gain a detailed picture about this would require further interviews. The organisation of the office is hierarchical. However, continuous consultations with other stakeholders and within the office, together with openness to new ideas, make the system more flexible. The self-government of Debrecen has its own limited company which operates local services, hospitals and district-heating power plants as well. Based around a central project, they maintain the so-called block-house programme, which assists local inhabitants in modernising heating systems and insulation of flats. According to our interviews, to City Hall, the main benefit of saving energy and reducing carbon emissions is that money is saved.

Stakeholder	Debrecen City Hall
Interest in reduction of CO₂ emissions	reduce energy-consumption, save money
Relationship with each other (in general)	co-operation, continuous consultation with the county, and also at the national level
Conflicts with other stakeholders	being one of the most influential stakeholders, others try to avoid conflicts with City Hall
Discourse	hierarchical – strong bureaucratic structures
Power relations	dominates power relations; top-down, hierarchical power relations
Type of governance (ideal type)	local-hierarchical governance

Energy providers and energy policy in Debrecen

There are three large energy providers in the Study Area: the TIGAZ Ltd, the E.ON Hungária Ltd and the Debrecen District Heating Ltd. These companies play an important role both in the city and the county, and are integrated into the overall Hungarian (and European) energy system.

The TIGAZ Ltd. as the biggest Hungarian gas provider, is a subsidiary of the Italian energy-giant, the ENI Group, and operates in Northern Hungary, approximately in one third of the country; it has more than 1.1 million individual consumers and approximately 74 thousand corporate consumers; individual consumers use 57% of the merchandised quantity: 1.6 billion m³. The company does not have power plants in the region.

The EON Hungária Zrt. (subsidiary of the E.ON Group) operates the Debreceni Kombinált Ciklusú Erőmű Kft. (Combinated Cyclic Power Plant of Debrecen Ltd.), which was built after an investment of 17 billion HUF (approximately 62 million EUR) in 2000. The power plant sells the energy directly to the regional electricity provider the E.ON Tiszántúli Áramszolgáltató Kft (the local subsidiary of the E.ON Hungária Ltd.) and other actors of the electricity market. The efficiency is round 80%, thanks to the fact that the power plant provides also heating energy.

The Debrecen District Heating Ltd. (Debreceni Hőszolgáltató Zrt.) is partly owned by the local Authority – Debrecen Local Government (as we will present later, the Local Government has a Company which owns several other companies related to public services); it was established in 1994 and provides central heating and warm water to 31 thousand homes and 2,176 offices and other institutions. Today it is a profitable company without any subsidies from the owner, the local government. This is for two reasons: on the one hand the number of employees sank to one fourth in the last 20 years, whilst on the other automated systems and new investments in energy production helped cost-reduction. The company co-operates with the EON and the TIGÁZ Ltd.; they have a long term contract. They modernized the heating system of 20% of the homes they provide with central heating or warm water. The company plans to build a biomass power plant to replace the old natural gas power plant. The main reasons for this are to become independent from imported energy supplies, and to reduce costs. The environmental effects and the long-term ecological sustainability of this investment were not among the most important factors, before decision-making. Although straw is a renewable energy-source, it has to be transported from long distances to the power plant. Emissions (especially CO₂) are similar in both cases. According to interviews, document and company webpage analysis, environment protection is not a priority for these companies.

The Debrecen Holding Ltd. owns most of the public utility companies, including water supply, district heating, local public transport and public lighting. The case-study of local public transport (see the box) shows an example of how environmental concerns appear in decision-making.

The case of local transport:

The case of the Mobility Initiatives for Local Integration and Sustainability project in Debrecen represents the role of non-governmental actors in energy initiatives in the county. The project was supported by the EU during 2005–2008. The aim was to provide biogas vehicles for local public transport in Debrecen, mainly to replace old vehicles with environmentally friendly ones and to study the possibilities of biogas use. The co-ordinator of the project was the City Council of Debrecen; the main project partners were the Hajdú Volán public transport company and Debrecen University.

The transport company had key position in the development project; it is the main provider of bus transport within the Debrecen area (300,000 passengers); thanks to the project new, eco-friendly and more comfortable vehicles were used. In the long-term, the transport company aims to use biogas-buses in the whole county. The project involved experts from Debrecen University. The city council invited its partners to participate in the project, using already existing partnerships; as one of the interviewees described: *“I think my participation was obvious because of my reputation concerning renewable energy sources. It was very comfortable for me. The local government called me, and I easily became a participant in the project. Of course, I had previous connections with the local government.”*

As a result of the project, Hajdú Volán began to use more environmentally friendly buses in Debrecen, and the experts carried out feasibility studies on the utilisation of biogas in the city’s public transport.

Up to that point the project seems to be a success story. But despite the good results, the City Council changed the operator. Despite the previous contract with the Hajdú Volán Ltd. (Transport Company), the City Council established a new contract with the consortia of a private company and the Debrecen Holding Ltd, and purchased new buses with Euro 5 Engines.

After analysis of the public dispute (using different press-sources and interviews) we can see that the main reason for the new contract was to reduce the costs of public transport; environmental concerns played little or no role. Debrecen City Council as co-ordinator determined the involvement of non-governmental actors in both of the projects. Its networks were the basis of project participation. Experts at Debrecen University could

participate in the project if they had previous relationships with the city's local government. The involvement of the Hajdú Volán Ltd was based on decade-long cooperation; the involvement of private enterprise (the new consortium partner) is based on market relations. We can assume that City Hall has its favourite companies, especially its own City Holding which leads to serious political debates. The case also shows that environmental factors and energy policy are non-issues for the local government.

The relationship of City Hall with Debrecen Holding Ltd is top-down; from several aspects, it is working like a City Hall department. The company does not have contacts with other policy actors and does not consult with other agencies, but follows the instructions of its owner.

According to the interviews and document analysis, Debrecen's central stakeholder is City Hall and the mayor. Government is based on a huge and well-developed bureaucracy consisting of several institutions of the local government, of enterprises and of civic associations as well. Those organisations and enterprises which are not connected to the City Hall network are unlikely to influence the local economy or to become prominent within the county.

Hajdúság

The structure of local government

Self-governance in the Hajdú towns runs back over 400 years, and despite 40 years of socialism which restrained local autonomy, the revival of localism occurred quickly after 1990. The principal institution of self-governance is the elected local council (the number of council members varies between 17–21 according to the population of the settlement. Between 50 and 90 clerks work for the mayor's office. No specific issue related to climate change is assigned to any council committee or department of the mayor's office. The administration of environmental issues is subordinate to those of the economy, tourism and agriculture. Waste management and water-quality management feature in the city development plans, although climate change is not mentioned among preferred development goals. Energy issues seemingly do not come within the competency of local government in ways that can impact directly on household energy use. There is no statute related to energy use that could be found among last years' local council edicts. Development plans pay attention to waste management, water security and tourism-related environmental issues; conversely, climate change and alternative energy use are not the focus of local policy. Local governments have no control over energy use or policies managing climate change. They are autonomous in a juridical and administrative sense, but state/EU-financed projects and direct state subsidies cover a significant part of the local government budget. To better understand this model we present fully the structure of local government in Hajdúböszörmény.

The most powerful stakeholder is the mayor in Hajdúböszörmény, who has the widest capacity for networking. Local policy is dependent on national party relations and local networking. Such networks are not hierarchical, no actor predominating. Networking is necessary for any mayor or actor in order to be effective in the local policy arena. Policy networks interweave formal institutions; and local oligarchies rule over local power relations both inside and outside institutions. Oligarchies evolved from socialist-era economic leaders, their family, personal and institutional networks, and they have the economic potential and networking capacity to control the local policy arena. Local policy becomes about retaining the power of oligarchies (or from their

opponents' side, limiting or possibly deflecting it). Anything that might be related to the use of alternative sources or managing climate change is usually part of an open struggle for power, or state/party dependency. Opposition parties, or marginalised civil associations, occasionally concern themselves with environmental protection, alternative energy use or health-care programmes, but their activity is limited and depends on policy/government subsidies.

Both the mayor and the majority in the city council changed after the most recent elections in 2006. Although right-wing parties are popular in the town, Fidesz only became strong after 2006; however, that does not mean new actors would have appeared in the public life of a small town. We have little information about the functioning of political power in City Halls, but according to our interviews, a democratic decision-making model is typical. None of the parties have a stable majority in the city council. According to the members of the city council we interviewed, the city has clear development plans: one aims to increase energy-consumption based on thermal energy, if the city can find subsidies for the investment. The city council has intentions to develop the thermal-heat-based central heating of City Hall and local institutions, but without subsidies they will be unable to realise this. The plan is supported by several members of the City Council, who will support it as it would be much cheaper, and because it would be more environmentally friendly. According to our interviews, the overall reason for the investment would be cost efficiency.

The Hajdúsági Multifunctional Microregion Association was established in 2004 based on the co-operation of three settlements (Hajdúböszörmény, Hajdúdorog, Hajdúnánás). 59,566 people live in this rural area. The three mayors are members of the Association council; six experts work for the office, which is actually a project-managing bureau. This is the first association in which three Hajdú towns have been willing to co-operate. An initial historical distrust has been replaced by the necessity of working together. In regards to power relations, a consequence of the previous lack of desire to work jointly is that one of the association's essential roles now is to ensure consistent harmony between the local governments. The association office, symbolically, is located in the smallest town, at the geographic centre point. One element of the power structure is that decisions are always the result of negotiations in which all parties are equal. The Association's primary activity is the launching of the development planning processes. Staff consists of young, educated experts who are always in a position to convince the mayors of the necessity of planning and projecting. The mayors have the position of formal decision-maker in the Micro-region Association power structure, possessing political and legitimisation capital. The staff are well-enabled to design and manage projects, and to persuade actors to join. The conditions of projects, the compulsory initial financial contribution, and contradictions of regionalization balk a forsooth projecting. The Association has played a central role in the preparation of 18–20 development plans and has run successful public work projects for the unemployed.

According to our experiences, in the Hajdú towns and also in the micro-region there is a strong commitment to co-operate in certain fields. This is the result of the current clusters of, and it is also encouraged by structural effects.

Civil organisations in the district of Hajdúság

A particular mission it has had is the linking of civil associations to local governments in the project actors' network structure. Local governments, and the local oligarchies ruling them, do not consider non-governmental associations as possible partners in local development. One consequence of state/EU-financed development projects is that their grants are not accessible without non-government organisation (and entrepreneurial) participation. The civil associations gained a specific capital in projectification processes (for example LEADER), what may be called "participative" capital that would hardly be channelled into projects without the linking function of the Micro-regional Association. There is one active civic organization called Zöld Kör which sometimes can efficiently influence the governmental actors' activity.

A case of a protest against a waste-burning plant in Hajdúböszörmény shows what kind of tools non-governmental actors can use to influence local energy policy. In 2008, the Hajdúböszörmény local government started negotiations with an investor to build a waste burner in Hajdúböszörmény. The oldest civic organization concerned with local environment protection, the Zöld Kör (Green Circle) association had received information on the plan and began fighting to stop the investment, organising a campaign against it. They printed information leaflets, and organised local forums for residents and local government members to negotiate about the plant, inviting also the investor. Ultimately, the protest movement was successful, with local residents vetoing the waste burner in the town. One reason for this was the strong embeddedness of the environmental association in that local society. The local inhabitants' trust in the association enabled them to mobilise locals in protest. Another important element was the association leader's connections with the local government, giving him the opportunity to use informal networks in the lobbying campaign.

Energy policy in the district of Hajdúság

Alternative energy use and climate change management is not the focus of local development plans. There has only been one set of negotiations about the energy issue: an under-developed plan to use thermal water for heating public buildings. The technological difficulties and a lack of required capital halted proceedings. The civil associations who often find legitimisation in promoting an environmentalist ideology and running 'green' teaching and exhibition programs may become key actors of climate-change projects. The power structure around the Micro-region Association is a multi-actor network with non-hierarchical power relations and complex groups of participants.

Entrepreneurs in the district of Hajdúság

There is no important energy entrepreneur in the Hajdú towns. It is indicative of the insignificance of energy issue where the market sector doesn't appear.

Stakeholder	Micro-region Association of Hajdúság	Hajdú town
Interest in reducing CO ² emissions	Under-developed plans	reduction of energy-consumption; saving money
Relationship with each other (in general)	Co-operative; competitive among the towns	Consensus-oriented within City Hall; co-operative in the micro-region; few official connections with other settlements in the county
Conflicts with other stakeholders	Minor conflicts among the towns	Minor
Discourse:		
Power relations	Non-hierarchical power relations	Actor-centred power structure; top-down
Type of governance (ideal type)	Local partnership model	Local democratic model

Bihar region: Berettyóújfalu micro-region

The structure of local government

The city council consists of 18 members. Although the mayor and the deputy mayor are also affiliated with the right-wing, in the council the proportion of those on the right (eight) and the left (seven) are balanced. One of the rightist members is also a representative of a local civil organisation. The city council has seven committees: Youth and Sport; Educational and Cultural; Financial; Social and Health Care; Settlement Development; Procedural; and Public Order Defence. The members of the committees are delegates and experts. The sessions are mostly public; citizens attend them and are able to make citizenship petitions.

74 persons work at the mayor's office. Seven agencies function there: Administrative; Financial; Technological; Constructional; Secretariat; Institutional; and the Public Guardianship Authority. The organisational manager carries out application-related tasks and co-ordinates relations between the municipality and the local industrial, agricultural and commercial entrepreneurs. The local government of Berettyóújfalu participates in nine associations of local governments. Typically, the surrounding settlements and Berettyóújfalu have established co-operations based on partnership in order to provide social and educational functions. In these associations, Berettyóújfalu plays a key role because of its size and infrastructural maturity.

Only one association deals with energy issues. The responsibilities of the Bihar Municipalities Multifunctional Regional Association include local public transport, communal services, energy supply, and also environmental protection.

Providing public lighting is the responsibility of the Berettyóújfalu municipality, in relation to energy consumption. This is based on a contract with the energy provider, EON Tiszántúli Áramszolgáltató Zrt. Voluntary tasks in this area include providing a heating system (the company Herpály-Team Kft. Which supplies district heating is owned by the municipality), local public transport, and settlement development.

The Settlement Development Committee has the authority to deal with these tasks. In the mayor's office, the Technology Agency deals with matters relating to energy provision. The office performs the settlement's

environmental, investment and development tasks, and supervises those matters connected to district heating and electricity networks.

The mayor has governed the city since 1990; he has been right-wing and also politically independent, but he has never had a stable majority in the city council. He has a wide network of contacts in Hungarian political life, and he is deeply embedded in the local community. Due to him, continuity is ensured in the operation of the local government. Currently, he appears as an independent mayor on the town's official webpage. It seems that his main aim is to preserve his position, which is why he makes efforts towards co-operation and maintaining the *status quo*. His attitude substantially influences city council operations, which can work efficiently despite a high number of mavericks; there tends to be agreement on the main goals and tasks. Regarding the operation of the city, the arrival of the current deputy mayor has brought changes. Since 2006, the number of investments and developments has increased, and the role of entrepreneurs and civic organisations has also refreshed the municipality. In line with this, the establishment of an entrepreneur-friendly environment has become one of the main aims of the local government (e.g. providing different benefits and allowances for entrepreneurs). The delegates of civil organisations and entrepreneurs have already appeared on the city council, so they have had a real influence on local government operations. Due to this process, approaches toward businesses have become more and more strong. Berettyóújfalu is one of the most successful applicants in the county. The development and investment opportunities create permanent jobs for one segment of the entrepreneurs and local people.

The mayor has strong connections with central politicians, as he told us, and a strong influence over the local agenda, as the case-study shows. Networks within the settlement are very dense; co-operation is good, being supplemented with clear power structures, which results in democratic decision-making.

Energy policy in the district of Berettyóújfalu

It was probably because entrepreneurs gave a prominent role to the question of energy that it became an important issue in the municipality (according to the local media). This increasing interest of the municipality is indicated by the establishment of a civil organisation which facilitates the operations of firms that produce and use renewable energy sources. Additionally, the increasing number of state and EU tenders connected to energy issues has also drawn the municipality's attention. The town has had a lot of successful tender in this area (in public lighting, conventional bulbs were changed to energy-saving bulbs; local bus services were modified so that more citizens would use them; bicycle paths were made, etc.).

Berettyóújfalu has made its own energy plan, without the participation of the surrounding settlements. The municipality explained that the reasons to use renewable energy sources instead of fossil fuels in the future were primarily financial. There were two different parts to the plan: setting up a 'bio' power station fuelled with agricultural by-products, and a geothermal energy system. Ultimately, they decided on geothermal energy, because the funding system would be more supportive to this type of renewable energy source (naturally, they will finance almost the whole of the investment through tenders). The local government's firm would operate the geothermal power plant. At first, they would use the plant for the heating of the public institutions, but then they would like to extend its use to households. At the same time, local entrepreneur lobbies could influence this

decision. One of the entrepreneur-delegates, in parallel to the municipality's decision, has started to build a hotel complex which would be heated with geothermal energy.

According to the mayor, the municipality does not have opportunities to efficiently influence household energy consumption. It has to be solved at the state level, as part of a nationwide strategy. Despite this, the municipality's plans, concepts and activities show that they have made real achievements in local energy use. The local government has devised its own plans concerning energy and they make a bid for different tenders in order to realize their objectives, and most of the time the plans are tailored to the tenders. However, they do not have a complex, long-term energy policy, and delegates' interests can significantly influence the decision-making process. The special feature of the local government of Berettyóújfalu is the strong participation of entrepreneurs and civil organisations; due to this, efficient investments are being made, along with the use of innovative methods. This background serves the spread of the renewable energy sources although the financial means and the different interests may hinder it.

Stakeholder	Berettyóújfalu City Hall
Interest in the reduction of CO² emissions	Reduce energy-consumption; save money; two lane bicycle path, more comfortable vehicles used in public transport, but no prefabricated block of flats programme till 2009.
Relationship with each other (in general)	Co-operation with the city council; consensus-oriented; few connections with neighbouring settlements or the county; strong networks at the national level.
Conflicts with other stakeholders	Not mentioned
Discourse	
Power relations	Co-operative model; non-hierarchical power relations
Type of governance (ideal type)	Co-operative-model / democratic decision-making model

Civil organisations in the district of Berettyóújfalu

Most of the civil organisations in Berettyóújfalu were founded by local politicians and entrepreneurs; citizens' civil activities are low. This attitude also characterises civil organisations concerned with energy issues. One of the consequences of these is that the organisations fail to involve the local people. The town has no civic organisation which informs citizens about energy issues.

The Bihar Agricultural Energy Association was also founded by local politicians and entrepreneurs to harmonise, co-ordinate, and facilitate the operation of entrepreneurs in this region who deal with the dissemination of renewable energy sources. The majority of the members are local entrepreneurs, but the municipality has also joined them. Within the Association, local entrepreneurs had many plans to establish a 'bio' power plant, but none of them were realised because of financial issues. In this organisation, local entrepreneurs who didn't have municipal connections could also participate. Different interests and a lack of cooperation could lead to the end of this organisation. At present, the Association has no activities.

Entrepreneurs in the district of Berettyóújfalu

The market sector may be the most efficient field for the spread and the utilization of renewable energy sources. The question of energy was very prominent among local entrepreneurs a few years ago. There were a lot of plans due to the appearance of national and EU tenders on this matter. But at present, most plans have been dropped because of financial problems. But in line with this, one group of local entrepreneurs has joined the local government. They founded their own pressure group, the Berettyóújfalu's Entrepreneurs Association. The members support and help each other to obtain more and more work (e.g. they apply together for a public procurement). This group is also very active in the energy field. It seems that their lobbying activities have significantly influenced the decision of the municipality to use geothermal energy in the future.

