Integrated Policymaking between the Energy and Transport Sectors—The Case of Biogas and Energy-efficient Spatial Planning in the Stockholm Region

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Abstract

This paper explains and analyses the policy processes which are the base for establishment of political frameworks for new technologies to develop within. The energy use within the transport system and how it may decrease has been the object for many new technological and spatial solutions. This connects the energy and transport system and makes them interdependent. Theory states that integration between energy and transport policy sectors will improve the outcome of policy. If policy aim to facilitate the development of energy efficient transport solutions and renewable energy used for transport, it calls for more integrated policymaking between energy and transport sectors. However, traditionally policymaking is carried out within one single sector, while the occurrence of integration is unsettled. Therefore the purpose of this paper is to analyse the potential integration between energy and transport policy; how it might look like and how it occurs. The paper is based on a case study carried out in the Stockholm region, which is the largest urban area in Sweden. Stockholm is an example of Swedish regional policymaking with no sole jurisdiction over energy and transport issues and squeezed between many involved actors. The discussion of policy integration is based on social scientific theory, derived from multiple fields, explaining the occurrence and steps towards integrated policymaking between sectors. In the analysis two examples of regional policymaking are used, biogas policy and energy-efficient spatial planning.

The results show that biogas policy is an energy sector policy which applies to the transport system, but since transport policy not considers biogas there are obstacles for a successful policy outcome. Considering energy-efficient spatial planning it has two dimensions; one connected to the municipalities’ actions and one connected to the regional transport planning. Energy efficient spatial planning is a regional policy which depends on the municipal decisions regarding spatial planning within their territory. In this dimension energy and transport sectors seem to be rather integrated. However, regarding the other dimension, the regional transport planning considering the infrastructural development is not considering energy issues and therefore there is no sectoral integration.

The major conclusion drawn from this paper is that there is little policy integration between energy and transport policy within the Stockholm region. In addition, transport policy is divided into several different dimensions which influence the outcome of the level of integration between energy and transport policy. The divergence between overall policy and sectoral policy has also become clear: overall policy is not always influencing sectoral policy and the other way around. Overall policy might express the way towards sustainable and more energy efficient transport systems, while sectoral policy is not taking the overall policy considerations into account and therefore overall goals might never be implemented. To reach successful market introduction awareness of the multi-sectoral and multi-actor reality of policymaking might be valuable for innovators and companies developing new technologies.

Keywords: Policy Integration, Energy, Transport, Regional Policy
1. Introduction

One of the sectors using the most energy is the transport sector. It is also a sector where energy use is increasing rather than decreasing (IEA, 2011). From a perspective of ecological sustainability, the transport sector must become more energy efficient, and in addition, decrease its use of fossil fuels in order to decrease its greenhouse gas emissions. The development of renewable energy in the transport sector is dependent on both technological development and the political framework, which outline the rules of play.

Traditionally, the political system is divided into various sectors within which certain policies are established. The change of the transport system towards less fossil fuel and less energy use implies a connection between the energy and transport sectors. Technologically, the systems are interdependent (Hjalmarsson et al. 2011), but the question is whether this is the case in policymaking, as well. Integration between policy sectors is desirable according to theory, since it improves policy outcome (Underdal, 1980). In addition, several international organisations such as the UN, the OECD and the EU recommend policy integration as a measure to improve the implementation of crosscutting policy, for example, sustainable development (Geerlings and Stead, 2002). Renewable energy and energy efficiency in the transport system also imply a crosscutting issue; therefore, it is interesting to investigate policymaking processes considering energy and transport.

The political framework that governs technological development is a result of policy processes at all levels of society. Since daily transports are regional, policy processes on regional and local levels shape the character of the specific region’s transports and infrastructure. Consequently, policy integration between energy and transport policy needs to occur in the regional context.

