Study of the Interactions between Political Changes and Energy-Climate Policies

Case of the District Heating System in Stockholm

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ABSTRACT
Most urban regions of the worlds are involved in energy transition processes towards a low-carbon society and set climate strategies in order to reduce their greenhouse gas emissions. This master’s thesis looks at these processes through a political perspective and in particular aims at analysing the ways in which political changes interact with energy-climate policies, in the case of city of Stockholm. Some interests will be especially given to the question of the challenge raised by the short-term nature of political changes and the long-term perspective of energy-climate policies. This approach is based on the analysis of the actual practices of actors involved in the implementation of these policies, on a day-to-day basis, to reveal the interaction with political changes. The case study of the district heating system in the city of Stockholm is analysed as a zoom in one of the major measures taken by the City against greenhouse gas emissions. The method used leans mostly on interviews of the principal actors responsible for the formulation, planning and contestation of energy-climate policies in the City of Stockholm. The research shows that besides the post-political character of climate policies in Stockholm, their implementation creates some conflicts and tensions which re-politicize them.
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1. INTRODUCTION

1.1 BACKGROUND
Energy and climate issues are nowadays of great political and social importance and thus have some effects on collective choices made by decision makers on all levels. One should therefore be concerned about the socio-political sustainability of choices aiming at managing or at giving directions to energy transition processes (from non renewable to renewable). From a prospective perspective, this is a major issue: forecasting rarefaction of fossil energies and increasing collective concern about climate change should deeply affect ways of living and therefore arouse strong tensions among our societies. Urban authorities (which interact of course with the other government levels) will be confronted with these tensions and will have to react and adapt their actions and organisations according to them.

Besides, the political and institutional changes, which are of course significant regarding the time scale of energy transition processes and environmental programmes (they typically have a time perspective of half a century), are likely to affect to a certain extent these processes. One should then identify the factors of vulnerability or resistance in the long-term of energy transition processes regarding the short-term politico-institutional changes.

The energy transition processes therefore affect and at the same time are affected by political and institutional changes, and this is this interaction that will be studied in this research project, in the case of the City of Stockholm.

1.2 AIM
This project aims at analysing and at exploring the ways in which political changes interact with the energy transition processes in Stockholm, with a specific focus on the district heating debate within the city. This focus was mostly chosen by the research centre (LATTS) I was doing this work for. This case is limited in scope to the urban level of the City of Stockholm.

1.3 RESEARCH QUESTIONS
The research question to be answered in the study is:

How do political and institutional changes intersect with processes of transitions towards renewable energy and towards policies aiming at reducing greenhouse gases emissions?

This question goes actually in both directions and can be broken down into three research questions:

- What is the influence of energy-climate policies on administrative, institutional and political processes?
  - 1. What is their influence on organisations?
  - 2. What is their influence on the evolution of party political differences?
- What is the impact of politics on energy-climate policies at the local level?
  - 3. What are the consequences of short-term political changes on long-term energy-climate policies?
1.4 Structure of the Study

The introduction is followed by a description of the method used in the study to answer the research questions. Chapter 3 is a literature review on the concepts used in the study; the theory presented there will be used to discuss the empirical results. Chapter 4 gives an overall picture of the national context in Sweden and the local one in Stockholm concerning the environmental work done and the results achieved so far. Chapter 5 is an in-depth contextual analysis of the interviews led in Stockholm. The analysis is constructed around the central question of this study (what are the interactions between politics and energy transition policies in Stockholm?) and will give elements of answers to the research questions. The case study investigated is presented in chapter 6; it consists of the district heating system in Stockholm, which is one of the major measures taken by the City to reduce greenhouse gases emissions. It is followed by a discussion, where theory and results of chapters 5 are applied to the case study presented in chapter 6 to answer the research questions.