LEADER in Bihar

The Bihar-Sárrét Alliance Rural Development Nonprofit company was created by two micro-regions. They managed to involve many municipalities, entrepreneurs and civil organisations with the help of public forums; and in addition the Alliance took part in numerous local programs; they have their own newspaper and newsletter. There are 116 members and 40 settlements in the LEADER Group. The members have elected a 19-person council. But the activities of the LEADER Group significantly influence national and local politics. The largest town in the region is Berettyóújfalu where one of the Leader offices operates although the town leadership is not a member of the Leader Group because according to the right wing local government the interests of the ruling party enjoy priority in the allocation of the funds in case of Leader Group. The co-operation between the two micro-regions is also not too good; there are 10 members from Bihar and nine members from Sárrét on the council, and due to this, it is mostly Bihar's interests which win in the decision-making process. The energy issue plays an important role in the tenders and when evaluating the different tenders the renewable energy sources add to the value of the tenders. In spite of this very few bidders exploit this opportunity because energy investments and developments require a stable financial background and the small entrepreneurs don't have the financial means to implement these investments. One of the main characteristics of this area is the lack of the financially stable entrepreneurs. Most entrepreneurs have not yet heard about renewable energy sources.

Cases

The leader of the Morotva Association is a municipal delegate who has participated in the establishment of the Agricultural Energy Association and the Entrepreneurs' Association. Using EU subsidies, his enterprise aims to build a *sports complex and wellness hotel heated by geothermal energy*. Geothermal energy will reduce costs. Conventional gas usage would have been very expensive because of installing a new pipeline. To realize his plans this entrepreneur takes advantage of any available funds and uses his business connections.

A local entrepreneur, who is a member of the Bihar Agricultural Energy Association but does not have contacts with the municipality and does not participate in the Entrepreneurs' Association planned to invest in a *bio-gas power plant*. He is an agricultural entrepreneur, located a few kilometres from Berettyóújfalu; he employs 100 people from the area. The main activities of the business are beef production and dairy farming (exporting abroad). To increase the profitability of the farm, he decided to utilise the manure it produced. The best solution would have been to build a 'bio' power plant. He made contact with a few foreign firms to collect experiences. He could not transport his generated energy to Berettyóújfalu because of the long distance but the energy supplying company called EON would have purchased this energy at a fixed price prescribed by the law until 2012. So within five or six years there would have been a return on the investment. This is planned to be a profit-orientated business. He won EU subsidies to realise his project. He planned to finance his own equity from a bank loan, but due to the financial crisis, the bank cancelled his loan.

In the above-described two cases we presented two autonomous enterprises which aim to gain profit through investments, which are intended to be environmentally friendly. The latter did not have special networks, or special connections with local authorities, but acted individually. The first entrepreneur had good connections to participants in local governance. Although both plans are connected to the local economy and local development plans, and both investments would create new jobs, and contribute to the economic performance of the town, but because of the lack of financial capital and available loans neither of them were able to be realised up to now. The two cases show the force of local networks in development.

Prefabricated block of flats Programme

10% of Berettyóújfalu's population live in blocks of flats. Despite this the Prefabricated block of flats programme, which aims to reduce the energy consumption of the households, is not functioning in the town. None of the main actors of the energy policy have heard about the programme (i.e. civil organisations, entrepreneurs connected to energy issues, delegates of the LEADER Group and local citizens); the local government and also the local media do not mention it. The city council has always declined to participate in this programme. But on the current council there are two delegates who live in blocks of flats and they urged the municipality to join the Prefabricated block of flats Programme. As a result Berettyóújfalu joined the programme in 2009. But only a small amount of money was proposed by the Financial committee which was further reduced by the mayor. According to the mayor they don't support this programme because they feel it unfair to subsidize the minority (10%) against the majority (90%). But the mayor also admitted in the interview that the interests of people who live in blocks of flats was hardly represented in the decision making process, because most of the councilors live in detached houses. The Prefabricated block of flats Programme is a national programme to improve energy efficiency of blocks of flats, and local governments can decide freely on their participation in it. This programme indicates that the different interest groups can hinder the reduction of household energy consumption locally.

Stakeholder in the district of Berettyóújfalu	City Hall	Entrepreneurs	Civic associations
Interest in reducing CO ² emissions	Detailed, but unequal plans	Reducing energy consumption; cheaper energy sources; profit-oriented energy	Reduction of energy-consumption; value-driven (?)
Relationship with each other (in general)	Co-operative	Co-operative; consensus-oriented	Consensus-oriented; Co-operative
Conflicts with other stakeholders	---	---	-----
Discourse			
Power relations	Non-hierarchical power relations		
Type of governance (ideal type)	Local partnership model	Local partnership model	Local partnership model

Bihar region: Komádi district

Komádi is a small town in the Bihar region. The city council of Komádi consists of 14 persons. The council has 5 permanent committees: Financial Legal Administrative and Procedural; Health Care and Welfare; Settlement Maintenance and Development; and the Educational, Cultural, Youth and Sport committee.

The tasks related to energy issues can appear in the Settlement Provision and Development committee, which participates in the formation of municipal associations, forms opinions about settlement development and investment plans, examines and controls the realisation of communal tasks, and contributes to executing tasks related to environmental protection.

A left-wing mayor has led the town since 2002, but the majority of the city council is independent.

The mayor's office is divided into seven bodies. The bodies which deal with the tasks related to energy issues are the Settlement Provision and Development Agency, and the Technological Agency. The person in charge of writing applications works at the Settlement Provision and Development Agency. The Technological Agency performs infrastructural, environmental protection, investment, developmental and communal tasks. It also maintains and renovates public areas and properties owned by the local government, and deals with tenders.

Komádi is a small town so it has a small municipality. There are fewer committees, and these have to deal with more matters than the larger municipalities, so the distribution of the tasks is less specific. In the city council, the mayor's plans and ideas dominate. The mayor has his own advisory group and he discusses the town's important affairs with them and together they choose from among the submitted tenders. And also they are in charge of the preparations of tenders. After the advisory group has made its decisions the city council also discusses the local affairs. Komádi is a successful applicant; the town has won a lot of tenders since the current mayor has been in power.

Although generally the local civil organisations are not too strong they are the biggest opponents of the investments. The local government supports certain organisations financially thus trying to create a power base

to its operation. The civil organisations are politically divided in Komádi and can't cooperate with the municipality as equal partners.

There are few entrepreneurs in Komádi. Typically, there are indigent entrepreneurs here who are unable to co-operate with each other, everybody dealing with their own interests.

Komádi participates in one Association of Local Governments to provide administrative tasks. The town has a dominant role in this, due to its size, its financial and professional background.

The operation of the town is based on the use of the EU and state funds. The tender strategy of the local government is to make a bid for every tender for which the central government provides the funds. Due to this, the municipality often can't realise what they really want or need. But this is the only possibility of the disadvantaged and small municipalities to run the settlement properly. Due to this the municipalities have to make investments and developments according to a strongly centralised development concept directed from above, and not according to local specifics and needs. In Komádi, however, because of this, the energy issue has become a main question as they have had a few successful tenders related to the reduction of energy consumption (lighting, and heating upgrades).

On the other hand, the energy issue has become a serious problem in the town due to rises in energy prices. Formerly, it was not dealt with. At present, there are plans to use renewable energy sources. There are two alternatives, a geothermal energy system or a 'bio' power plant. The delegates of the city council agree about the necessity of renewable energy sources, but they are divided as to which energy source to choose and which entrepreneurs to co-operate with. There are different interests at stake. If a 'bio' power plant is chosen, it could provide energy for the whole micro-region, but the leaders of Komádi have no plans to provide energy to the other settlements. The mayor prefers a geothermal system. In the first instance, public institutions would be served by the geothermal system, with the general population being served later. However, households would have to pay for being connected to the system. The municipality will try to convince the citizens of the benefits of this new energy provision with the help of information (brochures, public forums, civil organisations, etc.), personal meetings, and finally the use of penalties or fines. According to the mayor, people might be convinced about the use of renewable energy sources if they can see that it works well, comfortably, and is low-priced.

Energy governance – Lessons learnt from the case study

Comparison of the three research areas

According to the field research, the governance system of the county is complex, looking at both structural and power relations within the system. The interviewees did not state major conflicts among the different stakeholders. Local governances have a deep relationship with neighbouring local governments, and the overwhelming position of Debrecen means that local actors have to co-operate with the City. The analysis of the micro-regional associations and the LEADER Action Groups provide further information on changing governance patterns. Theoretically, multifunctional associations of local governments are ideal institutions for local partnerships and self-regulated co-operation. However, according to our preliminary interviews and analysis, in some cases these associations are dominated by the government of the central settlement, or if the settlements are of the same size, competition may hinder co-operation. Structural forces and bindings reduce competition, like in the Hajdú towns micro-region.

From the analysis of local networks, it became obvious that Debrecen plays a central role. It has intensive connections to the county council, to national authorities, parties and other institutions. Between Debrecen and the minor towns, connections are rare. Minor towns have many fewer connections both to the county council and with each other.

Power relations

3 Hierarchical between:

- 3.3.2.1.1 Debrecen and enterprises;
- 3.3.2.1.2 minor towns and Debrecen;
- 3.3.2.1.3 Berettyóújfalu and minor settlements.

4 Non-hierarchical between:

- 4.3.2.1.1 Debrecen and authorities;
- 4.3.2.1.2 Debrecen and the county council (?)
- 4.3.2.1.3 micro-regions and settlements;
- 4.3.2.1.4 among the Hajdú towns.

The Hajdú-towns and Debrecen are less or more similar, Berettyóújfalu is a bit different. In the first two region City Councils are the most powerful stakeholders, which define the main goals and also able to define which entrepreneurs, civic organizations are able to participate in projects.

These local governances have no or underdeveloped plans to reduce CO₂ emissions, the aim is to save money, but it is realised only when external sources are available. As there are few contacts with other settlements, there is absolutely no co-operation in the field of energy policy.

Governance type is the local democratic model in the Hajdúság, and local hierarchical in Debrecen. In contrast to these settlements, in Berettyóújfalu the city council works together with entrepreneurs and some civic

organizations, a very example of local partnership model. Energy governance within the settlements of the micro-region is a bit different: there are several local initiatives both in the household and the economic sectors.

Energy policy

More and more local governments in Hungary are realising that efficient municipal work is based on investments and developments funded by the EU or the state. The municipalities follow two strategies related to tenders. In part, local governments define their investment plans according to tenders, they develop those areas which the tenders specify, as long as there are financial resources in those areas. It is typically the smaller local governments with difficult financial conditions which are dependent on the application system, rather than the larger. This leads to an uncertain energy policy which depends on the state, and becomes dysfunctional without the state's sources and tenders. In contrast, the larger and wealthier local governments may have their own energy plans, and they try to find tenders relevant to these concepts. These larger governments can influence effectively household energy consumption, because in this case, the municipalities may have a developed, complex long-term energy policy.

However, in Hungary the actors related to energy issues typically think that they do not have sufficient tools to influence household energy consumption. They may believe that this is a task for the state: without state subsidies, investments intent on reducing energy use cannot be realised.

According to our examination, however, it seems that the smaller local governments are more open to the use of renewable energy sources. The reason for this may be the specifics of the application system and other local factors. One of the main barriers for them may be a lack of financial resources. It would be a solution if the smaller settlements co-operated with each other, for example establishing an association of local governments in order to use renewable energy sources. In Hungary, however, these associations cannot function efficiently because they are unable to reconcile their different interests, regardless of how favourable this would be for the dissemination of renewable energy sources.

In the smaller local governments, it is generally the mayor who has the most power and influence, and whose personal interests may predominate. In the larger municipalities, the participation of a lot of actors in decision-making processes can facilitate the efficient emergence of the professional aspects. The operation of the existing system may function well but this structure may prevent the appearance of innovative methods and new systems. This organisational background may also prevent the introduction and dissemination of renewable energy sources. Due to this, while there are concepts and plans for the use of renewable energy sources in the smaller municipalities (e.g. Komádi, Berettyóújfalu, Hajdú town) in Debrecen this question does not arise at all. However, a larger town can use renewable energy sources more efficiently.

Overall we can recognise that in Hajdú-Bihar county, the plans of the local governments related to renewable energy sources and reducing energy consumption significantly depend on state and EU resources.

Stakeholders' tools to influence household energy consumption

Local Governments:

The local governments are responsible for securing households' energy consumption. On the one hand they can call the population's attention to the importance of energy savings with the help of campaigns targeting them directly. On the other hand they can provide models for using energy saving or renewable energy sources in public institutions. In Hungary the local governments do not feel the need to give information and educate the general public about this issue, because they are convinced that it is the task of the service providers and civic organizations. They have started to become models for the general public but as yet we cannot see the consequences of this. In addition there are tenders and programs which can help people to reduce energy consumption.

Civic organizations

The role of the civic organizations is to provide information and spread new tools, methods and new environment conscious lifestyles. But in Hajdú-Bihar county the civic sphere is not too influential and sometimes it is under the control of the local governments. This relationship leads to uncertainty and lack of sources, which means that it is less efficient at communication. In Hungary primarily the nationwide organizations launch such campaigns. Due to this the local problems and demands cannot come to the surface.

Entrepreneurs

The role of the energy providers is to inform and educate the public at large. It is similar to that of the nationwide civic organizations because neither of them deal with the local situations and issues. There is an important role of the local entrepreneurs namely they can efficiently spread the new methods and lifestyles.

Impact Assessment

First we present how special characteristics of the case-study area affect the use of low-carbon energy sources, then review the two different governance systems described above and present their effects.

The most accessible low-carbon energy sources in the study area are wind-energy, solar-energy, thermal water, biomass and straw-power plants. Although these are open possibilities, there are only plans to establish biomass power plants, which could be the most important possible low-carbon energy source. Several experts emphasise the region's capacity for biomass energy use in power-plants. The household use of biomass energy does not mean energy efficient, sustainable energy use in all cases – as experts argued. Currently the proportion of biomass energy is less than 1%. Thermal water is an important, but frequently disputed alternative energy source. Although several scholars refuse to take it into account, financial constraints are the real barriers to thermal-heating becoming more popular. Presently thermal water is used by the tourist industry. Although experts argue for individual small-scale energy provision, this is rare.

As we saw, in Debrecen and Hajdúság the City Council is the most important stakeholder, which defines long-term goals, and thus tools to reduce household energy-consumption. Economic reasons are the most important reasons for reduction; environmental factors have minor or no importance. The city councils are quite

passive; their activity is only offering the centrally supplied support to the locals, but sometimes even their own contribution is missing from support programs.

In the Berettyóújfalu micro region entrepreneurs and enthusiastic civics have done a lot to find low-carbon energy sources and to develop them. Here the main financial sources for these investments are also state and EU supports, but there are private investments as well. Although this is an advantage from the one hand, from the other it is a disadvantage: certain social groups cannot take part in investments to improve energy efficiency; typically the owners of flats in blocks are poor people and are unable to participate in the “Blockhouse programme”. The governance of Berettyóújfalu is unable to involve also these groups in energy reduction initiatives.

Neither governance type can counterbalance the fact that energy-saving and low-carbon energy sources are non-issues in the Hungarian energy policy and are not highly important for the central government.

Policy recommendations

Creating real pathways to reduce household energy consumption under the continuously changing governmental actions and contradictory interests is hard for locals, entrepreneurs, local governments and civic organizations. Despite this, there are several promising initiatives. Expect for some civic organizations another stakeholder are engaged in energy-saving in case they can save money by doing so.

Our analysis has two main results:

(1) energy-saving programs have to provide information showing that low-carbon sources and new devices help energy and money saving, and at the same time, provide subsidies for the different stakeholders to enable them to invest in energy-saving technologies. At all levels really small acts would result in huge amounts of saved energy.

(2) A new coalition between political stakeholders and non-governmental actors, that mutually adjusts all their interests, and promotes new governance approaches, may be the most promising route toward contributions to the reduction in household energy demand and hence the mitigation of climate change; as we saw in the case of Berettyóújfalu.

Thus we argue that policies should:

- not favour any sector or actor over others;
- encourage and enhance new governance methods and tools in energy saving such as co-operation, consensus, discussion, conviction, acceptance, and tolerance;
- strengthen both civil-association activity from one side, and local government planning, legislation and control from the other;
- use context dependent policy tools such as financial incentives, regulatory elements and awareness raising in order to encourage households to reduce their GHG emissions;
- consider, accept and plan around actors’ institutional and individual interests;

- employ forceful and immediate intervention from one side, and the introduction of participative redistribution from the other;
- support networking, and the transmission of knowledge and information;
- provide adequate emergence for lay and local knowledge forms;
- weaken national bureaucracy by allocating funds to local actors under direct EU control;
- find key actors from the project class, experts, youngsters, and alternative associations who may become drivers of energy savings and awareness raising, and whose economic interests and moral commitments are associated with energy saving and use of renewable sources; and facilitate them in undertaking local emissions reduction projects.

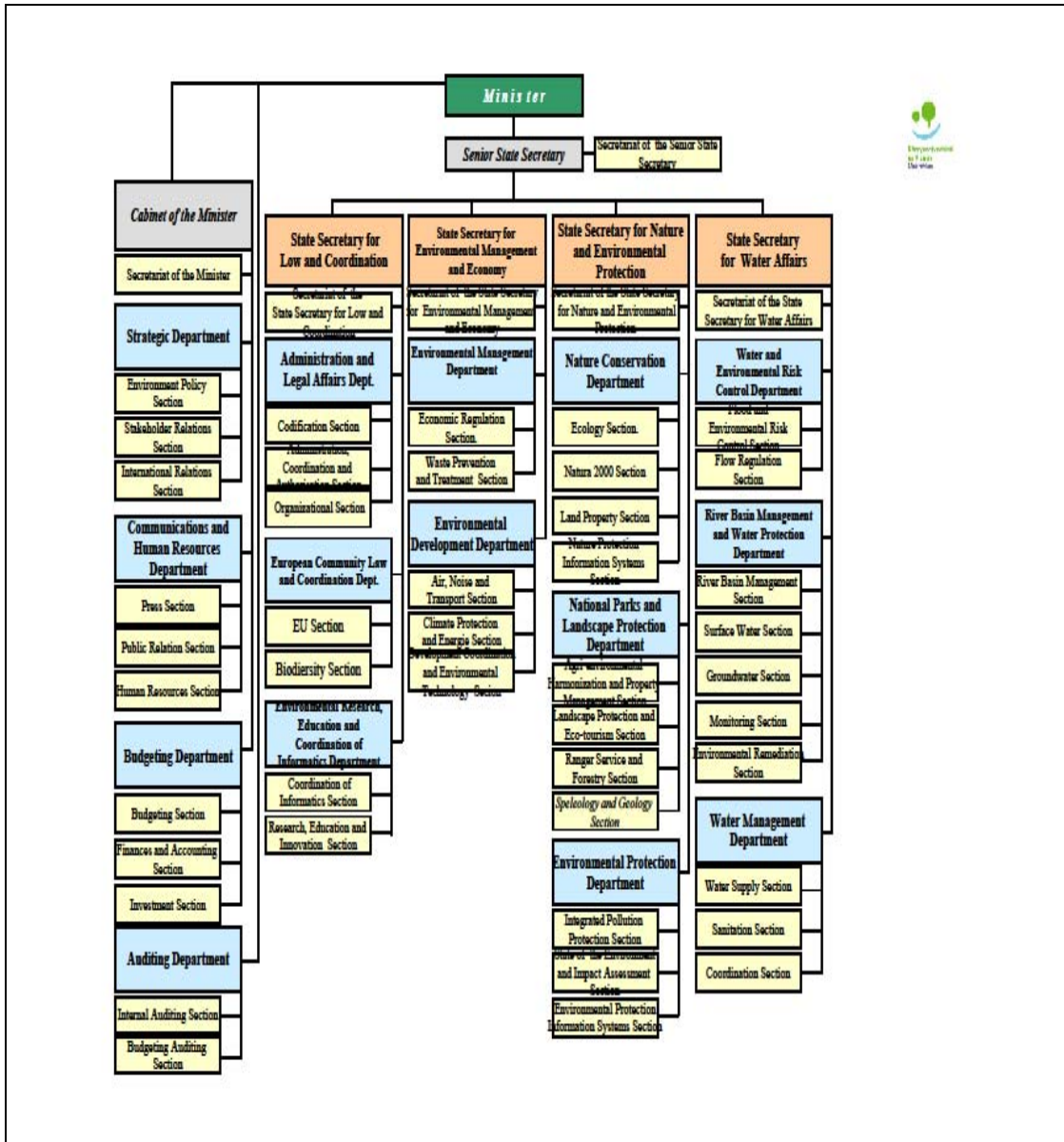
Appendix: Analysed documents, and list of interviews

Historical data

Hajdúság means the territory of the former municipalities of Hajdú towns. “Hajdú” originally was a term meaning “cattleman” in 15th-16th century. By the end of the 16th century the original Hajdú society broke into two groups. The first group serviced the kings and took part in the protection of the fortresses, while the second group continued the traditional way of life of ‘free hajdú’ with robbery and looting. Because of their work they used weapons well, as is shown in the 1514 peasant war of Dózsa, and also in fighting against the Turks. In particular, in the fifteen-year war (1590-1605) they appeared as good soldiers, and they became important for István Bocskai during the war of independence (1604-1606) against the Habsburg Monarchy. Because of their role in the war of independence Bocskai settled them in his estate and gave them land and privileges. The hajdú community established seven towns: Böszörmény, Dorog, Hadház, Nánás, Polgár, Szoboszló and Vámospércs. These towns were located in Szabolcs County and had separate privileges. The seven Hajdú towns formed an independent district inside Szabolcs County until 1876 when Hajdú County was established including the seven Hajdú towns and Debrecen.