The aim of this paper is to investigate the eventual integration between energy and transport policy in one case and by doing that understand and explain the mechanisms that might influence the integration of policy. In the case presented, the largest urban region in Sweden - Stockholm - is used. Stockholm is the capital of Sweden, where the population continues to increase, as does the incidence of intraregional and interregional commuting. This has resulted in several transport problems: congestion, emissions and noise. Many actors in the region are expressing strong interest in alternative and innovative solutions, something that is also stated in policy regarding transport and energy development. Furthermore, the urban characteristics of Stockholm make the daily transports regional, and this implies that regional cooperation between local and regional institutions is necessary, if problems are to be solved. This implies in its turn that there is a need for policy integration between sectors and institutions within the Stockholm region.

This paper contributes to the understanding of the organisation of policymaking and its importance for policy outcome. The technological development of renewable and energy-efficient solutions in the transport system is for the present dependent on the framework which policy shapes. It is in the actors’ interests that policy shapes a stable and non-contradictory framework, that is, integrated policy. This paper also contributes to the empirical use of policy integration as a theoretical concept, where some studies have been investigating the relationship between transport, spatial planning and land use (Geerlings and Stead, 2002, Geerlings and Stead, 2003, Hull, 2008, Stead, 2003, Stead and Geerlings 2005), but never the relationship between transport and energy policy. In addition, this paper contributes to the understanding of policymaking and policy integration in the regional setting, characterised by numerous institutions that both cooperate and compete.

The paper starts with a description of the method and material used in the study. Then the theoretical framework and the model for policy integration are outlined. In the results two examples of current policy, which are on the border between energy and transport policy, are described. The first example is biogas development, which is a project of cooperation among many institutions within the region. The second example is energy-efficient spatial planning, which is an example of both policy integration and no integration at all. The two examples are also combined to further discuss the matter of policy integration. Finally, a couple of conclusions are put forward.
2. Material and Methods

The case study in Stockholm was performed in 2011 and consists of seven interviews and ten policy documents. The documents were selected on the premises that the documents concerned energy and/or transport issues and that they should apply to the current situation, which makes them not older than five years. All documents concern the future development within the whole region and they have mostly been compiled through cooperation between several institutions. The character of the documents differs; most of them are concerned with establishing visions and goals for a considerable period into the future, while some involve deciding which projects to invest in over the shorter term.

Since the policy process entails more than what is recorded in a document, interviews were also performed. By asking questions about how the plans were used in the policy processes and what was really happening regarding projects and implementation, it was possible to get a more overall picture of the policy process within the region. In addition, by interviewing professionals working within several of the institutions involved, the working process within and between institutions also became clearer. The interviewees are all officials of different professions, spread throughout the institutions and departments involved in regional policymaking regarding transport and energy. The interviews were semi-structured, using thematically ordered questions in an interview guide with the possibility to ask follow-up questions and vary the order of the questions (Kvale et al. 2009). Many questions were of an open character to encourage the interviewees to describe a certain situation or concept. All interviews were recorded and then carefully transcribed into text.

The analyses of both documents and interviews were made using text analysis. The documents were searched through by using keywords such as energy, transport, climate, environment and biogas to be able to find the passages where those discussions were present. The table of contents was also looked through to find and read sections where those issues would be discussed. Both the presence of keywords in the text, and sections where they might have been mentioned but were not, were regarded as important for analysis. In the second step of analysis all documents were put in a table and empirically found related keywords were used to easily see the differences and similarities between the documents. The interviews where analysed using sentence condensation and then these condensed parts of the statements were sorted into themes, both empirically and theoretically motivated (Kvale et al. 2009).

3. Theory

Policy integration is a theoretical concept in between social scientific fields such as political science, policy analysis and organisational studies. Policy integration means integration between sectors and tiers of government, mostly within a state, but sometimes also between two or more states. In a widely cited article by the Norwegian political scientist Arild Underdal from 1980, policy integration is defined as “a policy where the constituent elements are brought together and made subject to a single, unifying conception” (Underdal, 1980: 159). Closely related is the political science field of environmental policy integration, which considers the integration of environment policy into all policy sectors as an overall normative goal, and the analysis is often concentrated on evaluation, if this is the case. In this paper environmental policy is closely connected to the purpose, but the main focus is policy integration between two sectors that traditionally are parallel: the transport and energy sectors.