2. Method

2.1 Hypothesis and Methodological Approach

Urban policies on energy transition are defined through tensions between global targets (such as the ones specified in the Kyoto Protocol for example) and configurations of actors, interests, constraints, etc., peculiar to each urban region. This leads to the formulation of a double hypothesis:

1. On the one hand, local energy-climate policies have a strong post-political dimension in their legitimization modes, their principles, their general objectives and the range of tools that can be mobilized;

2. But, on the other hand, the implementation of these policies creates different kinds of tensions, which can lead to their re-politicization.

The issue is therefore to understand the sustainability of energy-climate policies regarding the modalities and the implications of their implementations. This issue becomes central in a time (from the mid 2000s in most cities) when the general objectives of these policies result gradually in concrete measures. To throw light on this double hypothesis and its prospective implications on the sustainability of local energy-climate policies, the research will focus on two dimensions.

On the one hand, the resulting process of turning general objectives of energy-climate policies into concrete modalities of public action will be studied: organisational changes within local administrations, choices of financial priorities, regulatory provisions, incentive mechanisms, technical, architectural or urban choices, etc.

On the other hand, the inherent tensions in these resulting processes will be studied: their nature, their modes of expression, the way there are taken into account in public action, and their effects, real or potential, on the sustainability of energy-climate policies. These tensions can be of different kinds: between public policies (in particular between energy-climate policies and industrial policies); between institutional or territorial levels (a desirable measure at a level can be undesirable at another level); between policies and electoral
constraints (the same general discourse can lead to very different modalities of action according to the electoral base’s profile of the staff in position); between levels of responsibility (public and private actors)...

To do so, the case of the city of Stockholm was chosen and the method will lean on a gathering of information from documents produced and/or used by the different stakeholders to understand their “official” views and visions. This information will mainly be used in the “national and local context” section. The major part of the information used for the analysis will come from interviews with people implied in the formulation, implementation, or contestation of policies in the energy and climate fields: related municipal services (energy, environment, planning...), politicians from the ruling party and from the opposition, public agencies at the local, urban, regional, national scales, energy companies, consultancies, organisations standing for consumers and their economic interests; without forgetting the researchers working on political and institutional issues. In total 24 interviews were held for that purpose between January and June 2010, and here is a list of the different organisations to which belong the interviewees:
- at the City of Stockholm: Environment and Health Administration (Miljöförvaltningen), Stockholm City Development Administration (Exploateringskontoret), City Planning Administration (Stadsbyggnadskontoret);
- Office of Regional Planning (Regioneplanskontoret – RTK);
- Swedish Energy Agency (Energimyndigheten);
- Swedish Environmental Protection Agency (Naturvårdsverket);
- a district heating producer: Fortum Värme and the Swedish District Heating Association (Svenskfjärrvärme);
- housing companies: Stockholmshem (which is owned by the City of Stockholm), HSB (housing cooperative) and the Stockholm Property Association (Fastighetsägarna);
- politicians from the Moderates (which belongs to the ruling right-wing Alliance), the Social Democrats and the Green Party (which are in the opposition);
- energy consultants/experts and
- researchers from KTH and Lund University.

I got to meet these persons by simply contacting them through their e-mail addresses given on the Internet, and also through the “snowball” effect: some interviewees gave me some contacts, who gave me other contacts and so forth. The interviews lasted around one hour, sometimes a little more, sometimes a little less depending on the interviewee’s availabilities. Usually I would send the questions\(^1\) I wanted to ask a few days before the interview in order to give a better idea to the interviewee of where my research was heading, and at the same time to structure somehow the meeting. Even if questions were prepared, the interviews took more the form of a discussion, rather than a “question-answer” exchange. I would then transcript the recorded interviews on paper so they would be easier to use.