Bihar County was the biggest County in Hungary until World War I. From the 11th century to the 16th Century Bihar region was the property of the Bishop of Oradea. Most of the inhabitants of the villages in Bihar County were the serfs of the bishop. When the historical Hungary split into three parts in the 16th century, Bihar became part of Transylvania. After World War I most of the territory of Bihar belonged to Romania. The remaining territory of Bihar containing one bigger town and some villages with the historical Hajdú County have formed the contemporary Hajdú-Bihar County since 1951.

The scheme of the Ministry for Environment and Water-management



References

(downloaded: 2010-10-14)

Audit Nr. 1009: SUMMARY of the Audit on the Impacts of State and Local Governmental Measures Taken for Energy Management, with Special Regard to the Impacts of Investments Serving Energy Rationalization (1009)

([http://www.asz.hu/ASZ/jeltar.nsf/0/060C1C69EFD88CE1C1257792004A1B62/\\$File/1009_Energy_management.pdf](http://www.asz.hu/ASZ/jeltar.nsf/0/060C1C69EFD88CE1C1257792004A1B62/$File/1009_Energy_management.pdf)) More details, in Hungarian language:

[http://www.asz.hu/ASZ/jeltar.nsf/0/6EB0BE42733F0480C1257782002989EE/\\$File/1009J000.pdf](http://www.asz.hu/ASZ/jeltar.nsf/0/6EB0BE42733F0480C1257782002989EE/$File/1009J000.pdf)).

Action Plan, 2008: HUNGARY'S NATIONAL ENERGY EFFICIENCY ACTION PLAN (approved by the Government on 13 February 2008)

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Energy governance in Assen city and the municipality of Assen The Dutch Case

Ellen van der Werff & Linda Steg

1. Introduction

In the Netherlands the urban area of study is the city of Assen. The rural area is the municipality of Assen, without the city of Assen, since the city of Assen is part of the municipality of Assen.

This makes it hard to find data on the two different study areas. Most of the data is on the municipality of Assen as a whole. We can therefore not always make a distinction between our urban and rural area.

The information in this document is based on several sources. An important source of information is the Netherlands Statistics. They have a huge database on topics like transport, households and food consumption, on a national as well as a local level. Other online sources are for example the Royal Netherlands Meteorological Institute. We thank all the experts in Assen who helped us collect the data.

Individuals interviewed:

- Sustainability policy official of the municipality of Assen
- Energy coordinator of the municipality of Assen
- Policy official for urban and rural planning
- Policy official of the environmental federation
- Member of the rental housing organization
- Manager at the rental housing organization
- Advisor on spatial transport at the municipality of Assen
- City council member of the Green Party

It was not always possible to find data specifically on the city of Assen. Therefore, some data is on the level of the province. We always include the most recent data. However, sometimes we could not find data on 2008 or 2009, so we had to use older data. If this is the case we indicate it in the report.

The municipality of Assen is part of the province of Drenthe. The province of Drenthe has its own board. In the Netherlands the province is the only administrative unit between the national government and the municipality. The province has an important coordinating task on several policy domains such as health care, spatial planning and public transport. One of the policy departments of the province of Drenthe is sustainable development. In some instances the province is the supervisor of municipalities. The province of Drenthe is for instance responsible for the design of nature areas and the maintenance of roads and canals. They also provide subsidies to theatres, museums, sports and nature. Some laws and regulations are executed by municipalities. The province then has the role of director or regulator.

The 41 members of the Provincial States are chosen every 4 years by the inhabitants of Drenthe. The largest political party is the Social Democrat Party (13 seats), followed by the Christian Democrats (10 seats). The Liberal Party has 8 seats in the Provincial States, the Socialist Party has 5 seats. The smallest parties in the Provincial States are the Christian Union (3 seats) and the Green Party (2 seats).

The members of the Provincial States choose the members of the Provincial Executive, which is the board of the province. Members of the Social Democrats (4), the Liberal Party (2) and the Christian Union (1) form the Provincial Executive. The Provincial Executive is chaired by the Royal Commissioner.

2. Overall description of study area related to energy use and infrastructure.

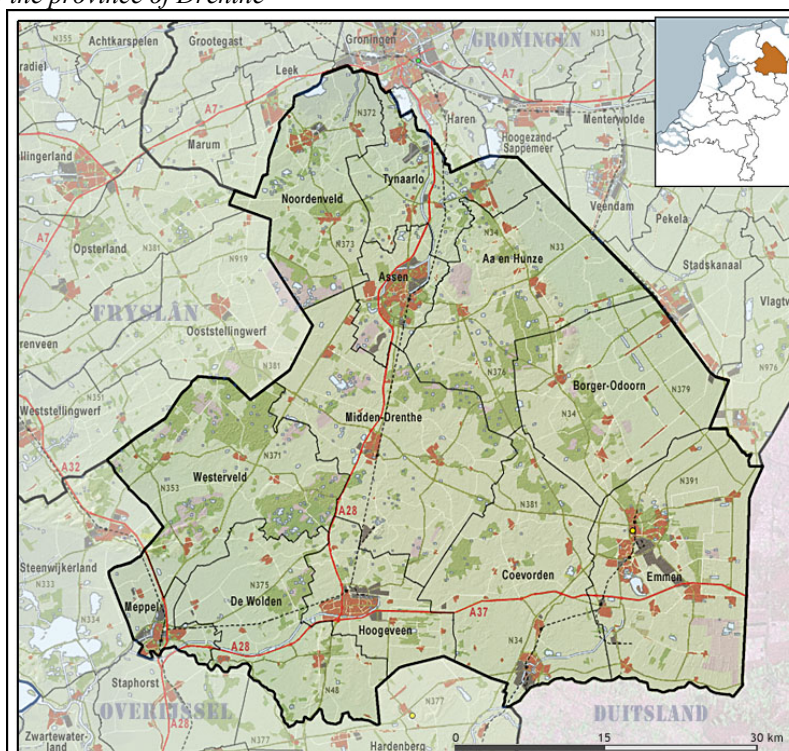
2.1. Main characteristics of the study area: city of Assen and municipality of Assen

Assen only became a city in 1809, but has existed for 750 years. It is the capital of the province Drenthe, situated in the north east of the Netherlands. Drenthe is the Dutch province with the smallest number of inhabitants, and the most thinly populated. Assen is the fastest growing city in the northern part of the Netherlands. Its population grows by approximately 1000 inhabitants per year. At the moment there are 67.500 inhabitants. Assen is 83,5 km² in area.

Since 1870 there has been a rail link connecting Assen to the cities Groningen and Zwolle. There is also a highway (A28) connecting Assen to other cities.

In the city people can use public transport, there is a city bus network.

Figure 1: A map of the province of Drenthe



Over fifty years ago the Dutch Natural gas company discovered some small natural gas fields in the province of Drenthe. In 1959 they discovered a big gas deposit in the northern part of the Netherlands. At that time the decision was made to connect every household in the Netherlands to the mains.

The inhabitants of Assen are mainly Dutch. Fourteen percent of the inhabitants are immigrants. Over fifty percent of the immigrants are from Western countries. In total 0.4% of the inhabitants of Assen are immigrants from Morocco, 0.5% are immigrants from the Netherlands Antilles, 0.7% from Surinam, 0.6% from Turkey and 3.7% non-Western immigrants from other countries.

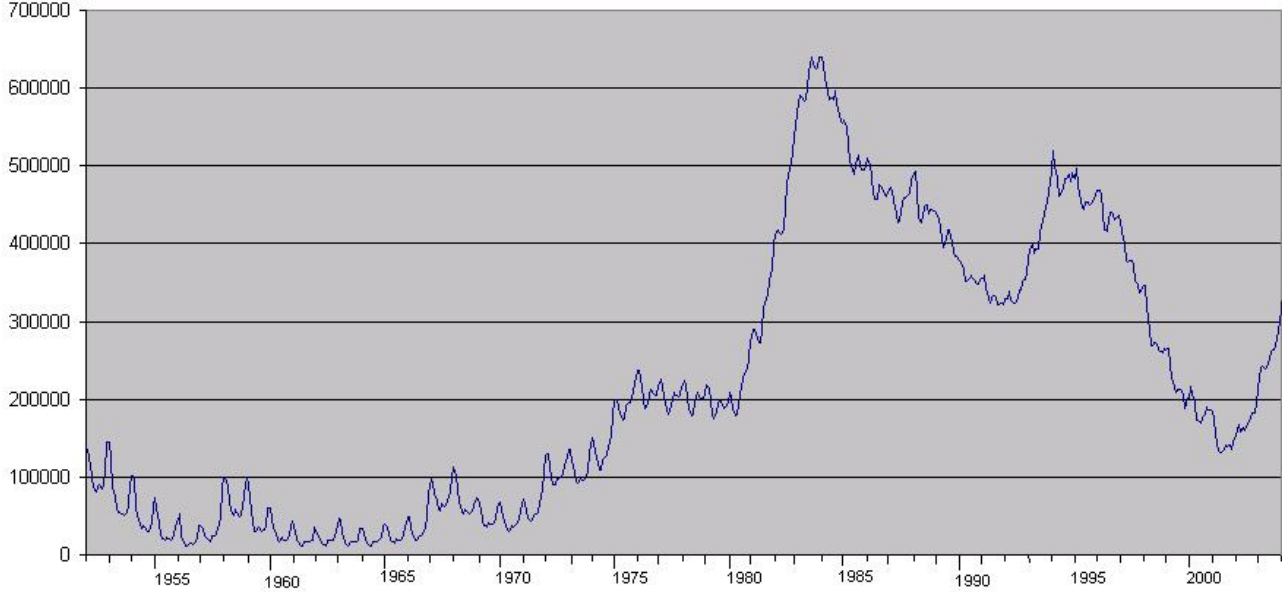
Approximately one third of the households consist of one person, one third are multi-person households without children and one third are households with children. This is approximately the same distribution as in the national data.

The average disposable income of households in Assen in 2007 is €29.100.

Almost half of the employed people work in the ‘non-commercial’ service sector (48%). 38% work in the commercial service sector, 13% in the industry and energy supply sector, and 1% work in agriculture.

Unemployment rates are measured in different ways. The official unemployment rate relates to the so-called unemployed labour force. These data are collected through questionnaires, and are therefore only sparsely available at regional level. Data on people who are registered as unemployed and register for employment are available regionally. Based on these data Assen has an unemployment rate of 9.7% in 2005. For the Netherlands the unemployment rate is 2.8%.

The graph below shows the development of unemployment in the Netherland from 1952 until 2003. In this same period the population has increased by 57%. In 2009 around 186.000 people were unemployed in the Netherlands.



In the Netherlands on average 8% of the population has no education beyond primary school. One third completed high school and 31% completed high school plus vocational education. 17% of the Dutch completed an education at bachelor’s level and 9% completed an education on master’s level.

In 2001 the municipality of Assen analyzed different neighbourhoods in Assen. They found that in Assen around one third of the population has had education at a bachelor’s or master’s level. Around a quarter of the inhabitants completed vocational education. Over one third of the inhabitants of Assen have high school education.both nothing more and almost 5% has only primary education or less.

2.2. Possible low-carbon energy sources

In the Netherlands every household can chose their own gas and electricity provider. Some of them offer renewable as well as non-renewable energy, some offer only renewable energy and some offer only non-renewable energy. Overall, renewable energy is not more expensive than non-renewable energy.

At the moment renewable energy use of the inhabitants of Assen is only 0.3% of the total energy consumption. Biomass and waste takes up 3.6%. The most used energy source is gas: 60.8% (CO₂ neutral KNN).

The municipality of Assen has set itself the goal of using 75% renewable energy. This means that 75% of the energy used by all the public buildings will be renewable energy.

There are several ways in which Dutch households can generate their own sustainable energy. They can generate it by installing sun boilers or solar panels. They can place a small windmill on their house or participate in a windmill park at sea. Another option is to generate energy by using heat, either with a heat pump or heat-cold storage. And farmers can use agricultural waste to generate energy: biogas.

The table below (CBS, 2008) gives an overview of the percentage of land used for recreation, building, forest and agriculture.

	traffic	built-on	semi-built-on	recreational	agriculture	forest	water	total
Assen	325	1613	402	522	4206	1138	142	8348
percentage	4%	19%	5%	6%	50%	14%	2%	100%

The soil type in Assen is sand and boulder clay. In the vicinity there is also a lot of peat.

There is no weather station in Assen, but there is a weather station nearby in Eelde, a town 15 kilometres to the north of Assen. The weather station is situated in open land (mainly grassland). The soil type is sand.

The average temperature in Eelde between 1971 and 2000 was 9°C. In 2008 the average temperature was 10.1°C (Royal Netherlands Meteorological Institute).

The average wind speed in the Netherlands between 1971 and 2000 was 4.5 m/s. The average vector speed of the wind between 1971 and 2000 was 2.2 m/s. There were 215 days with wind speeds over 5 Beaufort.

The average wind direction between 1971 and 2000 is 240°: southwest.

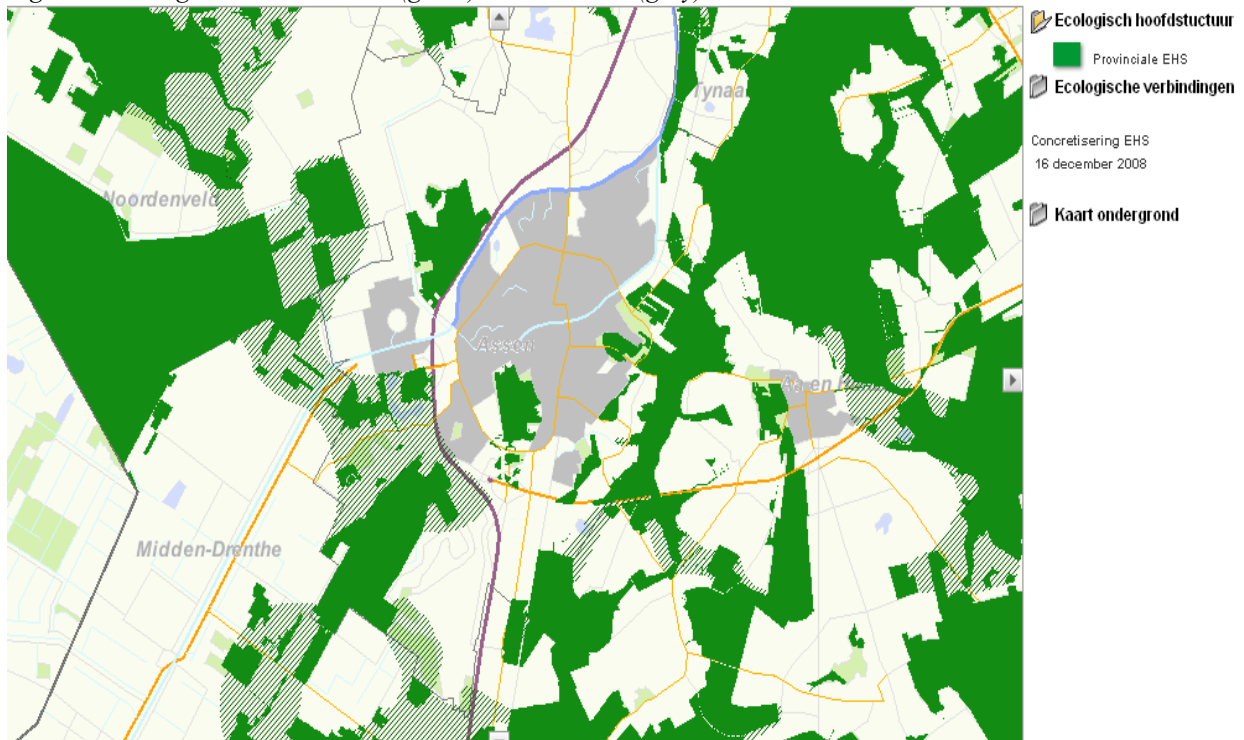
Between 1971 and 2000 there were on average 1471.4 hours of sunshine per year. 31% of the possible sunny hours were sunny. There were on average 80 days per year without sunshine, 170 days with less than 20% sunshine and 29 days with over 80% of sunshine.

Around Assen there are several areas which are included in the “ecological main structure”. These areas are protected natural areas. Developments in such areas can only take place when there is an important public interest or when there are no other alternatives possible. In these cases the initiative taker has to make sure that damage to nature is undone as much as possible.

Right next to the city of Assen there is the national park Drentsche Aa. It is 10.000 hectare in size of which one third is nature reserve.

Witterveld is a nature reserve of 500 hectares. It is a heath and moorland area.

Figure 2: Ecological main structure (green) around Assen (gray)



2.3. Settlements and administrative structure:

Because the municipality of Assen also includes the city of Assen it is hard to find data for the urban and rural area separately. The urban and rural areas have one government. Within the government there is no division based on urban and rural areas, and most of the data is on the two areas together.

In 2009 the municipality of Assen had 67,500 inhabitants. The population density is 798 people per km². 51% of the inhabitants are female. The old age dependency (the number of people over 65 years of age related to

the number of people between 20 and 65 years) is 24.5% as of 2009. In the past few years the old age dependency has increased from 22.7% in 1995.

Population by age:

0-15 year	19%
15-25 year	11%
25-45 year	28%
45-65 year	27%
65+	15%

Assen is situated in the province of Drenthe, one of the twelve provinces of the Netherlands. Drenthe has 489,695 inhabitants. On average Drenthe has 185 inhabitants per km² (CBS, 2009). Zuid-Holland is the Dutch province with the largest number of people per km²: 1233.

The municipality of Assen consists of the city of Assen and a few small villages: Loon, Anreep, De Haar, Graswijk, Rhee, Schieven, Ter Aard, Ubbena, Witten, Zeijerveen, Zeijerveld and a part of the village Vries. Except for Vries these are all extremely small towns with just a few inhabitants. Therefore it is not possible to find data for all of the villages.