Policy integration is often described as something desirable. According to Underdal (1980), this is true, since consistency between policy sectors will improve the outcome of policy. In addition, the responsibility for policy outcome becomes clearer, and the consequences of policy can be taken into account by more than one sector. Furthermore, the presence of so-called crosscutting issues, which are issues that transcend the borders of established policy sectors, is another argument for the importance of policy integration. A well-known example of a crosscutting issue, mentioned in the literature, is sustainable development (Geerlings and Stead, 2003, Stead and Meijers, 2009).

Policy integration could mean different kinds of integration, and Geerlings and Stead (2003) distinguish between four kinds of policy integration. Vertical integration is integration between
different tiers of the state. Intra-sectoral integration is integration between different issues and professions within one department, for example, integration of different modes of transport, such as cars, cycling and walking, into one. Inter-territorial integration is integration between geographically neighbouring authorities that have a joint interest in infrastructure and/or resources that are geographically bound. Horizontal integration¹ is integration between sectors or professions within one organisation. The two last types of policy integration apply to this paper, where the transport and energy sectors are present both within the same institutions and divided between different institutions within one geographical region. I follow thus the argument of Shannon and Schmidt (2002), who describe policy integration as an activity that includes more than one organisation, actor and network.

3.1 Model for analysis

Figure 1 The stepwise model of policy integration (adapted from Stead and Meijers, 2009)

In this paper I use Stead and Meijers’s (2009) stepwise definition of policy integration as my model of analysis. The model focuses on how policy is made and uses levels of interaction, interdependence, formality, resources needed, loss of autonomy, comprehensiveness, accessibility and compatibility between sectors to evaluate whether there is integrated policymaking or not. The authors have built their model on an extended literature review of scientific theories that relate to policy integration, and argue that two other related concepts, cooperation and coordination, can be used as “umbrella” concepts to catch lower levels of integration (Geerlings and Stead, 2003, Stead and Meijers, 2009).

Cooperation

In the pyramid (Fig. 1), where policy integration is on the top, cooperation is the first level of integration. Policy cooperation suggests that otherwise autonomous sectors or organisations cooperate, regarding dialogue and exchange of information, to fulfil sectoral, individually developed goals (Geerlings and Stead, 2003). The outcome is sectoral policies that correlate with each other and therefore become more efficient (Stead and Meijers, 2009).²

Coordination³

To reach the second step in the pyramid, coordination, the policymaking process must achieve the cooperation requirements and some more. According to Stead and Meijers (2009), policy coordination

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¹ Another concept involving horizontal integration is inter-sectoral integration used by Ugland and Veggeland (2006).
² Similar reasoning is applied by Alter and Hage (1993) and Gray (1989), and then it is called policy collaboration or inter-governmental management (Agranoff, 1986).
³ Policy coordination is described in more detail by Challis et al. (1988).
means that sectoral policies within different sectors are adjusted “in order to make them mutually enforcing and consistent” (Stead and Meijers, 2009: 322). It implies that the interdependence between sectors has increased compared to the cooperation step. The result of coordinating policymaking is adjusted and even more efficient sectoral policies (Geerlings and Stead, 2003, Stead and Meijers, 2009).  

**Integrated policymaking**

Integrated policy includes the requirements for policy cooperation and coordination and extends to include sectors working together in order to create synergies between policies. Policymaking is carried out jointly among different sectors, and they use joint policy goals in the process (Geerlings and Stead, 2003). Integrated policymaking results in joint policy between sectors (Stead and Meijers, 2009).

Several facilitators and inhibitors influence policymaking and make it come high up in the pyramid, as shown above. Stead and Meijers (2009) have summarised them into five factors important for both facilitation and inhibition: political factors, institutional or organisational factors, economic or financial factors, process, management and instrumental factors, and behavioural, cultural and personal factors. Examples of barriers to policy integration are narrow perspectives, weak and perverse incentives, lack of management mechanisms and professional and departmental culture (Geerlings and Stead, 2003).