Within the case of the city of Stockholm, a zoom was performed on one of the main environmental measures taken by the City to reduce greenhouse gases emissions, the district heating system. This zoom will help us leading a more focused analysis of tensions arising when implementing an energy-climate policy. The method used in this study could be called the narratology approach as described by Flyvbjerg (1998). This approach consists in

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\(^1\) Please see the annex for an example of the questions asked during the interviews. Of course, these questions would change according to the person interviewed.
telling the story of the case study chosen, which is here the district heating system in Stockholm, by first setting the stage, introducing the main actors, their different interests and conflicts with each other and then giving the different chronological steps of the debate. It was important as well to keep some direct quotations from the interviews to let the reader here the actors’ voice in this story. The actual practices of politics, administration and planning before their rules will be investigated. The focus is rather on the practices than on theory and the study examines what people actually do in comparison to what they say they do. The simple question “what do you do on a day-to-day basis?” was always asked to the interviewees to see concretely where the tensions could arise when working on the implementation of energy-climate policies and understand the interactions with the political word.

2.2 Delimitations
This research will be focused on the transformations which happen at the scale of the urban region of Stockholm. The movements at the international, European and national scales will of course be taken into account, but will not be studied for themselves: they will be studied for their links with the transformations at the local level and their effects on these transformations. Only one measure taken by the City of Stockholm to reduce greenhouse gas emissions will be studied in depth, which is the district heating system; and only one period of political change will be looked at, which is the change from the left-wing majority to the right-wing majority in 2006.

3. Theoretical Framework

3.1 Local Governance of Climate Change
The local level for climate policies has taken an increasing importance over the past decades. This new shift towards enabling local authorities in managing environmental work participates in the process towards a new way of governing, which is called “governance”. There is no simple or common way of describing this broad concept of governance, and this is not the purpose of this paper to explore this concept in detail, but it can be interpreted as “forms of governing associated with the state (hierarchy), co-ordination and co-operation among social and political actors, as well as self-governing mechanisms” (Kooiman 2003 in Bulkeley & Kern, 2006:2240). Among the multiple usages existing for the concept of governance, one developed by Wilkinson (2002, in Sydow, 2004) is known as global governance and “refers to the various patterns in which global, regional, national and local actors come together to manage a growing range of political, economic and social affairs” (Sydow, 2004:4). In other words, some issues cannot be solved within the single frame of the national authority but need the collaboration of several levels of actions taken by multiple actors; and this is where the concept of governance is relevant for this study: environmental issues, which need holistic solutions and require a large number of actors involved, belong to that category and have to be somehow handled also at the local level. The local level is of great importance when it comes to environmental challenges such as reducing greenhouse gas emissions or energy transition processes, in particular since local governments have a significant influence on transport, planning and housing. According to Bulkeley & Kern, “enhancing the capacity for local governments to affect change will become all the more critical” (2006:2255). The authors come to this conclusion after a study and a comparison of
the German and the English cases. Still the arguments showing the relevance of the local level and synthesized by Bulkeley & Betsill (2003) can be applied to most urban developments: (a) cities are the biggest energy consumers and CO₂ and wastes emitters; (b) town councillors have already shown themselves quite enthusiastic and capable regarding energy-climate issues; (c) local communities are major actors in coordinating actions between all the urban stakeholders (population, public actors, private actors); (d) they have some levers or some means of acting, in particular regarding urban and regional planning, transportation, waste management and energy.

3.2 ORGANISATIONS AND INSTITUTIONS

Organisations and institutions are a key element of this study; their evolution and their role in the sustainability of energy-climate policies in the long run is one of the central points analysed in this research. Therefore this section aims at clarifying what they are and in what way they interact with each other and with the processes of implementation of energy-climate policies.

In the literature, institutions can be defined as a kind of skeleton that holds the society together and that enables it to adapt; “Institutions apply both to structures of power and relationships as found in organisations with leaders, membership, resources and knowledge, and to socialised ways of looking at the world as shaped by communication, culturally ascribed values, and patterns of status and association” (O'Riordan & Jordan, 1999:81). According to some authors, institutions are very crucial when it comes to understanding and responding to global climate change (ibid.) and institutional change is even considered as central element for sustainable development, according to the very definition given by the Brundtland Report:

“The objective of sustainable development and the integrated nature of the global environment/development pose problems for institutions [..]. Yet most of the institutions facing those challenges tend to be independent, fragmented, working to relatively narrow mandates with closed decision processes [..]. The real world of interlocked economic and ecological systems will not change; the policies and institutions concerned must” (World Commission on Environment and Development, 1987:9 in O’Riordan & Jordan, 1999:82).