	Inhabitants	Population density (per km²)	Gender (male/female)	Age (0-15;15-25;25-45;45-65;65+)
Assen	66,215	798	51% female	19, 11, 28, 27, 15
Loon	280	893	140/ 150	19, 8, 18, 33, 22
Anreep	60	209	30/ 20	11, 11, 16, 51, 11
De Haar				
Graswijk	80	37	40/ 40	17, 12, 20, 40, 11
Rhee	35			
Schieven	20	34	10/ 10	
Ter Aard	90		45/ 45	
Ubbena	175		85/ 95	
Witten				
Zeijerveen	30		15/ 15	
Zeijerveld	105		70/ 65	
Vries	4,360		51% female	

In 2007 303 people immigrated to the municipality of Assen from a foreign country. 255 people left Assen to settle abroad. This leaves a migration balance of 48 (CBS, 2009).

In 2007 3,183 people moved to the municipality of Assen. These people are mainly from the northern part of the country (76%). Fewer people left the municipality in 2007: 2,349. Most of the people moved to another municipality in the northern part of the country (70%).

In the province of Drenthe the total area of urban green fields (parks and public gardens) has increased from 3 km² in 1960 to 9 km² in 2003. Drenthe takes up 2,680 km² in total. The total recreational area has increased from 34 km² in 1960 to 48 km² in 2003. The area occupied by forest and open natural terrain decreased between 1960 and 1993, but has been increasing since. The total area of cultivated land has increased since 1970 from 118 km² to 137 km² in 2003.

year	parks and public gardens (km ²)	recreational area (km ²)	Forest and open natural terrain (km ²)	Cultivated land (km ²)
1960	3	unknown	447	unknown
1979	3	34	381	118
1989	3	40	387	126
1993	3	42	385	131
2003	9	48	431	137

2.4. Consumption and transport of households:

There were 28,330 households in the municipality of Assen in 2008 (CBS, 2009). 34% were one person-households and 66% were households consisting of several persons. Of the more-person households 46% were more-person households without children and 54% with children. Over 40% percent of the one person-households are people between 35 and 55 years of age. On average Assen has 2.3 persons per household (Drenthe in cijfers, 2010).

In 2007 the average disposable income of households was €29.100. There are differences between the types of households, see table.

Household type	Mean Income €
One-person	17,900
Couple without children	32,800
Couple with children	38,500
Single parent family	23,000

Data on the housing market in the municipality of Assen was not found. There was data on the province of Drenthe, and on the area between Groningen and Assen, which also includes Assen. These data are different, but they show the same trend. There are fewer houses with 1-2 rooms in the area than in 1985, in 2008 this proportion was between 5-10% (VROM, 2009). The percentage of houses with 3 or 4 rooms has stayed almost the same since 1985. Between 13.7% (Drenthe) and 20.2% (Groningen-Assen) are houses with three rooms. And between 35.8% (Drenthe) and 32.2% (Groningen-Assen) are houses with four rooms. The percentage of houses with five rooms or more has increased since 1985. In Drenthe 45% of the houses have 5 rooms or more, in Groningen-Assen 37,4%. Overall, houses seem to be getting more rooms and therefore are probably bigger as well.

In 1985 people more often rented a house than bought one. In 2008 this pattern is reversed, more people buy: 56.4% (Groningen-Assen) to 66% (Drenthe). The percentage of one family and several family houses has hardly changed in the past 24 years. Between 68.8% (Groningen-Assen) and 88.4% (Drenthe) of the houses are one family houses. The rest are multiple-family houses.

In the municipality of Assen for every 1,000 inhabitants there were 421 cars and 43 two-wheeled motor vehicles in 2007. 10 years before in 1998 there were only 357 cars per 1,000 people.

In the province of Drenthe there is in total 105 km of railroad (Drenthe takes up 2680 km²). The waterways take up 169 km, 159 km of this is canal.

In the Netherlands 1,582,563,000 tonnes of goods was transported in 2003. The division across several transport modes can be found in the table.

Total modalities	100	1,582,563
Seagoing	27%	431,002
Inland shipping	18%	292,241
Road	44%	702,278
rail	2%	29,697
air	0%	1,341
pipeline	8%	126,004

There is also a highway (A28) connecting Assen to others cities. There is 494 km road in Assen (CBS, 2008). Of this road 465 km are minor roads. 29 km are main roads (provincial and state roads).

In the city people can use public transport. There is a city bus network

Most travel in Drenthe in 2007 was by car:

	Total travel distance (billions of km)	% of total	km per person per day (2002/2003)
car (driver)	4	56%	21.1
car (passenger)	2	28%	7.99
train	0.3	4%	2.3
bus/ tram/ subway	0.2	3%	0.66
moped	0	0%	0.06
bike	0.4	6%	2.94
walking	0.1	1%	0.51
other	0.1	1%	0.26
total	7.1	100%	35.82

There is an airport located in Eelde, 15 km to the north of Assen. Eelde is the largest airport in the northern part of the Netherlands. Eelde had over 170,000 passengers in 2007 (Drenthe in cijfers, 2010) and almost 60,000 flight movements.

Schiphol is the main airport of the Netherlands. It is 150 km to the west of Assen. In 2008 Schiphol had over 47 million passengers (infoschiphol.nl).

Eurostat performed a survey among several European countries to assess food consumption. Results are on country level. Dutch people eat more meat on average than Europeans. The Dutch eat 105.3 kg per person per year, Europeans eat 98.5 kg. According to the Netherlands statistics the Dutch ate 84.7 kg of meat in 2007. The

most eaten meat is pig meat; around 40% of all meat consumption is pig meat. The Dutch eat around 23.8 kg of fish and seafood per year.

Dutch people spend 18.7% of their income on food, beverages and catering service (Eurostat, 2007). They spend 2.6% on meat, 2.5% on bread and cereals, 1.7% on milk, cheese and eggs, 1.3% on vegetables, 1% on fruit, 0.5% on fish and seafood and 0.2% on oils and fat.

According to the public health nutrition (2002) Dutch people eat too few vegetables. Vegetable consumption was 135 grams per day. Fruit consumption was 180 grams per day.

In the Netherlands the CBS only has data on vegetable consumption from 1994 and further back. In 1994 Dutch people consumed 60 kg of vegetables on average per year, which is around 164 gram per day.

Figure 3: Euros spent on different types of goods by Dutch households in 2008

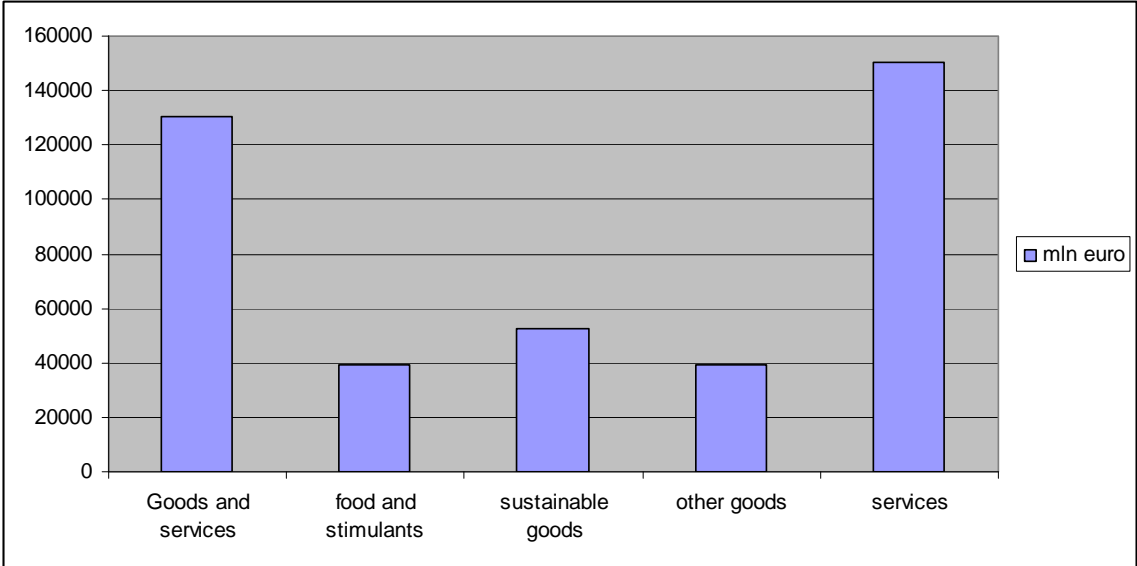
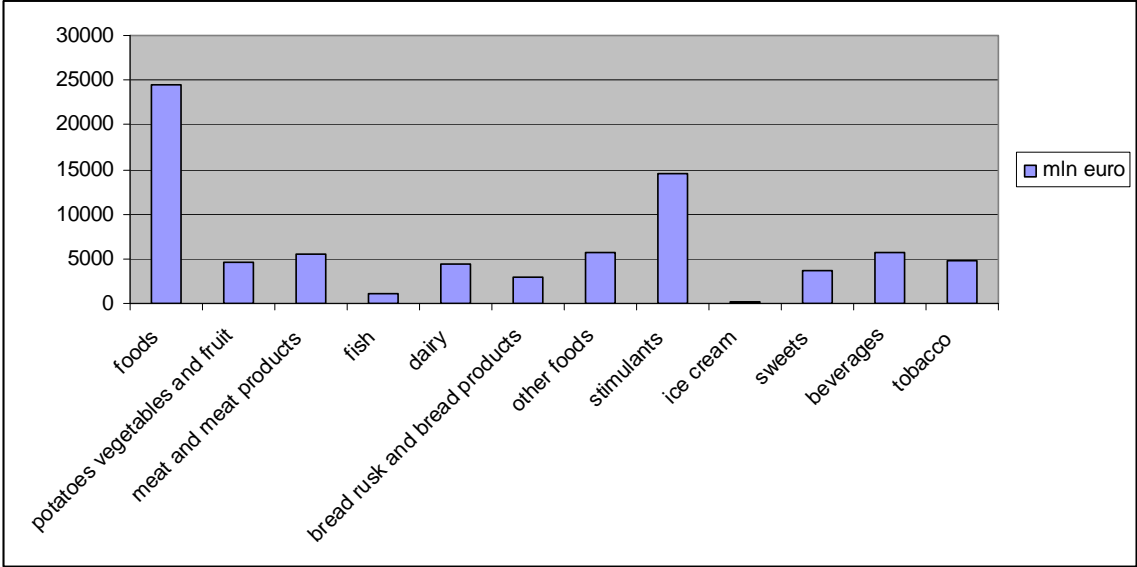


Figure 4: Euro's spent on different types of food by Dutch households in 2008



In 2008 consumer spending on organic products has increased by 12.4% from €518.9 million to €583.4 million. The total market share of organic food is 2.1% in the Netherlands (Bio-monitor, 2008).

3. Description of the governance structure of the study area

3.1. Stakeholder Analysis

Description of actors:

3.1.1. Local governments

The city of Assen and the villages in the municipality of Assen have one government: the municipality of Assen. The council of the municipality consists of 33 persons. Every four years the inhabitants of Assen can choose the council members, everyone above 18 years of age is allowed to vote. The next elections will be held in March 2010.

At the moment the Social Democrat party is the most popular political party in Assen (11 seats). Followed by the Christian Democrats, the Christian Union and the Liberals, they all have 4 seats. The Local Party and the Socialist Party both have 3 seats. The Green Party and the Central Liberals both have 2 seats. This is quite similar to the division in the national parliament.

The Green Party is the party with the most focus on sustainability.

The council is the general governing board of the municipality of Assen. Their main tasks are to determine policies and supervise the execution of policies.

They are authorized by law to determine binding rules for the inhabitants of Assen. The council meeting is held twice a month. During these meetings all inhabitants of Assen can give their opinion. With regard to energy policies there are hardly any citizens who take the chance to do this during these meetings. Sometimes organizations like the Environmental Federation take the chance to express their opinion.

It is possible for inhabitants to put a topic on the agenda of the council as well. This can be done via a 'citizen initiative'.

The council is supported by several commissions.

There is no commission focused on climate change or energy use specifically.

The administration consists of aldermen and the mayor. Assen has four aldermen. There is also one administrative secretary. Before 2002 Aldermen could only be nominated, chosen and appointed from inside the city council. Now, also people from outside the city council can be appointed. However, at the moment only members from the city council are appointed to be Aldermen in Assen. When council members are appointed Aldermen they lose their right to vote in the city council.

The city administration is responsible for the execution of policy and the preparation of new or altered policy.

The council also nominates the mayor. The mayor still has to be appointed by the council of ministers and the queen. The mayor is the chair of the council and the president of the administration. In some municipalities in the Netherlands they have held a mayoral election in which they asked the inhabitants to choose between two different candidates. However, this was officially just advisory not obligatory. But the experiences with a vote were not very positive and now it is hardly ever used.

The government of Assen is best described as a local hierarchical mode. The locally elected board elects the leader (the mayor), and the mayor is quite influential. When it comes to voting the aldermen and the mayor all have a vote. If the voting is cancelled then the vote of the mayor is decisive.

The aldermen of the municipality of Assen belong to the political parties Christian Democrats (1), Christian Union (1) and the Social Democrats (2). The mayor of Assen belongs to the Social Democrats. Every alderman has his own portfolio. The alderman of the Christian Union is responsible for environmental policy. The topics that he focuses on are: land management, public provision of services like the citydesk and digital government including automation. Other topics are: district policies including greenery management, playing facilities, district facilities, streets and roads, well being including elderly policy and social work, environmental policy and waste management. The alderman is responsible for a number of the districts in Assen and for the village consultation. An alderman of the Social Democrats is responsible for policy related to traffic and transport. The other alderman of the Social Democrats is responsible for spatial planning.

In the program of the board there are a few aspects referring to energy use/ sustainability. The mayor and aldermen for instance want Assen to be 'pro- bicycle', with a good public transport infrastructure, and free or cheaper public transport for certain target groups. The last years Assen has been growing rapidly. Which means that mobility, and especially car use, will increase as well. Traffic jams are starting to occur now in Assen. The municipality indicates that it is a task of the municipality to keep the city accessible, but that it is also a task for companies, institutions and citizens. To maintain accessibility, the municipality aims to integrate cycling and public transport explicitly in traffic and transport policy. However, the national policy is that mobility should be able to grow. Therefore policy is mainly focused on keeping cities accessible and not on reducing car use in general.

In the region Groningen-Assen the policy is to concentrate living and working in a certain number of areas which will lead to a reduction of kilometres travelled by car, a better usage of current infrastructure and shorter travel distances which make it more easy to travel by bike or public transport. Besides keeping cities accessible, policy is focused on improving traffic safety and reducing traffic noise.

Besides keeping cities accessible, public transport also has a social role. Assen has a service bus that is focused on the wishes and needs of elderly people.

With regard to cycling the focus is on creating a safe cycling infrastructure of good quality, with the aim of improving the attractiveness of cycling.

Assen has been building in a sustainable way, with increasing use of clean energy: when vehicles of the municipality are replaced they will be more and more powered by biofuel or electricity.

The administration has to bring several policy documents before the city council during their term of office. Some of them are related to sustainability or energy use, for instance, the policy plan on public lightning. In this policy plan the municipality discusses the possibility of replacing public lights with LED lights. By replacing the old armatures with energy saving armatures this will help the municipality contribute to environmental friendly policy. Other policy documents that the administration has to bring before the city council are the notes on cycling traffic, environment and nature education, accessibility public space, traffic strategy and land policy.

We could not find any indications of conflicts between different parties. Of course we cannot be certain about whether there are indeed no conflicts, or whether people are being tactical and therefore do not mention them.

Stakeholder	Interests in reduction of CO ₂ emissions	Relationship with each other (in general)	Conflicts with other stakeholders	Type of governance (ideal type)
City council of Assen	Aims to be CO ₂ neutral by 2020	Regular – official	-	Local hierarchical model
Administration of Assen	Aims to be CO ₂ neutral by 2020		-	Local hierarchical
Political parties	Differs, all want to reduce CO ₂ emissions		-	Local hierarchical model /
Commissions	Their main aim is to raise awareness.	ad hoc / Regular – official	-	Democratic decision-making model
Civic organizations	Regulates CO ₂ emissions.	ad hoc	-	Independent authorities
Enterprises	Sell special products, increasing awareness.	ad hoc	-	Hierarchical

3.1.2. Powerful civic organisations Assen

- Stichting milieufederatie Drenthe

The environmental federation of the province of Drenthe was founded in 1971 as a cooperation of nature and environmental organizations in Drenthe. Their goal is to improve sustainable development in Drenthe. The federation is actively involved in vision and policy development and advises with regard to important nature and environment issues.

They for example launched the website ‘Drenthe saves’. On this website companies and citizens can get advice on how to save energy and the website provides information energy saving projects in their municipality and province. The milieufederatie initiated this website together with the province of Drenthe, several municipalities in Drenthe, energy companies and the institute for natureprotectioneducation.

- Cyclists federation (Fietsersbond Assen)

The cyclist's federation is dedicated to the interests of cyclists and dedicates itself to obtaining more and better quality possibilities to cycle .

They collect complaints from cyclists concerning cycling paths and send these to the municipality. They also provide information about cycling routes on their website.

- Association for nature and environment education

The department of Assen aims to increase the environmental awareness of people by organizing excursions, courses and lectures.

- Royal Dutch Natural History Association

The department of Assen focuses mainly on making an inventory and excursions focused on birds, insects, plants and moss.

- Foundation noise nuisance Baggelhuizen

The foundation aims to reduce noise nuisance in the neighbourhood Baggelhuizen. Sources of noise are for example a sports complex, a racing track and a military training ground.

- WWF region Assen

The WWF in Assen focuses their activities mainly on the rangers (children). They try to raise awareness of the children. For example they organised a trip to a zoo and a cycling route for children.

- Conservation country Port Natal

Aims to protect this valuable cultural-historic landscape. The country is situated in the south of Assen. A few citizens critically follow the plans of the municipality on changing the landscape to expand the hospital situated on the landscape.

- Nature Platform Drentsche Aa

This area is designated as a national park. People living close to this national park are concerned that the economic value is considered more important by the local government than the serenity and space in the park. They established Nature platform to let the citizens be heard.

- Association landscape development Rhee-Ubbena

The association aims to improve the natural and cultural-historical values of the area.

- Association of friends of the Asser woods and surroundings

The association aims to protect the ecological value of the Asser woods, which originated before 1300. Therefore, they give advice to the municipality of Assen, follow the policies concerning the Asser woods and try to involve citizens by organizing activities.

- Friends of eastern Assen

There is a possibility that a ring road will be built in the east of Assen. The friends of eastern Assen try to prevent this. They aim to do this by showing the beauty of the area and provide information on the plans of the municipality to citizens.

3.1.3. Powerful Enterprises

- Enexis

Enexis is the local operator of the mains in Assen. In the Netherlands they are responsible for the connection of 2.6 million households, they administer the energy network in the northern, eastern and southern

part of the Netherlands .On their website they give information on producing your own electricity in a sustainable manner. The policy of Enexis is that they support the transition towards renewable energy supply.

Enexis has developed teaching programs on energy for school children between the ages of 11/ 12, but also programs for vocational training and higher education.

- Actium

Actium is the housing corporation in Assen and the rest of the province of Drenthe. In total they have been renting around 16,000 houses, mainly in Assen. They describe themselves as a housing corporation working on sustainable and affordable living in livable neighbourhoods. They are also involved in several new housing estate projects.

There are 26 different power suppliers in Assen and 20 suppliers for gas.