Other challenges to the object of policy integration are the current structures of western European states, which are characterised by fragmentation in organisation, implementation and decision-making (Stead and Meijers, 2009). The problems are the increasing numbers of actors involved in policymaking, the imbalance of power resources, the difference in time perspectives between different sectors and policies and projects, and the inconsistent goals and poor communication between sectors. Underdal (1980) argues that the solution is a more centrally controlled state. However, the fragmentation of policy processes and policymaking is not necessarily negative for other state objectives. Instead, increased central control might make policymaking less flexible and less adjustable to local conditions. Therefore, other tools must be developed for handling policy integration, even in systems that are characterised by governance, decentralisation and network management. Policy integration on the regional level could contribute to that sort of understanding.

This paper will use these descriptions of cooperation, coordination and integrated policymaking when analysing the examples of biogas and energy-efficient spatial planning within the Stockholm region. It is important to point out again that it is not only sectors that should cooperate, coordinate or integrate, but also institutions engaged within one or both sectors. By using the two dimensions of integration (sectors and institutions) and the stepwise model for analysis, the understanding of how policy integration occurs and how it can be described, will improve.

### 4. Results and Discussion

The regions in Sweden are traditionally weak in the legislative and governmental sense. In each region there is one institution, the County Council, which is responsible for health care and public transport. In large urban areas as Stockholm, the County Council also has the obligation to produce a regional plan every ten years, which outlines the general spatial development within the region (Magnusson, 2011). Nowadays this regional spatial plan is merged with an outline of the future regional development and is therefore called the Regional Development Plan.

In contrast to the Swedish regions, the local level is comparably strong. The Swedish municipalities have their own tax base and have jurisdiction in most of the domestic political fields within their

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4 Similar reasoning is applied by Kickert et al. (1997) and then it is called network management or joined-up government (Ling, 2002), policy coherence (OECD, 1996) or policy consistency (Ugland & Veggeland, 2006).

5 Joined-up government in the UK context has been equated with policy integration in some areas of the literature, while others treat it as synonymous with policy coordination (Meijers and Stead, 2004).
territory (Montin, 2004). For example, the municipalities have sole control over land-use planning, except in some cases of national interest and in the cases when national investments are needed (Nyström 2003). The relationship between the national government and the municipalities could be described as a never-ending struggle over resources and jurisdiction. Hence, the municipalities are always trying to strengthen their powerbase, and in line with that they have formed new regional institutions. In most of the regions the municipalities have transferred some of their authority in certain areas to the Regional Councils (in which case, they are called by that name). The national government has also transferred some tasks from their regional authorities, the County Administration Boards, to the Regional Councils. In some regions, however, the regional institution is only an interest organisation for the municipalities, without any mandate of its own. This is the case in the Stockholm region.

Since the regional level lacks a specific mandate regarding transport and energy issues in Stockholm, regional policymaking is a matter of networking and negotiations between several public actors. The responsible institution varies, depending on the policy sector or even the policy issue. The hierarchical relations between the regional institutions vary with the responsibility for certain policy sectors and/or policy issues. Therefore, no unequivocal picture of the hierarchical relations can be established. In Figure 2 the public actors within the region is positioned hierarchical, that is almost all actors are at the same level. However, this situation is not always true, since the actors have different responsibilities within different policy sectors and issues. Consequently, there are no straight lines between them in the figure and the circle which sets the boarder for the Stockholm region implies the ability for the institutions to move up and down in hierarchy. The exception is the Association of Local Authorities which mandate always depends on the municipalities.

![Figure 2](image)

Figure 2 The hierarchical and non-hierarchical relations between the involved public actors within the Stockholm region

In Table 1 all relevant public institutions in Stockholm with major responsibilities regarding transport and energy policy are listed. Within some institutions there are a number of departments that work with either energy or transport issues or both. The level of interaction between departments varies to the same extent as between institutions; sometimes there is close cooperation, exchange of information or independent departments working on their own.