The difference between organisations and institutions can be understood through a comparison with a competitive team sport: if institutions can be compared to the rules of the game, organisations stand for the players (North, 1990, 1993; Ostrom, 2005 in Suleiman, 2010). Organisations and institutions interact with each other and therefore participate to the evolution of political system, society and economy and to institutional changes (Suleiman, 2010). Institutions are always changing because they adjust to the needs of the times as interpreted by society (O’Riordan & Jordan, 1996). They can also be considered as “social and political stabilising mechanisms that create and maintain order and a sense of shared commitment to a society” (ibid.:88). This last aspect of institutions is particularly interesting in our case since we will look at their role in sustaining energy-climate policies, thus creating a sort of stability in the environmental work. Rules related to institutional environment are both formal and informal; formal rules are for example political, judicial and economic rules, while informal rules relate to shares understandings, traditions and codes of conduct (Ostrom, 2000, 2005 in Suleiman, 2010). On the other side, “organisations as described by Ostrom (2005:179) and North (1993) are groups of individuals and players in governance processes who are bound by some common purpose to achieve the objectives
of their founders and who are committed to finding a way to achieve these objectives” (Suleiman, 2010:38). As organisations can influence the formulation of rules, they have an influence on the evolution of institutions. Six main organisations are defined in the literature and here are the three most relevant for this study:

- Political organisations: they include political parties, electoral systems and legislators who define the political rules.
- Governmental organisations: for example refer to planning organisations and their administrative/bureaucracy apparatus; they may also be local such as city council.
- Economic organisations: relate to firms, trade unions, family business, cooperative...

Institutional interaction is central in this research, with a focus between political organisations (and in particular their short-term changes), governmental organisations (through the formulation of energy-climate policies) and economic organisations (in this case energy companies, housing companies/cooperative etc.). Institutional interaction can be understood as the influence of a set of rules on another set of rules; for example decisions taken by the government have an effect on the daily operational rules used by individuals and government itself is defined by political institutions, through elections or appointments (Suleiman, 2010). Planning organisations are also intertwined with politics since they have the role to develop policy solutions in order to respond appropriately to specific problems and make government accountable (Healey, 1997 in Suleiman, 2010). Finally these policy solutions developed by planning organisations affect in turn the economic arena where decisions are made in the areas of provision, production, and consumption (Ostrom, 2005 in Suleiman, 2010). Besides economic organisations are directly affected by political institutions through incentive structures, market choices and economic strategies for example.

Thus institutions evolve and change though time, and this change will be studied in the case of governmental organisations shaping energy-climate policies which influence and are influenced by political organisations. These influences will be seen in particular through the evolution of political parties and through organisational changes occurring in administrations.

3.3 CLIMATE CHANGE AND THE POST POLITICAL: POWER, CONFLICT AND CONSENSUS

3.3.1 THE RETURN TO PLANNING
Climate change demands long-term policies and Giddens (2008) raises the issue of how we can think long-term in societies dominated by short-time issues and immediate concerns of voters and how can binding decisions be made that override changes of government. The author advocates for a “return to planning” (ibid.:8), which means in the context of climate change “taking a long-term view of things, with a time horizon stretching over three decades and more into the future” (ibid.:9). The role of the state is to be rethought in that case: may that be at the national or at the local level, it has to provide somehow an appropriate framework to deal with this short-term versus long-term challenge and to mobilise action against climate change. Giddens (2008) uses the term “ensuring state” instead of the commonly used “enabling state” to define this type of state. According to him, the ensuring state not only stimulates others to action and then lets them cope with it, as suggests the idea of an enabling state, but also follows up actions and makes sure that targets are reached. The author also affirms that planning also means that environmental concerns should be present in all branches of government: national, regional and local (which is in agreement
with the first section of this chapter), meaning that action against climate change cannot be left to a specialised department or agency. Therefore “the state has to act primarily as a catalysing force, to encourage innovation and experimentation in mitigating climate change but with a responsibility to monitor and, where necessary, shape these influences” (ibid.:9). Besides the role of the state, Giddens advocates as well for a politics of a return to planning, which would be characterised by a cross-party consensus to be able to take a long-term view when implementing policies, through for example a permanent cross-party commission with the aim to agree a framework for policy-making. To sum-up, two main features are needed in order to manage this return to planning: the integration of environmental concerns in all departments of government (national, regional and local); and forging and sustaining a cross-party consensus in order to overcome problems raised by political changes. But this creation of a consensus can have a side effect according to some authors.