3.1.4. Relevant national or local institution

- Media

There are several local media in Assen. With regard to television there is RTV Drenthe. This is the television station of the province of Drenthe. They report on local news on the television as well as on the radio. They are financed by the province of Drenthe. A broadcasting note has been developed which indicates the topics and the aim of RTV Drenthe. One of the externally involved actors is the foundation The landscape of Drenthe, whose mission is to keep Drenthe 'liveable', the foundation tries to realize this by buying nature areas. However, there are no specific goals or aims with regard to nature, energy or climate change.

There is a newspaper specifically for the provinces of Groningen and Drenthe. People from Drenthe who have a membership for this newspaper get a specific section that contains only regional news on the province.

There is also a local newspaper for Assen. This is called the 'Gezinsblad' (family paper). It publishes on news from Assen, for example decisions made by the board of Assen.

In November 2009 a local newspaper on energy reduction was distributed in the municipality of Assen. The municipality reported on projects they are executing with regard to energy reduction. There are also tips in the newspaper for inhabitants of the municipality on how to reduce your energy consumption.

On a national level there is a network specifically focussed on sustainability. However, they will probably lose their license in 2010.

3.2. State of progress of government/governance change.

The municipality of Assen is best described as a local hierarchical model: the members of the city council are directly chosen by the inhabitants. The city council then chooses the aldermen. The leader, the mayor, is chosen by the national government and is proposed by the city council.

There is a transition going on from government to governance in the Netherlands. For example inhabitants of Assen have the opportunity to turn in a citizen initiative. Hereby they put a topic on the agenda of the city council. To do this they have to thoroughly describe the topic and explain the reason for it, the goal of the initiative and what is needed to reach this goal.

Other options for inhabitants are to write a letter to the city council or submit a request. A letter is meant to inform the city council about an opinion or to provide them with information. A request is a letter aimed at the city council in which the council is asked to make a decision or to act in a way that has legal consequences.

These opportunities do not seem to be used a lot by citizens with respect to energy or the environment. Sometimes organizations like the environmental federation do use the opportunity to speak during a meeting and give their view. But individual citizens hardly ever do this.

Organizations are usually consulted in an early phase of policy making. First the officials of the municipality work on the policy. In that phase they consult relevant organizations. For instance, with regard to energy use they can consult the environmental federation. In a later phase when the city council discusses the policy there is not much contact with other organizations anymore.

3.3. Environmental governance and energy use of households: actors and networks.

The main instruments that the municipality can use to influence energy use in Assen are communication and subsidies. With regard to their own organization they can of course decide that all public building should energy consumption by a certain amount. They have introduced a lot of ambitions for the municipality. Their aim is to reduce CO₂ emissions for their own buildings, cars, etcetera. However, on the level of households they are mainly limited to providing subsidies and communication. Below are listed some different tools that can influence household energy use are described.

- Subsidies

On a national level the government initiated several subsidies related to energy use, for example on solar panels, sun boilers, double glazing etc. These subsidies are all provided by the Ministry of Housing, Spatial Planning and the Environment. These subsidies are generally quite popular. The amount that is reserved for the subsidy is used by citizens quite fast.

The national government also provides a subsidy specifically for municipalities and provinces: Stimulation Local Climate Initiatives. This subsidy regulation helps municipalities to reduce greenhouse gas emissions. Costs can be compensated for by a maximum of 50%. In total 31.5 million euro is available for municipalities and 3,5 million euro is available for provinces. Based on the number of inhabitants and the area of the municipality Assen could apply for a maximum of 188,000 euro.

- Drenthe Bespaart (Drenthe saves)

This is an initiative by of the Environmental Federation Drenthe, the province of Drenthe and several municipalities in Drenthe, among others the municipality of Assen. They have a website with several practical tips to save energy. They also provide an overview of suppliers of different energy saving products. There is also a list of running energy savings projects. The aim of Drenthe Bespaart is to help inhabitants of Drenthe to reduce their energy use by communicating on energy saving to households.

- Energy neutral neighbourhood Kloosterveen

To meet their goals of reducing CO₂ emissions the municipality of Assen is planning to build an energy neutral neighbourhood in the new neighbourhood Kloosterveen,. They plan to do this in collaboration with the province of Drenthe and SenterNovem. SenterNovem is part of the Ministry of Economic Affairs and offers rules and programmes related to innovation and sustainability.

- Nature/ environment education

To make children more aware of the environment the municipality of Assen initiated a nature and environment education program. This program addresses topics focused on sustainability. The activities are mainly organized at schools and in neighbourhoods.

- Public transport tickets

In 2004 the public transport office of Groningen and Drenthe introduced the euro-tickets. In the city of Assen people could buy a ticket for one euro and travel through the city. They no longer had to buy a ticket in advance. Within 4 years 10 million tickets have been sold in Groningen and Drenthe - a big success according to the public transport office.

Energy use of the inhabitants of Assen in 2005 was 3.6 petajoule (KNN,). This is a total energy content of over one billion cubic metres of natural gas. As for most of the Dutch people, gas is the energy source most used by the inhabitants of Assen (61%), followed by oil (23%) and coal (11%). Less used energy sources are biomass and waste (4%), uranium (<1%) and sustainable energy (<1%).

A lot of policies of the municipality of Assen are focused on the energy use of the municipality and not on energy use of households. For instance, the municipality of Assen aims to reduce CO₂ emissions of their buildings and cars. They have specific plans to reduce these CO₂ emissions. When it comes to households they do not have such specific plans.

- Financing

The aim is that 50% of all houses in Assen will have an energy label C by 2015. There is already an agreement with the housing corporation that their housing stock will have label C in 2014. Therefore the plan is aimed at private house owners. To reach their goal the municipality will develop an instrument for subsidizing or financing the investment costs.

- Infrastructure

To promote cycling in Assen the municipality will improve the existing cycling infrastructure. When new neighbourhoods are built they will be accessible by bike. Other instruments that the municipality uses to stimulate cycling are: remove dangerous traffic situations for cyclists and improve cycling signposting. The number public bicycle sheds will be increased and the municipality sets limiting conditions like free or cheap rates.

- Grant permits and enforcement

With regard to the environment, building and living, noise, soil, waste etc. the municipality can use the tools of granting permits and enforcement. The municipality can use the environmental protection law to direct businesses towards more sustainability.

- Communication

The aim of the municipality of Assen is to increase awareness with regard to sustainability and the environment. They want to increase support for sustainability and environmental policies. To do this they are formulating a communication plan.

4. Impact assessment

When it comes to the impact of the municipality on the energy consumption of the inhabitants the municipality has limited power. First the national government determines the laws and regulations for the whole country. The national government also decides on which subsidies are available for energy saving measures. The province is the link between the national government and the municipality. Tasks of the province are for example: granting environmental permits to companies, enforcing environmental laws, stimulating sustainable energy for example by appointing locations for wind turbines. The province also determines which company gets to do the public transport in the province and for what price.

In the Netherlands municipalities have been getting more power in the last few years. Certain tasks and competences of the national government are now tasks of the municipalities. Due to this decentralization the municipality has more responsibilities. For example, with regard to subsidies municipalities now have a big impact on how to divide the subsidies. The council makes decisions with regard to the construction of new roads, parking spaces and cycle lanes. They can keep polluting companies out of residential areas. The environmental police can take action against people who do not dispose of their waste in a proper way. Municipalities are getting more responsibilities with regard to education, health care, sports and recreation.

The main instruments of the municipality to influence energy consumption of households are by providing them with information and subsidies. Communication can only have limited effects. Subsidies can be more effective. Inhabitants of Assen can for example receive funding to install double glazing in their homes. Subsidies for energy reduction measures in the house provided by the government are used quite extensively in

the Netherlands. This seems to suggest that they are quite effective in improving insulation of homes and thus reducing energy consumption of households.

An important impact on energy consumption in Assen is the goal of the municipality to become CO₂ neutral by 2020. To reach this goal they have made some decisions with regard to public buildings. For instance, 75% of energy used in public buildings should be renewable. However, these goals are for the public buildings not for households.

As in the rest of the Netherlands people in Assen cycle a lot, especially compared to other European countries. This is partly caused by cultural factors: there is a tradition of cycling in the Netherlands. But also characteristics of the area make it suitable for cycling: the landscape is very flat, and the municipality has a lot of cycling lanes available. The municipality of Assen has made plans to improve the cycling infrastructure in Assen and to remove dangerous traffic situations for cyclists. This will probably help to have inhabitants of Assen continue to cycle a lot.

Another tool that the municipality uses is their collaboration with companies. They work together with the housing corporation. Together they set goals to reduce energy use in all the houses of the housing corporation. This can have a big impact on energy consumption of households.

An example of an intervention in Assen is the energy box. People earning less than 110% of minimum wages received an energy box. The energy box contained information on saving energy and products like an energy saving light bulbs. The project was funded by the province of Drenthe and the municipality of Assen. The ministry of Housing, Spatial Planning and the Environment also provided a subsidy. The province and municipality asked energy companies and the housing cooperation to make a contribution as well. The results of this project are not reported. But according to one city council member a lot of the energy saving light bulbs were thrown away after usage by the households. This means there is still hardly any environmental advantage.

So the main instruments of the municipality of Assen are communication and subsidies, which they are both using to reduce energy consumption in Assen.

Consulted documents

- Assen koerst duurzaam naar een CO2-neutrale stad. Wat moet daar voor gebeuren? KNN
- VROM (2007). *Cijfers over wonen 2006*. Den Haag: Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer.
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Policy documents of the municipality of Assen:

- Uitvoering CO2 beleid gemeente Assen
- Duurzaamheidsvisie Assen 2009-2015. Gemeente Assen, juli 2009.
- Milieuprogramma 2009
- Milieuvisie
- Uitvoeringsprogramma Duurzaam Assen 2009-2011
- Collegeprogramma 2006-2010
- Beleidsplan openbare verlichting 2008
- Nota grondbeleid gemeente Assen 2005-2009
- Gemeentelijk Verkeers- en Vervoersplan Strategie nota. Gemeente Assen
- Beleidsnota Natuur en milieueducatie gemeente Assen (2008).

Energy governance in Aberdeen City and Shire Report

The Scottish Case

Lee-Ann Sutherland and Keith Marshall

1. Introduction.

This work package report incorporates findings from the two elements of the collection of data on Aberdeen City and Aberdeenshire carried out for GILDED Work Package 2. The desk/internet based review of relevant and accessible information provided a large amount of data. This often cascaded to additional levels of detail and related reports for which links are provided in an Annex to this report. Data availability varied between sectors both in terms of how recently it was collected, and whether or not it was primary data, or disaggregated from regional or national level datasets. Most demographic statistics are available at the regional level, but were collected in 2001 (the date of the last national census).

Fourteen in depth interviews were undertaken with key actors from within Aberdeen City and Shire between June and the beginning of August 2009. The roles of those interviewed were as follows:

1. Shire council: sustainability officer.
2. Shire council: public housing officer.
3. Shire council: housing policy officer.
4. City council: transport planning officer.
5. City council: energy strategy manager.
6. City council: environment officer.
7. City council: community planning.
8. Rural Partnership Development officer.
9. Rural community business development coordinator.
10. Local energy advice centre manager (NGO).
11. Local household energy private consultant.
12. National sustainability network coordinator.
13. Regional travel planning coordinator.
14. Shire Councillor.

The Scottish minister with climate change remit was unavailable for interview.

Key findings from these interviews were discussed with The Aberdeen and Aberdeenshire GILDED Stakeholder Advisory Group in August 2009.

2. Overall description of study area related to energy use and infrastructure

2.1. Cultural background: main characteristics of the case-study area including historical and cultural heritage and traditions, and economic and social characteristics

Aberdeen was founded by the 8th century AD as a fishing settlement and by the early 12th century it was an established town and harbour. The city sits at the mouths of the Rivers Dee and Don on the North Sea Coast (see Figure 1), and is the third largest in Scotland, with a population of 212,125 (2001 census). Our study area in the North East of Scotland incorporates the predominantly rural local authority of Aberdeenshire Council and the mainly urban Aberdeen City Council. Aberdeenshire has a population of 226,871 (2001 census). The two councils have a mixture of close links between some departments, strategic links (particularly in terms of transport), and some departments with no inter-Council relationships.

Scotland is a sparsely populated country by European standards⁴¹. Aberdeen has a density of 1127 people per square km (2002) in an area of 186km². Aberdeenshire has a density of 36 people /km² and a total area of 6313km². English is the official language and some English dialects are spoken colloquially. The population are almost entirely ethnically white, with approximately 84% of both Aberdeen and Aberdeenshire born in Scotland. A further 8% were born elsewhere in the UK. However, mobility statistics indicate that 15% of those living in Aberdeen and 10% of Shire dwellers had a different address in the previous year (2000)⁴². Most of these had moved within the area but 4% moved elsewhere in the UK, and 1.33% (Aberdeen) and 0.44% (Shire) moved from outside the UK⁴³. Due to a change in EU immigration laws (allowing increased in-mobility) it is likely that mainland-European born residents have increased in recent years, but will not appear in regional statistics until the next Census in 2011.

Both Aberdeen and Aberdeenshire had very low rates of unemployment at the time of the 2001 Census: 2.72% for Aberdeen, and 2.55% for Aberdeenshire⁴⁴. The city of Aberdeen provides much of the region's employment, and a significant number of employees commute to the city from the shire, and this behaviour has arguably been exacerbated by housing developments in rural areas close to the city, with implications for transport related emissions. Aberdeen has two universities and one technology college; as a result, students represent 6.62% of the Aberdeen population, and 2.81% of the Aberdeenshire population⁴⁵.

The region has a higher level of production jobs and a lower level of service jobs than the Scottish average (June 2008)⁴⁶.

⁴¹ <http://www.statistics.gov.uk/STATBASE/ssdataset.asp?vlnk=7657>

⁴² Source: [http://www.aberdeenshire.gov.uk/statistics/census/Council%20Areas%20\(Scotland\)%20KS24.pdf](http://www.aberdeenshire.gov.uk/statistics/census/Council%20Areas%20(Scotland)%20KS24.pdf)

⁴³ Source: [http://www.aberdeenshire.gov.uk/statistics/census/Council%20Areas%20\(Scotland\)%20KS05.pdf](http://www.aberdeenshire.gov.uk/statistics/census/Council%20Areas%20(Scotland)%20KS05.pdf)

⁴⁴ Source: [http://www.aberdeenshire.gov.uk/statistics/census/Council%20Areas%20\(Scotland\)%20KS09a.pdf](http://www.aberdeenshire.gov.uk/statistics/census/Council%20Areas%20(Scotland)%20KS09a.pdf)

⁴⁵ Ibid.

⁴⁶ Source: <http://www.aberdeen-info.co.uk/facts.html>

Table 1: Regional employment figures for 2002 and unemployment figures for 2008.

Employment	Employed	Full time	Part time	Self employed	% of population working
ABERDEEN	110,000	82,000	27,000	7,000	79%
ABERDEENSHIRE	128,000	99,000	29,000	18,000	87%
SCOTLAND	2,387,000	1,829,000	558,000	224,000	73%
SCOTTISH EXECUTIVE APRIL 2002					
Unemployment (June 2008)					
ABERDEEN	1.2%				
ABERDEENSHIRE	0.7%				
SCOTLAND	2.3%				

There are 16,160 registered businesses in the city and shire split between: manufacturing: (985), agriculture/fishing: 3,315, construction: 1,510 and wholesale/Retail: 2,555 (Office for National Statistics 2005). The oil industry is of particular importance to Aberdeen City and its surrounding area. Since oil was discovered in the North Sea in the 1970s, Aberdeen has acted as the 'energy capital' of the UK, with the harbour hosting the ships that service the oil rigs, and most major oil companies having office complexes there. Peterhead, in northern Aberdeenshire, hosts the largest helicopter service in Europe, with the primary purpose of moving personnel to and from the oil rigs. Aberdeen Harbour has been an important fishing port for approximately 900 years but now predominantly serves the North Sea oil industry handling 5 million tonnes of cargo per year⁴⁷ and also acts as a ferry and freight terminal to the Northern Isles (Orkney and Shetland).

These developments also motivated the increase in capacity on the main road from central Scotland, which was upgraded to dual-carriageway in the early 1990s. Continued traffic congestion in and around Aberdeen is one of the reasons cited for a new city bypass, the route of which remains under discussion. Five other main roads radiate from the city providing links to settlements in Aberdeenshire (see Figure 1).

Aberdeen International Airport is the 14th busiest in the UK with 3.29 million passengers in 2008, a reduction of 3.6% compared with 2007. It serves several destinations across Europe and is an important hub for oil industry related businesses. Its owners (British Airports Authority) have planning permission to spend £60million on extending the runway to allow larger aircraft to fly international routes. They anticipate nearly 6 million passengers per year by 2030.

⁴⁷ Source: <http://www.aberdeen-harbour.co.uk/>

National bus and rail services run from the centre of the city and these are run by a limited number of private companies with public subsidy. Access to local rail services is being improved by reinstating some small rural stations, closed since central government cutbacks in the 1960s.

In terms of household energy use, a predominant characteristic of both traditional rural housing and city tenements is their solid granite construction, which means that they are difficult to insulate. City and Shire councils own a considerable percentage of local housing stock (Table 2⁴⁸); and in the past decade they have been proactive in reducing energy consumption in this sector by updating and installing renewable energy based heating systems, and providing insulation.

Table 2: home ownership statistics in Aberdeen City and Shire (2003)

Home ownership	Aberdeen %	Aberdeenshire %
Owned outright	21.38	29.15
Owned with mortgage	38.69	41.72
Council housing	23.36	15.83
Housing association	3.46	2.79
Private rental	7.67	5.68
Other	4.77	4.43

2.2. Possible low-carbon energy sources: overview of the geographical capability of the case-study area relating to possible low-carbon energy sources

Buildings in Aberdeen City have access to mains gas and therefore can make use of modern boilers for heating (>90% heating efficiency), and the Council and some organisations (including the Macaulay Institute) have installed combined heat and power (CHP) in appropriate buildings.

Aberdeenshire households do not have access to mains gas and therefore rural heating supplies are either oil, wood or electricity or a combination of these. This means that, unlike in Aberdeen City and environs, they are unable to install and run efficient (90% and higher thermal efficiency) modern gas boilers from the mains gas network. Any initiatives to improve efficiencies in rural areas are restricted to a move to renewable sources of heat.

In 2004 Aberdeenshire Council commissioned their Renewable Energy Strategy⁴⁹ which has led to further proposals and developments for on and offshore wind farms, local hydro-electricity, biomass and energy from waste. Many such initiatives are aided by the Aberdeen Renewable Energy Group (AREG)⁵⁰ which was established in 2001 and funded via the City and Shire Councils. It helps to coordinate renewable energy initiatives in North-east Scotland and ongoing projects include the use of biomass, wind, solar, hydro and geothermal technologies.

⁴⁸ [http://www.aberdeenshire.gov.uk/statistics/census/Council%20Areas%20\(Scotland\)%20KS18.pdf](http://www.aberdeenshire.gov.uk/statistics/census/Council%20Areas%20(Scotland)%20KS18.pdf)

⁴⁹ http://www.aberdeenshire.gov.uk/green/renewable_energy2.pdf

⁵⁰ <http://www.aberdeenrenewables.com/>

Aberdeenshire Council sees wood fuel, particularly pellets, as being a key source of affordable heating in areas without access to mains gas and a major weapon in combating fuel poverty. Since 2007, over 5 Megawatts of biomass boiler installations have been commissioned and two wood pellet production plants entered production in 2008. The council also has 200 Megawatts of onshore wind power with planning consent and some 70 Megawatts in production. Across Aberdeenshire there are some 600 old water mill sites, many of which offer the potential for small scale hydro electricity generation and this is being explored by the Council and some community groups. In addition there are several old turbine sites that have generated electricity in the past and have the potential to be re-commissioned. A recent example of this exists on the River Don where a modern Archimedes screw has been installed generating 70kW, making use of infrastructure that has been in place for over 50 years.