The 26 municipalities are represented by their interest organisation, the County Association of Local Authorities. The Association represents the municipalities in regional policymaking to the greatest extent. However, one of the 26 municipalities is also shown separately in the table: the City of Stockholm. Since the City of Stockholm is the most powerful municipality in the region, due to its
It is not only a local actor but also a regional one. In this complex regional setting divided into sectors, institutions, and departments, policymaking regarding biogas and energy-efficient spatial planning takes place. These two policies will be described and analysed using the Stead and Meijer (2009) model for analysis, presented in Figure 1, in order to better understand policy integration within one region.

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<th>Table 1 Institutions and departments within the Stockholm region involved in energy and transport policymaking</th>
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<td>Stockholm Office for Transport and Environment</td>
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<td>Local Authorities of Central Government</td>
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<td>Local Authorities of County Council</td>
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<td>City of Stockholm</td>
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**Note:** The table provides an overview of the institutions and departments involved in energy and transport policymaking within the Stockholm region.
4.1 Biogas Policy

Renewable energy and its implementation in the transport system is a rather new focus for the Stockholm region. Ten years ago it was mentioned as a not-so-interesting future production possibility for the region (Regionplane- och trafikkontoret, 2001). However, this has changed rapidly, and nowadays biogas production is at the forefront of development within the region. This is the result of extended regional cooperation among several actors to start collecting Municipal Organic Waste (=MOW) and use it to make biogas for vehicles.

Today, there is consensus among the actors in the Stockholm region that the biogas produced should be used for vehicles and not for other available options such as electricity or heating production (Regionplanenämnden, 2010, Regionplanenämnden, 2009, Interviews, 1, 2, 3, 4, 5, 6). However, this has not always been the case. Ten years ago many stakeholders promoted incineration of collected MOW in the central heating plants (Interview 1). An intensive campaign by the presumptive biogas producers, which mostly were municipal-owned wastewater plants, generated interest in the matter among central stakeholders at the Association of Local Authorities and slowly changed opinions towards biogas production (Interview, 3).

In time, the wastewater plants, the MOW collectors, the Office of Regional Development – a department within the County Council, the Association of Local Authorities and other actors started a biogas project, which had the intention to increase biogas production by requiring the municipalities to start collecting MOW and putting the wastewater plants in charge of the MOW and of starting biogas production (Interview, 1, 2, 3). The project was run by the Association, which meant that the municipalities had a platform for cooperation, education and support to be able to implement MOW collection in their own territories and cooperate with other municipalities regarding the production plants (Interview, 2). The project was supposed to become formalised in a regional institution, which would take care of the collection of MOW, biogas production and distribution within the region. However, the municipalities were not interested in such arrangements, and therefore the development of biogas continued to be dependent on municipal decisions (Interview, 2).

Rather recently another more formalised project was formed, following the focus of the recent Regional Development Plan, where mainly the Association of Local Authorities and the Office of Regional Development are responsible for the work. The project aims at increasing both production and distribution of biogas in the region. In order to fulfil that goal, the responsible institutions negotiate and cooperate with the businesses concerned and make investigations regarding production potential, localisation of production plants and distribution possibilities (Stockholms läns landsting, 2012a). This project is as close as the region is to a regional policy regarding biogas.

Biogas production is thus not an established policy in a particular document, but is still a project that is implemented throughout the whole region. Therefore, the question is what kind of policy is represented by biogas? Energy policy outlined in the whole region is about the increase of renewable energy in the complete energy system, including the transport sector. Biogas is highlighted as interesting for the region to produce, since the amount of MOW is rather massive. In addition, overall policy as expressed in the Regional Development Plan points to biogas as an important renewable energy source for the region to use, mostly for transports (Regionplanenämnden, 2010). Overall policy in this case does not involve deciding what will actually be implemented, but draws up future policy goals for the decision-makers to hopefully follow. However, in the biogas case the implementation of the policy goal has started already; it is not just a future policy goal. Biogas can therefore be understood both as a regional overall policy and as an energy sector policy.