3.3.2 The Post-Political Discourse of Climate Change

Indeed, over the past decades, climate change has received an increasing interest from the public, most political elites, the business and the scientific community. This elevation of climate change concerns in public opinion has brought a general agreement that actions had to be taken for the future generations’ sake, and has at the same time evacuated debates from the public space on the subject: “while there is certainly no agreement on what exactly Nature is and how to relate to it, there is a virtually unchallenged consensus over the need to be more ‘environmentally’ sustainable if disaster is to be avoided” (Swyngedouw, 2009:8). This consensually established framework can be defined as “post-political” according to Chantal Mouffe (2005), where the post-political can be characterised by the reduction of the political to an administration where decision-making is increasingly considered to be a question of expert knowledge and not of political position. This question is highly relevant for this study where, while wondering if short-term political changes can be combined to long-term environmental policies, it raises the question of whether energy-climate questions are post-political in Stockholm, and in that case, if there is nevertheless a return to politics. Mouffe (2005) challenges the post-political vision which aims at a world “beyond left and right” and argues that such an approach creates a misunderstanding of democracy because it negates the conflictual nature of politics. According to her, democratic theorist should not try to design institutions with the aim to reconcile all conflicting view and interests, but should instead strive for “the creation of a vibrant ‘agonistic’ public sphere of contestation where different hegemonic political projects can be confronted” (ibid.:3). While some see in consensus building the very aim of democracy, she affirms on the contrary that the recognition of conflict and the refusal to suppress it by imposing an authoritarian order is precisely the democracy’s specificity. Mouffe argues that political questions are not technical issues which can be solved by experts but need decisions made out of a choice between different conflicting values.

Swyngedouw applies this post-political notion to the climate change discourse, which is the focus of this study. According to him, in addition of being post-political, the climate change discourse held by politicians is characterised by populism, which reinforces the post-political condition. A populist discourse is defined through some “classic tenets” (Swyngedouw, 2009:14) such as:

- universality: climate change is a global threat endangering the whole human kind;
- fetishism and externalisation of "the enemy": CO₂ often stands for the totality of climate change calamities and as an "externalised foe that requires dealing with if sustainable
climate futures are to be attained" (ibid.:17);
- no privileged object of change is identified: there is instead a call for a common humanity-wide action and a mutual collaboration; no social, political or cultural differences are made between “the people”, whereas these differences are the elements bringing the political into discourses.

Therefore according to Swyngedouw, the consensually established discourse on climate change is sustained by populism and deepens the post-political and non-partisan condition. This condition is besides highly institutionalised, he argues, through forms of post-democratic governance, which are characterized by a managerial planning, expert management and administration and which reduces climate politics to the management of consensual practices.