In 2006 Aberdeenshire's Infrastructure Services Committee approved the use of supplementary planning guidance on renewable energy facilities. It provides clear and concise information to potential applicants on whether planning permission or other consents are required for small-scale renewable energy developments. It covers a mix of technologies including small-scale biomass and wind energy developments, solar panels, air and ground heat pumps, solar water heating, fuel cells and small scale hydro-electric.

2.3. Settlements and administrative structure: the differences between rural and urban areas relating to energy demand.

2.3.1. Settlements

As can be seen from the map the main settlements are located near Aberdeen. Other coastal settlements will often have had a link to the fishing industry (particularly Peterhead and Fraserburgh further north). The area covered by Aberdeen and Aberdeenshire thus ranges from highly urban, to remote rural.

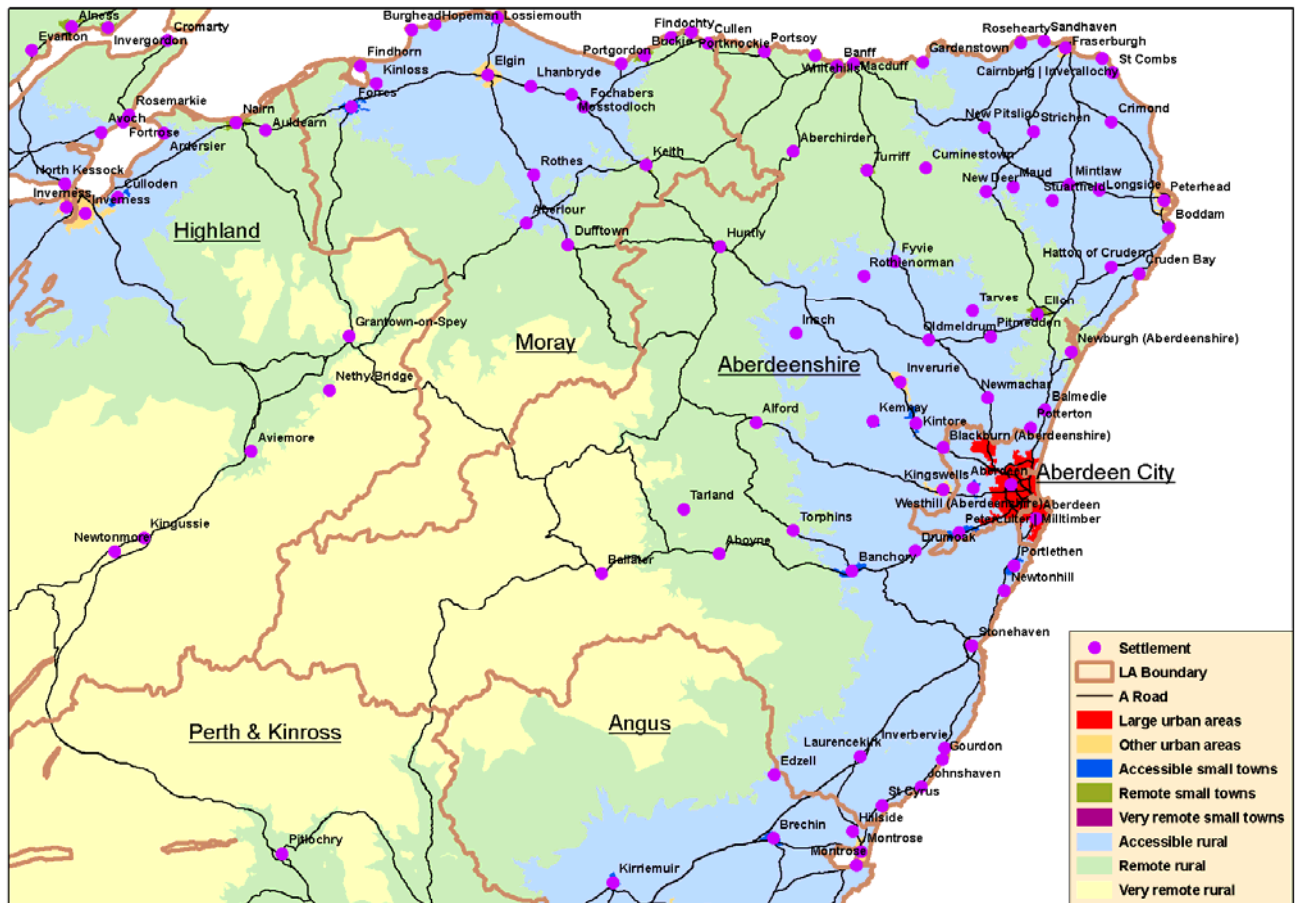


Figure 1. Map of North east Scotland showing Local Authority boundaries, main roads, major settlements and urban – rural classification (see table below). Settlements shown are all greater than 3000 inhabitants.

Scottish Government Urban Rural Classification	
1 Large Urban Areas	Settlements of over 125,000 people.
2 Other Urban Areas	Settlements of 10,000 to 125,000 people.
3 Accessible Small Towns	Settlements of between 3,000 and 10,000 people and within 30 minutes drive of a settlement of 10,000 or more.
4 Remote Small Towns*	Settlements of between 3,000 and 10,000 people and with a drive time of between 30 and 60 minutes to a settlement of 10,000 or more.
5 Very Remote Small Towns	Settlements of between 3,000 and 10,000 people and with a drive time of over 60 minutes to a settlement of 10,000 or more.
6 Accessible Rural	Settlements of less than 3,000 people and within 30 minutes drive of a settlement of 10,000 or more.
7 Remote Rural*	Settlements of less than 3,000 people and with a drive time of between 30 and 60 minutes to a settlement of 10,000 or more.
8 Very Remote Rural	Settlements of less than 3,000 people and with a drive time of over 60 minutes to a settlement of 10,000 or more.

2.3.2 Administration

In the past 40 years the North East of Scotland has undergone two boundary changes, with the county of Aberdeen being redefined in 1975 to be replaced by a regional council consisting of 5 district councils. In 1996 these were absorbed into Aberdeenshire Council, and Aberdeen City Council was created at this time. This was part of national level shift from the previous two tier (region and district) structure⁵¹ to a system of 32 local government areas which are further subdivided into 'unitary regions'.

Elections for both Aberdeen City and Aberdeenshire councils are by public ballot every 4 years. Local governments are elected by 'single transferable vote' (STV), which means that residents vote for individual council members (who belong to identified political parties), through a list of preferences. The vote is allocated initially to the elector's most preferred candidate, and subsequently to their next preferred in the event that the first choice has been elected or eliminated. This system represents a form of proportional representation. Both councils have leaders elected from and by the local councillors, with the City also having as convenor a Lord Provost (equivalent to a Mayor) and Aberdeenshire, a Provost: these individuals act as figureheads for the administrations.

Aberdeenshire Administration

Aberdeenshire Council has 68 councillors across its 19 multi-member wards (areas represented by councillors).

Currently there are:

21 Liberal Democrat;

20 Scottish National Party (SNP);

13 Conservative;

10 Independent;

2 Democratic Independent Group (Scottish Green Party members);

1 Democratic Independent Group (Scottish Liberal Democrat member);

1 Democratic Independent Group (no party).

The council is divided into eight service departments across six geographical areas. The Council works with the communities in each area to prepare Area Plans which reflect local needs and these provide input for the Council's policies and programmes. Area Committees are responsible for local development grants of various kinds. To ensure that the six areas do not become separate 'mini Councils' every elected Member is a member of an Area Committee and sits on corporate policy committees, and each Area Manager is a member of the Council's Senior Management Team. Area Committees are therefore able to influence central policy making within the context of local grass roots requirements. The areas are: Banff and Buchan; Buchan; Formartine; Garioch; Kincardine and Mearns and Marr. The services areas within the Council are: Chief Executive; Education, Learning and Leisure; Finance; Housing and Social Work; Law and Administration; Personnel; Planning and Environmental Services and Transportation and Infrastructure.

⁵¹ For further information see http://en.wikipedia.org/wiki/Regions_and_districts_of_Scotland" \o "Regions and districts of Scotland.

The transportation and Infrastructure service has five primary functions: economic development, property, operations, roads and transportation. The council undertakes road maintenance, but large-scale road up-grades or new routes are under the jurisdiction of the Scottish Parliament. Public transport is provided by private providers, but monitored and in some case subsidised by the council.

Aberdeen City Administration

Aberdeen City Council has 43 councillors across its 13 multi-member wards. From May 2003 until May 2007 the City council was run by a coalition of Liberal Democrat and Conservative councillors. Following the May 2007 elections the Liberal Democrats formed a new coalition with the Scottish National Party (SNP). Fifteen Liberal Democrat, 13 SNP, 10 Labour, 4 Conservative councillors and a single independent councillor make up the current council.

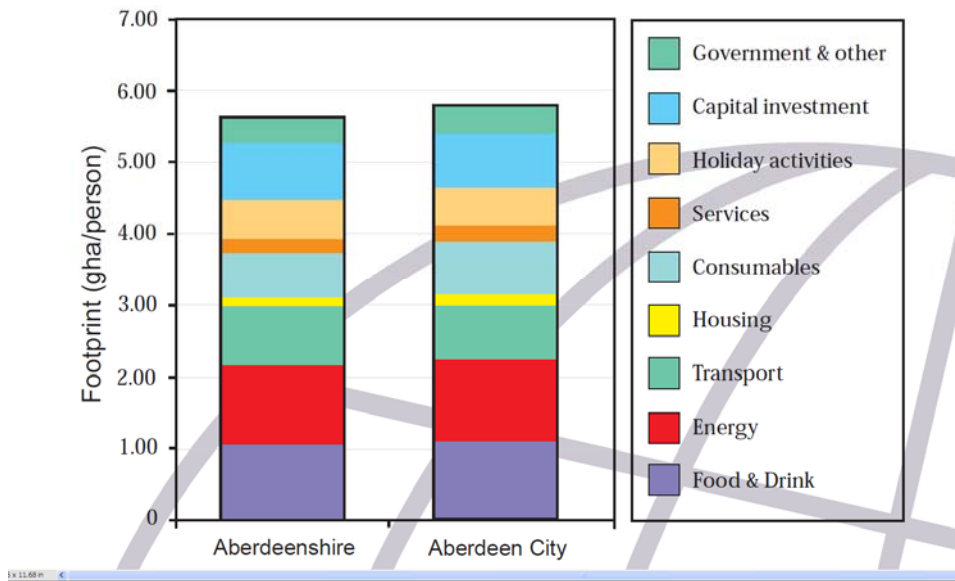
Aberdeen City Council is organised into a corporate management team, with directors responsible for: Neighbourhood Services (North Area; South Area; Central Area); Continuous Improvement; Resources Management; Strategic Leadership. The city council owns over 23,500 houses or flats which it maintains and rents out.

2.4. Consumption and transport of households

Aberdeen and Aberdeenshire councils recently collaborated with WWF Scotland on a global footprint study⁵². The global footprinting tool allows the measurement of the area in ‘global hectares’ of land and sea used by every individual in the region studied to provide water, energy, food and materials and absorb waste to support their lifestyle. While it does not focus solely on energy consumption the report reflects a commitment by Aberdeen and Aberdeenshire councils to make evidence-based policy decisions for sustainable development. The report for Aberdeen and Aberdeenshire suggests that energy consumption patterns are remarkably similar in urban and rural areas.

⁵² <http://www.aberdeenshire.gov.uk/green/footprint.asp>

Figure 2: Global Footprint by Sector for Aberdeen and Aberdeenshire⁵³

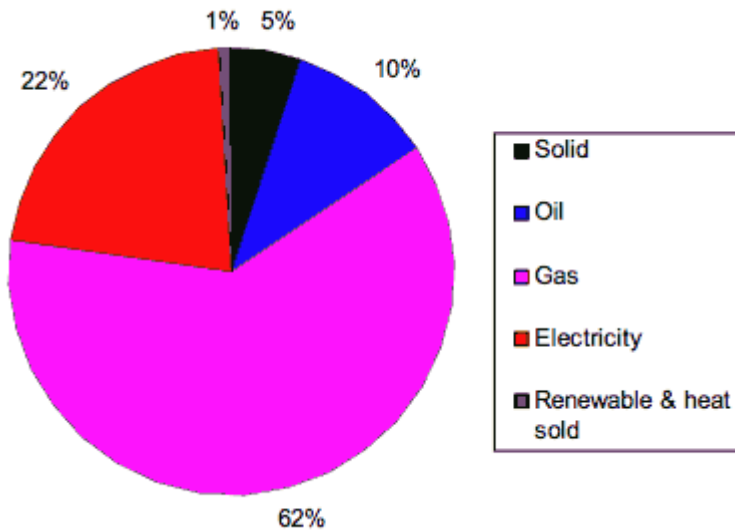


Findings in the report indicate that north east Scotland’s Global footprint is higher than that for Scotland overall (5.37 global ha (gha) per person). Aberdeen city’s is 5.80 and Aberdeenshire’s is 5.64. This compares poorly with a global capacity of 1.9 gha per person and indicates that current consumption patterns greatly exceed global capacity.

The footprint report states that energy consumption is the largest contributor to North East Scotland’s Global Footprint. 20% of Aberdeen City’s contribution (1.14 gha/person) and 19% of Aberdeenshire’s (1.09 gha/person) comes from energy consumption associated with domestic fuels, mainly gas and oil (heating) and electricity. With the inclusion of housing, the built environment and energy accounts for a footprint of 1.31 gha/person (23%) in Aberdeen City and 1.22 gha/person (21%) in Aberdeenshire (p. 5).

⁵³ Source: North East Scotland Global Footprint Reduction Report 2005:
<http://www.aberdeenshire.gov.uk/green/NorthEastScotlandGlobalFootprintReductionReport.pdf>

Figure 3: Scottish domestic sector energy split



Food and drink are also important to the Global Footprint of North East Scotland with Aberdeen City’s footprint at 1.07 gha/person (19%) and 1.11 gha/person (20%) for Aberdeenshire. These figures include food and drink purchased for home consumption and eating establishments. The Council lacks influence in the food and drink sector and they do not consider emission reduction options in their strategies. If there are any projects looking at reducing food miles etc, then these are not well publicised although there may be some in early stages of development.

Transport is also significant with Aberdeenshire’s Global Footprint at 0.81 gha/person (14%) and Aberdeen City’s at 0.74 gha/person (13%). Transport includes impacts associated with purchasing and maintaining private vehicles and public transport services.

The most recent census (2001) reveals the difference in household make-up in the city and the surrounding shire⁵⁴.

Table 3: Household occupancy and car ownership data for Aberdeen City and Aberdeenshire from 2001 census.

Household Occupancy	Aberdeenshire	Aberdeen City	Scotland
1 Person	25.3%	37.6%	32.9%
2+ Persons and No Dependent Children	42.4%	39.3%	39.0%
2+ Persons and Dependent Children	27.9%	17.7%	21.3%
Lone Parent and Dependent Children	4.4%	5.5%	6.9%
Lone Pensioner	12.9%	13.4%	15.0%
All Pensioners	22.1%	21.3%	23.5%

⁵⁴ <http://www.aberdeenshire.gov.uk/statistics/census/profile2001.asp>

Total households	90736	97013	
Car ownership			
Amount	Aberdeenshire	Aberdeen City	Scotland
No Car	17.9%	33.8%	34.2%
1 Car	44.9%	45.5%	43.4%
2+ Cars	37.3%	20.7%	22.4%

No data is collected relating to energy use in different types of households in the region. Future research may well fill this gap and in the meantime one of the tools used by Aberdeen City Council in both its internal decision-making, and also its citizen information provision is a detailed thermal image of the city taken in 2001 which allows poorly insulated buildings to be identified⁵⁵. The council is investigating funding for a new image to identify developments since that time.

3. Description of the governance structure of the study area

3.1. Overall description of the governance structure in the case-study area: actors in planning, decision-making and implementation.

Aberdeen City and Aberdeenshire residents are subject to multiple levels of governance (i.e. local, Scotland, UK and Europe).

Scotland is represented in Europe by six Members of the European Parliament (MEPs). Aberdeen and Aberdeenshire are represented at UK level by 5 Members of Parliament (MPs), (reflecting two constituencies within the city, a constituency which covers part of both regions, and two within Aberdeenshire).

The Scottish parliament is elected by a mixed member proportional system: there are 73 single-member constituencies, for which each voter has a single vote and the candidate with most votes is elected; and 56 regional seats (eight regions with seven seats each), for which voters vote for a party rather than an individual, and seats are allocated so the total number of MSPs per party is roughly proportional to this party vote. There are three constituencies in Aberdeen City and three in Aberdeenshire. The North East Scotland electoral region (which includes Aberdeen City, Aberdeenshire, and Angus) is represented by a further seven regional Members of Scottish Parliament (MSPs). Alex Salmond, the current First Minister of the Scottish Executive is the MSP for Gordon constituency in Aberdeenshire.

Scottish Government

The UK national government devolved considerable powers to a distinct Scottish Parliament and Executive (now known as the Scottish Government) in 1999. The Scottish Parliament is responsible for most

⁵⁵ http://www.aberdeencity.gov.uk/HousingAdvice/hoa_hes/hoa_HomeEnergySaving.asp

domestic issues including health, education, justice, rural affairs and transport. It was responsible for a budget of more than £30 billion in 2007-2008⁵⁶. The Scottish Executive was established in 1999 following the first elections to the Scottish Parliament (see [Appendix A](#)). The current administration was formed after elections in May 2007. The Scottish Government is led by a First Minister who is nominated by the Parliament and in turn appoints the other Scottish Ministers who make up the Cabinet. Civil servants in Scotland are accountable to Scottish Ministers, who are themselves accountable to the Scottish Parliament.

Devolved issues⁵⁷ of relevance to GILDED are:

- local government;
- housing;
- planning;
- some aspects of transport, including the Scottish road network, bus policy and ports and harbours;
- the environment;
- statistics, public registers and records.

The Scottish Government has a range of directorates responsible for ensuring progress is made on five core strategic objectives, aimed at making Scotland:

- Wealthier and Fairer (economy etc.);
- Healthier (nutrition, fitness and health etc.);
- Safer and Stronger (policing, anti-terrorism etc.);
- Smarter (education etc.);
- Greener (environment, conservation, climate change etc.).

Supporting these directorates is a range of corporate services and professional groups including:

Transport,

Built Environment,

Housing and Regeneration,

Enterprise, Energy and Tourism,

Climate Change and Water Industry,

Environmental quality,

Greener Scotland,

Rural.

The Transport Directorate works closely with Transport Scotland to deliver Scottish Ministers' transport policies. The Directorate is responsible for the development of the National Transport Strategy, transport legislation, and policy development on issues such as road user charging, sustainable transport and accessibility; local roads, bus, ferries, ports, aviation, cycling, walking, road safety and rural transport; as well as relations

⁵⁶ Source: http://www.opsi.gov.uk/acts/acts1998/ukpga_19980046_en_1

⁵⁷ Source: <http://www.scotland.gov.uk/About/18060/11552/Q/editmode/on/forceupdate/on>

with the freight industry, British Waterways, the Department for Transport and the newly-created Regional Transport Partnerships.

Transport Scotland is responsible for helping to deliver the Government's £3 billion capital investment programme over the next decade, overseeing the safe and efficient running of Scotland's trunk roads and the rail network and establishing and running a national scheme for concessionary travel. It works in partnership with private sector transport operators, local authorities and government. It also works closely with seven RTPs which take a strategic view of the transport needs of people and businesses in their region. The North East of Scotland Transport Partnership (NESTRANS) has played this role for Aberdeen City and Aberdeenshire local authority areas since 2005.