The second question then is whether biogas production as a regional overall policy is the same as an integrated policy between the energy and transport sectors? The answer is no, since biogas production foremost is energy policy with focus on the transport sector, and the activity within the transport sector regarding this issue cannot be certain. This becomes clear when investigating the institutions: even if all sectors in the shape of institutions appear to cooperate regarding biogas, this is not the case. The departments where most transport policy is made are not taking part in the biogas development. The
Office of Regional Development is one of the active regional actors in the biogas development, and it is a part of the County Council. Another part of the County Council is the Public Transport Company, and it is a highly important actor in transport policy regarding the use of biogas.

The distribution of biogas to customers is designed in several different models in the Stockholm region. Only one producer is authorised to distribute biogas to private customers. The other producers are obliged by contract to distribute biogas only to the Public Transport Company to fuel their biogas buses (Interview, 3). However, the Public Transport Company does not have enough buses to use all the biogas available, so much of the biogas produced is used for electricity and heat production instead (Interview, 3). For the biogas to be used as intended, it would be necessary for the Public Transport Company to take the initiative to increase the number of biogas buses, but this seems not to be the case. In their long-term transport plan, outlining public transport development in Stockholm until 2020, there is no mention of biogas or other fuels or technologies (SL, 2010). Consequently, investment in biogas busses seems not to be a priority of the Public Transport Company.

With the Public Transport Company not considering biogas in their policy at all, the implementation of biogas policy seems impossible to realise, since demand is important to the fulfilment of the goal of increased production and distribution. There appears to be little interaction, dialogue and exchange of information between the different “departments” connected to the County Council. The same can be said about the interaction between the Public Transport Company and the other institutions involved. The integration of biogas policy and transport policy regarding public transport is therefore low, since not even the requests for the first step of cooperation, in the pyramid of integration, are met.

Another example, which exposes the differences between departments, is the regional transport policy outlining governmental and also municipal investments in the transport system (Länsstyrelsen i Stockholms Län, 2010). Responsibility for regional transport policy lies with the Department of Growth at the County Administration Board. Other actors are also included in the policymaking process, such as the Swedish Transport Administration, the City of Stockholm, the Office of Regional Planning and the Association of Local Authorities, representing the municipal interest (Interview, 7).

The transport policy goal is distribution of investments for transport infrastructure that will best meet the needs of the increasing population in the region. The investments almost exclusively involve new roads and rails or maintenance of existing roads and rails. There is also a small amount allocated to environmental measures such as noise limitations, but energy issues are not mentioned (Länsstyrelsen i Stockholms Län, 2010). The transports’ negative impact on the climate is described as a major challenge—but not as a responsibility for transport policy to deal with; instead overall policy should handle that (Länsstyrelsen i Stockholms Län, 2010). During transport policymaking, fuel issues are not included: there are no evaluations regarding which vehicles will frequent the new road, nor is the availability of various fuels in connection to the road an issue (Interview, 7).

Since the distribution of biogas is important for its implementation among trucks and regular vehicles, the existence of filling stations supplying biogas along the roads is necessary. A biogas filling pump is expensive compared to that of other fuels, and regular filling station companies are not interested in that investment (Interview, 2, 4). Therefore, biogas use needs land for filling stations and investors with financial resources. Biogas policy does not describe how this distribution problem could be solved, just that it has to be (Regionplanenämnden, 2009, Stockholms läns landsting, 2012a, Interview, 1, 3). Transport policy does not even touch the issue; it focuses only on road infrastructure and how the growing population will be served. This implies a discrepancy between transport policy and overall biogas policy, where no step towards integration seems to be taken. Even if all actors involved in transport policymaking were also cooperating in biogas policy implementation, there would seem to be little dialogue and little exchange of information between the sectors. Not even the first stage of integration is therefore met.

The explanation is probably owing to the different departments within institutions and their level of cooperation. In the biogas example the Department of Growth and the Department of Environment at the County Administration appear not to interact and cooperate to the extent that would be necessary
to make more efficient policy. Within institutions with smaller organisations, such as the Association of Local Authorities and the Office of Regional Planning, the explanation might even be on the individual level: persons of different professions who are not exchanging necessary information.