The Directorate for the Built Environment deals with policy, legislation and casework on the land use planning and building construction systems in Scotland. It issues guidance and advice to local authorities on the operation of these systems.

The planning system plays an important role in shaping and protecting the quality of towns, cities and countryside. Planning is essentially a local service and is run by the 32 councils and 2 national park authorities. The Government's Planning divisions are responsible for:

- monitoring the operation of the planning system, including the preparation and review of legislation;
- planning policy, including the National Planning Framework and the Scottish Planning Policy series;
- advice on best practice, in particular Planning Advice Notes;
- casework, including structure plans, notified applications and recalled appeals;
- research.

The Housing and Regeneration Directorate aims to deliver good quality, sustainable and affordable housing, with appropriate housing management and support services. Its primary targets are that:

- people live in good physical environments and have ready access to services and amenities;
- communities are socially cohesive and tolerant;
- people in Scotland's communities maximise their economic and educational potential;
- communities are resilient and have strong networks that support individuals to take responsibility for their wellbeing;
- people are safe from crime, disorder and danger.

Its work is divided between six divisions:

- Housing Markets and Supply,
- Housing Investment,
- Social Housing,
- Regeneration,
- Communities Analytical Services,
- Housing Access and Support.

The Directorate for Business, Enterprise and Energy covers direct assistance to business for investment and job creation, support for innovation, European Structural Funds, policy for industry sectors such as energy, telecoms, construction, textiles, financial services, life sciences and electronics, relations with the UK government on reserved matters, and relations with the business community and trade unions. As such, it deals with industry rather than households.

The Directorate for Climate Change and Water Industry is responsible for advising Scottish Ministers on climate change policy in Scotland. It is committed to raising public awareness of climate change; mainstreaming climate thinking into key policy areas within the Government; working closely with stakeholders; improving understanding of climate change and its impacts.

The Greener Scotland Directorate works with Ministers, the whole of the Scottish Government, delivery partners and other stakeholders to drive delivery of a 'Greener Scotland - where Scotland's natural and built environment and the sustainable use and enjoyment of it is improved'⁵⁸. The Directorate is tasked with turning the 'Greener' Strategic Objective into a number of ambitious, high-impact, cross-portfolio programmes, which lead to integrated, practical and deliverable action by central and local government, the National Health Service, business and partner agencies and the Voluntary Sector. These programmes will be underpinned by enabling programmes on communications, learning capacity building and leadership.

The Rural Directorate aims to promote development in rural areas and empower communities so that their particular views and circumstances are reflected in government policies and priorities. In particular it manages the transition of European subsidies for production to broader-based rural development with the aim of promoting competitive farming businesses, well managed and maintained rural landscapes, flourishing biodiversity and thriving rural communities.

UK Government

There are currently 72 members in the UK Parliament representing constituencies in Scotland. The UK parliament may also legislate on devolved matters in Scotland, but in accordance with the Sewel Convention⁵⁹, a principle has been adopted whereby "The UK Parliament will not normally legislate in relation to devolved matters in Scotland without the agreement of the Scottish Parliament". The UK Government retains the right to legislate on reserved issues (those not devolved in 1999), including two of relevance to climate change mitigation:

- energy: electricity, coal, gas and nuclear energy;
- some aspects of transport, including railways, transport safety and regulation.

The UK government created the Department of Energy and Climate Change (DECC) in October 2008 to address energy issues and develop climate change mitigation policies. These responsibilities were previously split between the Department for Business, Innovation and Skills, and the Department for Environment, Food and Rural Affairs. This new department has several stated objectives: to ensure that energy is secure, affordable

⁵⁸ <http://www.scotland.gov.uk/Topics/Environment/SustainableDevelopment/7377>

⁵⁹ <http://www.parliament.uk/commons/lib/research/briefings/snpc-02084.pdf>

and efficient; to bring about the transition to a low-carbon Britain; and to achieve an international agreement on climate change⁶⁰. Initial proposals for achieving this are set out in “The UK Low Carbon Transition Plan”⁶¹ which describes how the UK will meet the 34 percent cut in emissions on 1990 levels by 2020. It states that the UK has reduced these emissions by 21 percent up to 2009. There is ongoing debate about the development of carbon capture and storage, in particular from coal fired power stations.

DECC oversees both the implementation of the UK Energy Act 2008 which relates primarily to energy supply, and the UK Climate Change Act 2008. It is also responsible for the Community Energy Savings Programme (CESP)⁶² which seeks partnerships with utility suppliers or generators to provide costly energy efficiency measures e.g. external cladding, not just loft and cavity wall insulation. The energy suppliers must hit carbon reduction targets or face fines imposed by DECC.

The Department for Environment, Food and Rural Affairs⁶³ (DEFRA) has some overlap with DECC, and its priorities include addressing environmental risks, promoting a sustainable, low-carbon and resource-efficient economy and maintaining a sustainable, healthy and secure food supply. The Energy Efficiency Commitment (EEC) was an obligation on fuel suppliers to deliver energy efficiency improvements in housing and offered householders the opportunity to install these at a reduced cost. However the EEC has been superseded by the Carbon Emissions Reduction Target (CERT) through the Electricity and Gas (Carbon Emissions Reduction) Order. CERT began in April 2008 and is the UK Government’s main household sector energy and carbon saving scheme, obliging energy suppliers to meet ambitious carbon saving targets over a 3 year (to March 2011) period. They are able to do this by promoting, with the help of Government subsidy, the take-up of energy saving measures including loft and cavity wall insulation and efficient electrical goods.

Scottish policy in relation to climate change

The national level targets for CO₂ emission reduction recently set by the Scottish Parliament (Climate Change Bill 2009) are ambitious and as yet not closely tied to legislation to stimulate this. However, many local authorities, including both Aberdeenshire and Aberdeen City are already committed to achieving the targets within their organisational remits, and to some degree engaging with wider processes in the region. The three main policies related directly to climate change (mitigation and adaptation) and several policy lead initiatives, are outlined below.

Climate Change Bill 2009

The Scottish Government published the Climate Change (Scotland) Bill⁶⁴ in December 2008. The Bill was developed following a public consultation which received over 21,000 responses and constitutes a key commitment by the Scottish Government and one which is seen as progressive and ambitious. The resulting Climate Change (Scotland) Act, 2009 creates a long-term framework that will:

⁶⁰ Source: <http://www.decc.gov.uk/en/content/cms/about/about.aspx>

⁶¹ http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx

⁶² <http://www.decc.gov.uk/en/content/cms/consultations/open/cesp/cesp.aspx>

⁶³ <http://www.defra.gov.uk/corporate/index.htm>

⁶⁴ <http://www.scottish.parliament.uk/s3/bills/17-ClimateChange/index.htm>

- introduce a statutory target to reduce Scotland's greenhouse gas emissions by 80 per cent by 2050;
- establish an interim target of 50% emissions reductions by 2030;
- establish a framework of annual targets; and
- include emissions from international aviation and international shipping.

This framework aims to build a sustainable future for Scotland by moving both the public and private sectors towards a low carbon economy within the context of “sustainable economic growth”.

The Parliamentary debate on the Climate Change Bill in June 2009 resulted in the setting of interim targets of a 42% reduction in CO₂ emissions by 2020 in order to promote early progress towards Scotland’s 80% reduction by 2050. A Scottish Government project is considering how, and when, carbon emission reductions might be achieved within these timeframes. At the same time a system of carbon assessment is being developed to allow spending decisions across government to take into account the carbon impact of policy options.

A key component of Scotland's action is targeting of emissions from large business and public sector organisations including local authorities, retailers and central government. While emissions trading is a devolved matter, the Scottish Government had supported the creation of a single approach operating across the UK.

Scotland’s Climate Change Programme⁶⁵ was published in 2006 and set out the policies being pursued at that time to reduce emissions and adapt to climate change.

Scotland’s Climate Change Adaptation Framework

Scotland's Climate Change Adaptation Framework⁶⁶ sets out strategic principles for use in planning in a changing climate, and claims to provide decision-makers with a consistent approach and guidance for doing so. This framework will be adaptive and able to reflect changing priorities for climate change adaptation.

Environmental Information (Scotland) Regulations 2004

The Environmental Information (Scotland) Regulations 2004 came into force on 1 January 2005. Every Scottish public authority now has a duty to make environmental information available on request. This includes information in visual, written, taped or database form on:

- the state of the ‘elements of the environment’ (e.g. soil, air etc.) and the interactions that take place between them;
- any factor likely to affect the state of the elements, environment and interactions between the elements;
- activities and measures affecting, or potentially likely to affect the environment or interactions between elements of the environment
- reports on environmental legislation;
- environmental decision making processes, including cost-benefit analysis or economic analysis;

⁶⁵ <http://www.scotland.gov.uk/Publications/2006/03/30091039/0>

⁶⁶ <http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/adaptation/AdaptaitonFramework>

- the condition of human life, the state of human health and safety, cultural sites and buildings, where they relate to the elements of the environment and the interaction between them.

Home Energy Conservation Act (HECA)

The Home Energy Conservation Act (HECA) 1995 is designed to increase the attention of local authorities on the energy efficiency of all residential accommodation, and to develop an integrated approach to their energy efficiency strategies. It required every local authority with housing responsibilities to prepare, publish and submit an Energy Conservation Report to the Secretary of State. Such reports:

- identify practical and cost effective measures to significantly improve the energy efficiency of all residential accommodation in their area; and
- report on the progress made by implementing the measures.

Energy Conservation Reports include the cost of carrying out the works identified and the CO₂ savings expected and may also include:

- the potential savings in both nitrogen oxides and sulphur oxides;
- the number of jobs that will be created;
- the average savings on fuel bills;
- any other factors considered appropriate.

HECA has a number of potential benefits, including:

- significant reductions in CO₂ emissions;
- the creation of a national energy efficiency database that will contain accurate data on both public and private housing;
- an integration of energy conservation into local government strategies such as funding, sustainable housing renewal and environmental duties;
- strategic plans for improving UK housing including the cost, measures and potential savings.

With the introduction of HECA all Councils in Scotland were made Energy Conservation Authorities. The Act required each Authority to prepare a strategy in 1997 setting out measures that would lead to significant improvements in energy efficiency in residential accommodation across all sectors of the housing stock in their area. Each Authority had also to set a local target for reducing energy consumption in the residential sector over a 10 year period from 1997.

Central Energy Efficiency Fund (CEEF)⁶⁷

The Central Energy Efficiency Fund (CEEF) is a revolving loan fund set up in 2002 by the Scottish Government. £20 million was allocated to the fund to implement energy efficiency measures that would reduce carbon emissions across the public sector in Scotland. CEEF allocated £15 million to the 32 local authorities in Scotland, £4 million to the NHS trusts and £1 million to Scottish Water. The scheme has since been extended to provide £4 million to Higher Education. Each local authority was allocated a proportion of this £15 million

⁶⁷ <http://www.energy-efficiency.org/ceef/21.html>

based upon a combination of the population in their city/region and their geographical area with Aberdeenshire Council receiving £634,883. The individual local authorities are responsible for managing their own CEEF allocation and identifying potential capital projects. Funding is restricted to capital projects; but up to 10% of the fund can be used each year to cover running costs. To be eligible for CEEF funding, projects must use specific energy saving technologies and these must meet a five-year payback criterion. From 2008 renewable energy technologies can also be included in projects so long as the criteria are met.

CEEF also acts as a link to initiatives and good practice advice in conjunction with other groups such as:

- the Low Carbon Building Program – www.lowcarbonbuildings.org.uk;
- the Energy Saving Trust - www.energysavingtrust.org.uk/scotland;
- the Carbon Trust - www.carbontrust.co.uk.

The Scottish Government's Central Heating Programme began in October 2008 and provides grants for central heating, insulation and advice. It is available to households in the private sector who fall under certain criteria relating to age and quality of existing space heating arrangements.

A separate initiative, run by Scottish Gas, on behalf of the Scottish Government, is the “Warm Deal” which provides grants of up to £500 for insulation. This offers grants of up to £500 for a range of energy-saving measures including insulation, draught proofing, energy efficient light bulbs and energy advice.

Renewable Technology Grants

The Scottish executive Scottish Community and Householder Renewables Initiative (SCHRI) is funded by the Scottish Government and provides funding to householders and advice and funding to communities. The household stream is managed by the Energy Saving Trust and the community stream is jointly managed by the Energy Saving Trust and Community Energy Scotland⁶⁸. Through this a grant covering 30% of the cost up to a maximum of £4000 is available to owner-occupiers to install renewable technology in their home. The technologies available for funding are:

solar photovoltaic, micro hydro-electric, micro wind, solar water heating, solar space heating, automated wood fuel heating systems, heat pumps (ground, air and water source), connections to the certain District Heating Networks (not in Aberdeen City or Shire).

Regional Governance

The structure of Aberdeen and Aberdeenshire local governments was described in Section 2.1.2. This section addresses policies and projects specifically relevant to household energy consumption and climate change.

Aberdeenshire

Aberdeenshire Council's Scrutiny and Audit committee conducted an audit on the Council's response to Climate Change and the findings of this became available in March 2007. The report states that Aberdeenshire

⁶⁸ <http://www.communityenergyscotland.org.uk/>

Council seeks to be a carbon neutral organisation in the short to medium term (2020), and for the whole area of Aberdeenshire to be carbon neutral in the medium to long term (2030)⁶⁹. This shows a commitment by Aberdeenshire Council in terms of their own operation and that of the public and businesses operating within Aberdeenshire. The report also mentions Community Global Footprint Projects in two small towns (Ellon and Huntly), Sustainability Code for six priority regeneration areas in the City, and Aberdeenshire's Carbon Management Programme.

In working towards this aim the Sustainability Charter for the period of 2004-2007 has enabled a huge amount of work to progress which has essentially allowed the Council to measure where it is in terms of energy usage and carbon emissions. This data has been collected over this period in order to measure progress and the results can be seen in the annual reports.

All of Scotland's 32 local authorities signed up to the Scottish Climate Change Declaration (SCCD) in early 2007. This document carries a commitment to reduce carbon emissions, plan for adaptation to climate change impacts, and to do so in partnership with communities and other stakeholders. Progress is reported annually and Aberdeenshire Council currently uses the Sustainability Charter Annual Report and LACM programme to fulfil this. The Single Outcome Agreements between the Scottish Government and Local Authorities also requires annual reporting and with this in mind the formal reporting for the SCCD will have to be reviewed in order to eliminate double reporting.

Aberdeenshire Council has addressed a number of issues regarding the reduction of greenhouse gases via the Local Authority Carbon Management Plan (LACM)⁷⁰. This was completed in March 2007 and allowed staff from all services to be represented and to develop a plan for Aberdeenshire Council to reduce its emissions. The project looked at energy used in buildings, street lighting and council vehicles, and the quantity of waste which the council deals with from households. The project was enabled as a result of the commitments made in the Sustainability Charter 2004-2007 and provides baseline data against which to measure performance. It also enabled employees to meet together and brainstorm ideas which could facilitate the reduction of emissions.

The work of the Scrutiny and Audit Committee and the LACM was undertaken at the same time and although done independently of each other they came to similar conclusions. This meant that it was possible to consolidate the outputs both these projects into one document called the Climate Change Action Plan (CCAP)⁷¹.

Aberdeenshire Council has done and continues to do a lot of work in terms of reducing carbon emissions as a result of the services which it provides. Examples of such projects include the Aboyne Biomass Boiler (which provides heating for the school and community centre), the new energy efficient Auchenblae nursery which opened in 2008, installation of more efficient streetlighting and the use of support from the Central Energy Efficiency Fund (CEEF) to reduce emissions and energy usage across the Council's infrastructure. The

⁶⁹ Source: 'The Bigger Issue'.

⁷⁰ <http://www.aberdeenshire.gov.uk/green/LACMStrategyandImplementationPlan.pdf>

⁷¹ <http://www.aberdeenshire.gov.uk/green/ClimateChangeActionPlanJune08.pdf>

potential for similar projects in the future is outlined in a scoping report on renewable energy and energy reduction contained in the Council's Strategic Environmental Assessment⁷².

Aberdeenshire Council's Housing Department owns and maintains 12,973 houses for rent - approximately 13% of all housing in the area (as of the end January 2009). The number of Council houses has been reducing year on year due to the sale of council houses into the private sector. At the end of January 2009 there were 7,000 people on the waiting list for council housing and in 2007/08 applications from 1,587 homeless individuals or households were considered. The role of the housing department includes enabling development of affordable housing, liaising with other public sector bodies involved in housing, housing condition surveys and of particular relevance here, maintenance and upgrading of council housing.

Aberdeenshire Council is involved in seeking funding from many sources to engage in partnership initiatives including the UK government CESP (Community Energy Savings Programme) to work with NGOs (e.g. Save Cash Reduce Fuel (SCARF)) and the private sector energy suppliers (e.g. Scottish and Southern Energy).

Aberdeen City

Aberdeen City Council published their Local Agenda 21 Action Plan in 2001. It outlines a range of strategies and projects addressing particular sustainable development issues. These include climate change, procurement, fair trade, ecological footprinting, construction, waste, biodiversity and community awareness. The Aalborg Commitments to which the City Council signed up in 2004 were created as an action tool to reinforce and re-energise the Local Agenda 21 processes. The initial baseline report resulting from this was used in part as the basis for the Council's emerging Sustainable Development Strategy and to inform the direction of work in this area.

As a council officer stated during interview, Aberdeen is the coldest city in the UK with a high demand for heat. This does not have to mean a high demand for carbon, and since 1997 they have been reducing carbon emissions from across the domestic sector (public and private) without reducing comfort levels. Tackling the private sector is essential given that it constitutes 73% of the housing stock (23% of the stock is council owned, about 4% housing association, about 10% is private rented, the rest owner-occupied). These reductions were done in partnership with the local NGO, SCARF and were achieved by reducing demand and improving space and water heating efficiencies (e.g. installing Combined Heat and Power (CHP) schemes into large apartment blocks) and increasing insulation levels in homes, particularly via the Aberdeen Victorian Tenements Project. This project promotes and helps with grants, the installation of energy efficiency measures for such properties of all tenure types.

Aberdeen City Council set a HECA target of reducing the amount of domestic energy consumption in the City by 31% by 2007⁷³ and spent £77million between 1997 and 2007 in achieving this figure⁷⁴. However, the

⁷²

http://www.aberdeenshire.gov.uk/green/Scoping_Report-Aberdeenshire_Council_SPG_for_Renewable_Energy_and_Energy_Reduction.pdf

⁷³ http://www.aberdeencity.gov.uk/housingadvice/hoa_hes/hoa_home_energy_conservation_act.asp

council officer stated that “We have therefore done what I would call all the low hanging fruits; we have done the easy things.”

Council Tenants

There are approximately 25,000 council owned dwellings in Aberdeen City. Each year, the City Council carries out a major programme of energy efficiency works on these properties. The City Council provides needs-based energy efficiency work focussing on those properties with a low National Home Energy Rating (NHER) and carrying out whatever combination of insulation and/or heating upgrade measures is required to bring identified properties up to an NHER of at least 4.0 (on a scale of 0 (poor) -10 (excellent)). The NHER is a method of assessing the energy performance and fuel cost of a dwelling based on several parameters including details on occupancy, location and appliance use to give an accurate calculation of CO₂ emissions and running costs for a specific dwelling. The NHER rating is not a statutory requirement but is often used to provide baseline data prior to initiating housing efficiency projects.

Most energy efficiency work carried out on local authority stock is directly paid for by the Council. Additional funding for energy saving work on council housing has been agreed from external sources including Transco's Affordable Warmth Scheme (Transco manage national gas distribution), which has allowed the replacement of approximately 3600 old and inefficient heating systems, in addition to the programme of replacements included in the normal capital programme.

Aberdeen City has 59 multistorey flats totaling 4,500 dwellings and all had an NHER of between 3 and 4. An options appraisal was carried out to identify the best approach to improving their status and Combined Heat and Power (CHP) was selected. CHP has been shown to provide both electricity and a district heating system which is safe, has affordable running costs, and considerably reduces the CO₂ emissions from these properties. However while the life cycle costs reflect the high efficiency of such systems, the capital costs for installation were very high. This was in part due to high business rates imposed on the installation of capital infrastructure. In response to this, the Council set up an independent, not-for-profit company (Aberdeen Heat & Power Co. Ltd.) with the expertise to develop and manage district CHP schemes for clusters of Council owned multi-storey flats, the first of which was concluded in 2004 with the help of a grant from the Scottish Government's Community Energy Programme to cover some of the capital costs. To date the Council has 14 of the 59 blocks on CHP distribution schemes with seven public buildings linked in to these.

A local Member of the Scottish Parliament (MSP) has since worked with the Association for Conservation of Energy and Aberdeen Heat and Power Ltd and put an amendment into the Climate Change (Scotland) Bill which means that Local Authorities in Scotland will no longer be charged business rates on CHP installation for domestic properties. This represents the removal of a (£50,000 / year) financial disincentive.

⁷⁴ <http://www.aberdeencity.gov.uk/nmsruntime/saveasdialog.asp?IID=13772&SID=969>

Transport Policy

Transport sector strategy in the North East of Scotland is overseen by NESTRANS⁷⁵, a body funded by both councils with the role of coordinating and implementing local transport policy and initiatives and linking these with the national transport network. Nestrans was originally a voluntary Regional Transport Partnership between the City and the Shire.

Aberdeen City Council calculates that 40% of car journeys within the city are a result of those driving in from Aberdeenshire. There is a perception that despite NESTRANS the transport strategies of the two councils are not as coordinated as they might be, and some factors are beyond their control (e.g. Scottish Government influence over major planning decisions relating to major road, rail and airport developments). The City considers itself good at information sharing with the Shire because traffic from the Shire is an issue within the City, while the Shire does not perceive City transport having a direct effect on it. Part of the reason for an imbalance in transport strategy relates to land availability, with Aberdeen City quite tightly controlling its land allocation policies whilst perhaps not fully considering what the impacts are going to be on the transport network. Aberdeenshire has allowed business and housing development to concentrate just beyond the City boundary, leading to congestion problems because of the lack of coordinated planning and prediction of the impacts on the existing transport corridors.

In March 2008 Aberdeen City Council's Local Transport Strategy (2008-2012) was approved outlining the policies and interventions Aberdeen City would adopt to guide the planning and improvement of the local transport network over the next five years.

The LTS includes five high level aims, as follows:

1. support and contribute to a thriving economy for Aberdeen City and its region;
2. ensure a safe and secure transport system;
3. minimise the environmental impact of transport on the community and the wider world;
4. ensure that the transport system is integrated and accessible to all;
5. ensure that transport policies integrate with and support sustainable development, health and social inclusion policies.

The transport strategy includes a cycling strategy and seeks to reduce car dependency. This however conflicts with some of the approaches to support the local economy such as increasing airport facilities and building a new dual carriageway by-pass. Provision of bus services is included, however the council has relatively little influence over the private companies that run these, so this concentrates on providing supportive infrastructure such as the provision of “park and ride” facilities (2 of which are in place to the north and west of the city).

⁷⁵ <http://www.nestrans.org.uk/>)

Aberdeen Renewable Energy Group⁷⁶ (AREG)

AREG is an innovative private-public partnership set up by both Aberdeen City and Aberdeenshire councils to help identify and promote renewable energy opportunities for businesses in the region. The current Chief Executive Officer of AREG is seconded from Aberdeen City Council. They involve nearly 100 members across a diverse range of sectors who are actively involved in different renewable energy projects. These include engineering and energy businesses, professional consultants, research institutes and economic development agencies.

Government Funded Bodies

There are a number of government funded bodies working to effect change in energy consumption across Scotland.

National

Sustainable Scotland Network (SNN)

The SSN is a network of sustainable development officers and advocates from Scottish local authorities. At the Network's core is a small development team, funded by the Scottish Government, and hosted by Keep Scotland Beautiful (the operating name of Environmental Campaigns (Scotland)). SSN exists to improve local governments' contribution to achieving a sustainable Scotland. It aims to support the delivery of the Scottish Government's Sustainable Development programme and the Scottish Government's Climate Change programme.

The Energy Savings Trust

The Energy Saving Trust⁷⁷ is funded by the Scottish Government and operates five advice centres across Scotland with close working relationships with local authorities, housing associations and the voluntary sector. It has links with a number of initiatives and bodies, including the Scottish Community Renewables Network, Community Action for Energy, and SCARF (in Aberdeen City and Shire). This is part of a wider network of 21 centres throughout the UK. The advice network aims to help 250,000 consumers take action to save energy every year.

Climate Challenge Fund (CCF)

The CCF is a Scottish Government source of competitive funding for community partnership projects, initiated in 2008⁷⁸. The CCF gives communities, through individual community groups and community planning partners, the ability to implement actions to reduce their carbon emissions.

The CCF has total available resource of £27.4 million over the three years 2008-11, with five rounds of funding allocated by September 2009. £8.8 million was available in 2008-09, £9.3 million will be spent in 2009-

⁷⁶ <http://www.aberdeenrenewables.com>

⁷⁷ <http://www.energysavingtrust.org.uk/scotland>

⁷⁸ <http://www.scotland.gov.uk/Topics/Environment/SustainableDevelopment/ClimateChallengeFund>

10 and, subject to parliamentary approval, £9.3 million will be spent in 2010-11. To date 150 communities across Scotland have received funding from 517 formal expressions of interest from community groups, so demand is high.

To be eligible a community group must be the lead player in a project, and projects must include a measurable and significant reduction in carbon emissions, with a positive lasting legacy beyond the three years of the funding programme. This requirement for community leadership, rather than enlisting the help of an experienced project officer or consultant, means that some potentially beneficial projects are not funded because of a lack of experience in proposal writing, or restricted access to the information required for putting together a convincing project proposal.

Regional

Both of the Local Authorities work with other agencies in order to achieve their environmental policy objectives, and are often linked to work on social housing.

Save Cash Reduce Fuel (SCARF)

SCARF is a key NGO in the region which helps to identify and run projects on behalf of, or in partnership with the Councils. SCARF is a dynamic independent charity which began in 1984 as an urban aid project, with particular attention paid to fuel poverty. Whilst it has grown in terms of staff and geographical scope, it still follows its initial remit to provide free impartial advice and information to promote energy efficiency and renewable energy in the domestic, community and business sectors in the North East of Scotland. Climate change issues have only emerged as a serious driver of projects since about 2005 and this has provided further opportunities for gaining project funds and political backing for initiatives. SCARF now has projects elsewhere in Scotland and has secured the contract to operate Energy Saving Scotland Advice Centre North East from their offices in Aberdeen and Dundee. The Energy Saving Scotland Advice Centre network is funded by the Scottish Government and managed by the Energy Saving Trust.

Private consultancies

Many private environmental consultancies operate within the region, often with links to the oil industry, conservation or environmental impact assessments. Some of these work with local stakeholders, including the councils, on emission reduction initiatives. If funding for such initiatives increases (following the Scottish Climate Change Bill), then it can be assumed that more private consultancies will tender for such projects, perhaps introducing new skills and some competitiveness into the sector.

3.2. Progress state of government/governance change.

Rural Partnerships

Aberdeenshire has nine rural partnerships which are community led organisations supported by the Council with the aim of improving social, economic and environmental standards within these areas. One of our interviewees is a Rural Partnership leader and he summarised their role as:

“I see myself as potentially an advocate for communities but my role is to facilitate communities to represent themselves and to develop their own. Developing the sustainability for communities, sustainable development for communities... their economic, social, environmental sustainability is what we’re about and that involves community planning, and community engagement. It involves helping specific project groups with specific projects and that might be with advice on funding, assistance with governance, organisational frameworks, management, that sort of thing.”

Public / private partnerships

The North East Scotland Climate Change Partnership (NESCCP) was formed following the 2007 Aberdeenshire Council Scrutiny and Audit Committee report on climate change (The Bigger Issue), which recommended dialogue between local partners and was launched in spring 2008 at the All Energy Conference in Aberdeen. This involved Aberdeen City Council, Aberdeenshire and Moray Councils, National Health Service (Grampian), other north-east public sector organisations, universities and representatives of the private business community signing their climate change declaration. The Aberdeenshire councillor who we interviewed for GILDED had chaired this committee through discussions of its role and its remit is to ensure that “the north-east of Scotland works together to address the implications of climate change, and its effects on the economy, environment and quality of life, now and in the future... a key role for the partnership will be to raise awareness of the opportunities, as well as the responsibilities, for all residents and organisations in the north-east in tackling the challenges presented by climate change.”

To this end the NESCCP convened a workshop of climate change experts in May 2009 to discuss how best to measure greenhouse gas emissions in North East Scotland. This “Greenhouse Gas Footprinting Workshop” was held at the Macaulay Land Use Research Institute and involved speakers from public, private and academic sources. The work to establish a reliable estimation procedure for carbon footprinting for North East Scotland continues so that councils and other public bodies can establish reliable baseline data to enable them to accurately measure reductions in carbon emissions.

Partnership working

Aberdeenshire Council’s Scrutiny and Audit Committee reported on Governance and Accountability in Partnership and Joint Working in 2005. This included reports from both internal and external witnesses and involved an independent expert in drawing up conclusions. The investigation found that the number and range of partnerships involving Councils has grown dramatically in recent years, in response to promotion by both the Scottish Executive and the UK government. The Committee concluded that partnership working has both costs and benefits, and is not necessarily a panacea.

Partnerships can exist in many forms, and at a variety of scales. They may begin as unstructured discussion groups and evolve into dealing with operational issues or applying for external funding. Partnerships can be classified as strategic, tactical or operational and different types of partnership have their own distinct governance and accountability issues. The advantages, disadvantages and risks associated with them must be assessed prior to formation of a partnership to try to ensure that advantages outweigh the disadvantages. The

Council was advised to arrange partnerships to minimise problems and risks, particularly in relation to accountability and governance. The benefits of partnerships involving Aberdeenshire Council were found to include:

- partnership working provides access to additional funding;
- partnerships may lead to increased public participation in local decision making;
- partnerships allow different agencies and organizations to coordinate work and avoid duplicating efforts;
- closer co-operation between service providers (including the City and Shire Councils) is beneficial to the public;
- the Council is able to secure benefits for Aberdeenshire through partnerships that it could not secure working alone;
- working in partnerships can help in developing open and trusting relationships between public sector bodies.

However, for a council to work with many partnerships across a range of issues creates complexity, risks a lack of transparency, requires clarity over accountability and places time demands on those involved. Of particular concern were issues relating to effective auditing and financial accounting.

While partnership working allows Councillors to engage in service delivery across the wider public sector, increased external influence might limit a Council's scope for policy change or reprioritising resources. This has potential to reduce the role of Councillors as strategic decision-makers and thereby the public's ability to effect change through voting in Council elections.

The report stresses that issues of governance and accountability must be considered before partnerships come to a decision, and the council must be satisfied with the conditions of any power delegated to the partnership. Formal partnerships must have a sound legal basis for their delegated powers.

Whilst several of the benefits of partnership working are generally accepted the report considered that it does not necessarily provide for improved public participation in decision making. It points out that the only legitimate representatives in partnerships are the councillors themselves (having been voted onto the council as local representatives) and asks if there is any need for claiming other 'public' representation.

A local NGO representative also believed that Local Authorities can and should take a lead, in particular by setting good examples through their public activities. However, this is not always perceived to be done and such views indicate the degree to which Local Authorities and the Scottish government need to lead by example, which may be one of the ways in which cultural norms may be influenced.

3.3. Environmental governance and energy use of households: actors and networks.

The mechanisms available to Local Authorities and NGOs such as SCARF to influence household energy use and carbon emissions differ between council and privately owned homes.

An example of a rural initiative (run by SCARF and Aberdeenshire Council) using funding for a preliminary study involved a direct mailing to a community of about 1200 houses in partnership with a local National Park Authority. The rationale for this was to identify feasible measures and to encourage installers to evaluate what actions might be taken and the costs of this. Results for this community, based on a 15% return rate on the survey, were that 65% of the properties (across both old and new-build) required loft insulation. This is true for many newly built homes because building regulations have changed. Aberdeenshire Council encourages private homes to have at least 200 millimetres of insulation in their lofts, while the council now have a standard of 300 millimetres for their own properties, meaning that they should satisfy future building regulations and bring forward emission reductions.

In rural areas where mains gas is not available SCARF runs community events to demonstrate the tools and options (e.g. air source heat pumps, thermal and PV solar panels, and thermal imaging camera technology) available as alternatives to electricity and open fires, and potential funding sources for these. SCARF as yet do not see themselves as telling people what they should be doing but as a source of information, delivered, where possible, in person. They also act to involve installers of insulation and renewable technologies in the communities and to facilitate the training of local installers.

SCARF has also identified private landlords as a hard to access group and has been active in informing them of funding sources that might persuade them to improve the energy efficiency of the properties that they lease, which tend to be rated poorly when compared to council owned or owner-occupied residences.

Council or partnership initiatives are able to make use of household data. For example if they are targeting cavity wall insulation they use customer segmentation information to identify those who actually have cavity walls, and who can afford to pay for it. They then carry out a direct mail to the people who live in those properties. This targeting is essential for keeping project costs down and focussing campaigns where they will provide maximum gain. For example, if they are promoting installation of renewable energy supplies they do not target the City which has access to natural gas, but rural areas where there is a reliance on less efficient fuel oil, and where take-up of renewable technologies is more likely.

Consumptions patterns & mechanisms for effecting change

Fuel poverty is a key driver of Local Authority initiatives and Carbon Emission Reduction Trading (CERT) might be used in regard to this. If funding could be found then home visit energy advisors could assist local energy NGOs in their activities. SCARF do not see themselves as indispensable but feel that it is important that new organisations and partnerships continue to develop and implement emission reduction tools. Such tools need to improve, particularly to address the fact that local experience has shown that individuals who adopt a mechanism to reduce emissions often then use this to justify additional consumption in another area of their behaviour (the “rebound effect”). For this reason, one of the experts interviewed changed the focus of their work from households to the local authorities who do not respond to carbon savings in one sector with increases elsewhere. It was also felt that a focus on helping poorer families improve fuel efficiency was beneficial for emission reduction because the money they save may be spent on essential items rather than additional emission intensive behaviour. Other mechanisms, such as carbon off-setting, allow people to feel that they are

contributing but in fact it is an easy way to continue with their unadjusted lifestyle. Whilst it will get harder to reduce emissions once the ‘easy wins’ are achieved, it was felt that that this could provide business opportunities, given the appropriate policy incentives.

The main issue that was perceived to block progress beyond what is possible via direct financial investment is the absence of levers for influencing the “minute by minute, day by day behaviour of people in their own home, or when they get in their car, etc”. This was seen to be for two reasons: 1) it is very difficult to change behaviours, and 2)

“in a free society, you really want some limits on that. We need people to make intelligent and informed choices but for themselves, and that’s one of the challenges of behaviour change. We have a very individualistic culture where people are not going to be told what to do by anyway.”

While recently privatised social housing will in some cases have benefited from LA infrastructural investment, this leaves the question of how such improvements might be encouraged within the private sector. There are surely lessons that might be learnt from experiences elsewhere, a role perhaps for the Sustainable Scotland Network.

4. Impact assessment

The case study region of Aberdeen City and Aberdeenshire has several main characteristics which influence their ability to lower household carbon emissions. There is strong evidence of environmental awareness in departments in both local authorities, each with engaged and committed staff. However, while generally supportive, the councillors (the decision-making power within the council) may be influenced by those arguing for economic development (both internally and external lobbying), particularly in the current economic recession.

While the national level policy as described in the Climate Change (Scotland) Act (2009) is ambitious and has cross-party political backing, and both Aberdeen City and Shire councils have their own targets and programmes already underway for reducing carbon emissions, some difficulties are clear. The main one is perhaps the degree to which a democratically elected government can impose restrictions on individual behaviour. While providing financial incentives such as tax breaks may help to change individuals’ behaviour, particularly with reference to transport choice, they can be costly to implement and have relatively little impact on large sectors of society.

Existing housing stock is difficult to improve (particularly in the private sector) and local planning history has meant that residential areas are not located close to areas providing employment. This is an issue which requires closer coordination between both local authorities given the extensive use of private cars for all types of transport:

- high levels of car ownership;

- commuting into Aberdeen;
- suburbs without access to shops and amenities;
- privately owned public bus system.

The region's attitude towards energy use can be linked to its association with the oil industry, particularly in terms of economic dependency and the current cultural association with an oil city.

5. Concluding remarks

Other recent research (Kelly, 2006) concurs with many of our interview conclusions in stating that a continued effort and emphasis needs to be placed on increasing energy efficiency and restricting the increased use of energy intensive products and processes. Without initiatives at different scales and across all sectors (in particular household energy, transport and food), any gains made by increasing energy supply from renewable sources will be negated.

Of key importance here are the tools available to local authorities and agencies in order that they are able to implement policy. These need to be supported by appropriate decision-making processes and backed up where necessary by regulatory legislation.

Implementation processes need to make better use of collaboration which uses relevant NGOs, advisory groups or consultancies in order to coordinate partnerships (e.g. between communities and local authorities). Transparent funding mechanisms need to be accessible by effective local partnerships to use in locally relevant ways whilst making use of good practice gained from efforts across Scotland (via Sustainable Scotland Network, EST, etc.) and elsewhere.

Journal References

Kelly, N. (2006) The role of energy efficiency in reducing Scottish and UK CO₂ emissions. *Energy Policy* **34**, 3505-3515.

Appendix

History of Devolution

In 1707 the Act of Union abolished the separate Parliaments for Scotland and England, and created a single Parliament at Westminster in London.

However Scotland retained many features including a separate church and legal system. A form of administrative devolution for Scotland was established in 1885 when the Scottish Office was created as a Department of the UK Government, assuming responsibility for health, education, justice, agriculture, fisheries and farming, and was headed by a UK Cabinet Minister, the Secretary of State for Scotland.

In 1979 a Referendum was held on proposals by the then Government to establish a Scottish Assembly, but although a small majority voted in favour the proposals did not obtain the support of 40 per cent of the electorate, which had been set as a requirement before they could be implemented.

In 1989 the Scottish Constitutional Convention was established, consisting of representatives of civic Scotland and some of the political parties, to draw up a detailed blueprint for devolution including proposals for a directly elected Scottish Parliament with wide legislative powers. The SCC's Report in 1995 formed the basis of further proposals which were brought forward by the new UK Labour Government in 1997.

These proposals received overwhelming support in a Referendum on September 11, 1997, with 74 per cent of those in Scotland voting in favour of a Scottish Parliament and 63 per cent voting for the Parliament to have powers to vary the basic rate of income tax.

Following the passage of the Scotland Act 1998, the Scottish Executive (officially referred to as the Scottish Government since August 2007) and Scottish Parliament were officially convened on July 1, 1999 whereupon powers previously held by the Secretary of State for Scotland and other UK Ministers, were devolved.

Elections to the Scottish Parliament are conducted on the basis of combining the traditional first-past-the-post system (to elect 73 constituency members) and a form of proportional representation called the Additional Member System (to elect 56 regional members - seven for each of the eight regions used in European Parliament elections). The first government was formed by a coalition of Scottish Labour and the Scottish Liberal Democrats.

Source: <http://www.scotland.gov.uk/About/18060/11550/Q/editmode/on/forceupdate/on>