4.2 Energy-efficient spatial planning policy

Spatial planning in the Stockholm region used to be adapted for the use of private cars to a very large extent (Interview, 5). That this is in the process of changing is obvious in documents such as the Regional Development Plan and the City of Stockholm’s City Plan (Regionplanenämnden, 2010, Stockholm Stad, 2010). Both plans outline the same policy goal: to use spatial planning as a tool for decreasing car transports. The tools used are planning for fewer parking spaces and for concentration of city districts and concentration of the city centre. The intention is that walking, cycling and public transport should be viewed as more natural means of transport in a city where distances are shortened (Regionplanenämnden, 2010, Stockholm Stad, 2010). Within the city region more areas are to develop local centres with shops, offices and family homes, thus reducing the necessity for people to work in the city centre and commute from farther out (Regionplanenämnden, 2010). The decrease of car transports is fulfilling many environmental goals, such as the reduction of congestion and noise and making transports within the region more energy efficient. Many stakeholders believe that spatial planning is a valuable tool to make the transport system more energy efficient (Interview, 2, 4, 5).

Besides the long-term development plans, there is a joint regional project concerning energy-efficient spatial planning. Responsible for the project group and its work are the Office of Regional Planning, the Association for Local Authorities and the County Administration Board. One of their missions is to influence municipalities to take energy issues into consideration in their spatial planning. The project is also commissioned to disseminate relevant information to all actors involved in spatial development, from spatial planning to building of houses and development of transport solutions (Stockholms läns landsting, 2012b).

Energy efficiency is clearly an energy sector policy goal, and spatial planning could be considered as a tool to make also the transport sector more energy efficient. However, how this correlates with transport policy is a question divided into local and regional levels.

On the one hand is the local level, where the municipalities are responsible for spatial planning. Long-term transport planning is also included, and therefore, municipal spatial planning has an impact on regional transport policy. Energy-efficient spatial planning as policy on the regional level, but closely involved with municipal decision-making, could therefore be said to include both the energy and transport sectors. The advent of the project group working with the implementation of the policy within the region shows that there is cooperation between the energy and transport sectors, and thereby the first stage of integration is fulfilled. The next step, collaboration, implies adjusted sectoral policies and a higher level of interdependence, formality, and so on. Since the spatial policy has changed from cars as the subject to walkability as the new subject, and this also correlates with the goal of energy efficiency, the second stage of integration is also fulfilled. By including transport, buildings and land use, the regional policy of energy-efficient spatial planning, can be considered as a joint policy. Thus, integration is achieved between the energy and transport sectors on the local level. As argued, spatial planning applies to the municipalities, and therefore the success of an integrated regional policy will be revealed when the municipalities have established their new City Plans and have started to act in line with them (Stockholms läns landsting, 2012b). If energy-efficient spatial planning is the municipalities’ main policy goal in their City Plans, there will be both vertical and sectoral integration. Since the municipalities are the deciding institutions, the vertical integration is the most important for implementation in this case.

On the other hand is the regional level, where municipal spatial planning is one important part, but as in the biogas example, the regional transport policy concerning infrastructure is also important for the implementation of energy-efficient spatial planning. As previously described, the goal of regional transport policy is to be able to transport a larger population by the building of new roads and rails and by maintenance of existing ones. Energy efficiency is not a goal for regional transport policy; it is not
even mentioned in the documents. The integrated regional policy of energy-efficient spatial planning is therefore not integrated with regional transport planning. Consequently, there is a discrepancy between policy goals devised in one regional setting and the implementation of policy established in another regional setting.

4.3 Biogas and energy-efficient spatial planning policies

When looking at the two examples of policy integration, biogas and energy-efficient spatial planning, a picture of complex policymaking, not only divided into sectoral parts, appears. Both biogas and energy-efficient spatial planning could be regarded as overall regional policies, since they have been established as important areas of focus by all participating regional actors. The difference is that biogas development is energy sector policy aimed at transports, and in contrast, energy-efficient spatial planning is an integrated policy between the energy and transport sectors. The latter example shows that transport policy in itself is divided into spatial planning, which applies to the municipalities, and infrastructure investments, which apply to the regional planning cooperation. Biogas policy shows that even if there is strong energy sector intent on implementation of renewable energy in the transport system, it is not enough for success. All dimensions of transport policy must also have the same focus. This will be possible if cooperation and coordination occurs between institutions and departments, while the two sectors can become more integrated in policymaking. Consequently, both biogas and energy-efficient spatial planning policies show that there are many dimensions in policy integration, where all must be integrated, if the goal is to be fulfilled.

Hence, as both examples describe overall regional policy, an important problem in the implementation of such policies is revealed. In the earlier described regional transport policy a small passage is of certain interest for this matter. The passage describes that transport policy is not the best policy level to deal with climate issues; rather, the climate should be a task for overall policy. As shown in this paper the Stockholm region has overall policies regarding biogas and energy-efficient spatial planning, but since these policies are of overall kind more specific policies is needed to actually implement the overall goals. Such a specific policy for implementation is the regional transport policy about investments in roads and rails, but since renewable energy, energy efficiency and related climate issues are not included in the evaluation of projects, the overall policies considering these matters risk to become nothing more than bunches of papers. In addition, the result of the lack of integration between the regional overall policies and the regional transport policy might become a major obstacle in the struggle to introduce more renewable fuels and energy efficient solutions. Overall policy is thus dependent on these implementing policies which include a certain amount of financial resources.

5. Conclusion

From the discussion of biogas and energy-efficient spatial planning policies and their levels of integration several different conclusions can be made. First, it has been established that there is little policy integration between energy and transport policy within the Stockholm region. This text has made clear the separation of transport policy into several dimensions: public transport, investments in infrastructure and spatial planning for transport. Integration between these dimensions within transport policy and between transport policy and energy policy depends on how institutions, departments and individual persons act in the policymaking process.

Second, this paper shows that overall policy and future policy goals often imply integration of different policy sectors. However, scratching the surface reveals this not to be true, when overall policy is not integrated into sectoral policy implementation. This is a policy problem when sectoral policy is not taking overall policy into consideration and overall policy risks to never be implemented. Vertical policy integration, not only between levels of the state, but also between levels of policy – overall policy or more specific – is shown to be important for the actual outcome of policy.

Third, the first two conclusions have shown that the issue of policy integrations between two sectors as energy and transport is depending on several mechanisms that influence the level of integration: within one sector the level of integration can vary between different issues as in the case of transport
policy, since the policymaking process is dependent on several different institutions, departments and professions their collaboration is evident for the case of policy integration and finally the importance of correlation between overall and more specific, implementation policy. This combination of different mechanisms imply that crosscutting policy must be developed in awareness of sectoral boarders and make sure that collaborations between institutions and levels of policymaking is well established with common goals.

The results of this paper are not only valuable to policymakers when making policy which is including several sectors, but also valuable for innovators and developers of new technology. Hence, policymaking sets the legal framework within which the new technologies must fit, if they are to reach successful market introduction. A region that is interested in supporting new solutions might be very valuable for their further development. For greatest success it would help if all regional sectors, institutions and departments agreed and worked towards the same goal. Consequently, integrated policymaking is in the interest of all actors which will be influenced by the policy framework.

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Interviews

Interview 1, Municipal politician, performed in 2011-10-25

Interview 2, Senior administrator at Stockholm County Association of Local Authorities, performed in 2011-06-16

Interview 3, Chief executive officer (CEO) at a publicly owned water company, performed in 2011-11-15

Interview 4, Project manager at City of Stockholm, performed in 2011-06-17

Interview 5, Overview planner at City of Stockholm, performed in 2011-06-21

Interview 6, Analyst at Stockholm County Administration Board, performed in 2011-06-20

Interview 7, Transport Strategist at Stockholm County Administration Board, performed in 2011-06-20