### 3.3.3 POWER RELATIONS

These questions of conflicts and consensus also raise a question of power. Social conflicts enable the search for knowledge, rationality and truth, or “knowledge and power, truth and power, rationality and power are seen as analytically and politically inseparable” (Flyvbjerg, 1998:6). In his *Rationality and Power* (1998), Flyvbjerg argues that rationality is context-dependent and that the context of rationality is power. This is explained through the case study of Aalborg, in Denmark and the project of construction of a bus terminal in the city centre, under the environmental label of public transport. In this case some studies were made by a consulting company in order to assess the environmental impact of the project concerning air pollution and noise levels. When the results were sent to the Danish Environmental Protection Agency, it turned out that the agency questioned the methods and the assumptions used to do the calculations and found that the noise and air pollution levels were higher than the acceptable limits. The EPA therefore sees the bus terminal project as an environmental hazard and recommends it to be constructed at another location. Based on another unclear study supported by the Mayor of Aalborg at the time, the Technical Department at the municipality replied that this location was the only one possible and the bus terminal was finally constructed at the downtown square traversed by pedestrians and bicyclists. From this story, Flyvbjerg draws the conclusion that “power blurs the dividing line between rationality and rationalization” (ibid.:97), which means that when powerful actors require rationalization, and not rationality, the rationalization is easily produced to support a project. Thus power can define reality and “the relationship between rationality and rationalization becomes what Erving Goffman calls a frontstage-backstage relationship” (ibid.:98): frontstage the rationality predominates but backstage power and rationalization do. According to Flyvbjerg, in the end, having the possibility to question something is a pillar of democratic society, and suppressing conflicts is suppressing rationality and power.

This question of power is important for our research, especially when analysing the district heating system. In the case of this energy-climate measure taken by the City of Stockholm, in cooperation with the district heating company, what are the possible conflictual views and interests? Are they discussed or suppressed? In the end, what are the decisions taken, which reveal power relations? Then a question could be how conflicts are suppressed in practice and Connelly & Richardson (2004) have an answer to it and relate that to the difference that often exists between ideal and practical consensus. Indeed, practical constraints and
tensions between different views often lead to compromises and to the exclusion of some of the potential participants, interests, issues, actions or outcomes, and then lead to a gap between the ideal consensus and the reached practical one. In that case, a way of suppressing conflicts is therefore excluding interests or issues, choosing what is to be discussed or not in the planning process; this way the attention is concentrated on some interests and issues which correspond to the “areas where agreement is most likely” (Connelly & Richardson, 2004:12). This choice actually gives power to the designers of the decision-making/planning process since they are the ones choosing what will be or will not be discussed along the process. According to Mouffe (2005) as well, “every consensus is based on exclusion” (Mouffe, 2005:11) because “things could always be otherwise and therefore every order is predicated on the exclusion of other possibilities” (ibid.:18) and this phenomenon is simply the expression of a particular structure of power relations according to her.

These theoretical constructs are relevant to the questions to be answered in this study and their theories will help constructing reflections on the empirical results found: how do environmental concerns and policies interact with political and governmental organisations? To what extent do short-term political changes affect long-term energy-climate policies? This question raises the problem of consensus building to enable action and the post-political character of environmental questions: are politicians working on consensus building to provide a long-term perspective for energy-climate policies in Stockholm? And if there is consensus, is it real or only a facade hiding party political differences leading to conflicts, tensions, and in the end the re-politicization of environmental questions?

4. NATIONAL - LOCAL CONTEXT

4.1 SWEDISH NATIONAL CONTEXT

4.1.1 GENERAL ORGANISATION – MULTI LEVEL DECISION MAKING

The Swedish decision-making system is a three-level system with two dominant levels which are the state and the municipalities. In between there is the regional scale which is much weaker when it comes to power and to foreign investments (Office of Regional Planning, interview, 2010-04-15).

At the national level the Swedish people are represented by the parliament (Riksdag), which has a legislative power. The Government implements decisions taken by the parliament and is assisted in its work by Government offices, the ministries. The Government has a very important role in Sweden because it has the power to decide on every big infrastructure investment; the Government is the one in the end taking the decision, not the minister concerned. The ministries are quite small in Sweden: they have only a hundred of employees. This is due to the existence of around 300 state agencies or administrations (Government Offices of Sweden, 2009) which are quite important: for example the Swedish Energy Agency (Energimyndigheten), the Swedish Transport Administration (Trafikverket), the Swedish Road Administration (Vägverket), the Swedish Civil Aviation Administration (Luftfartsverket), the Swedish Maritime Administration (Sjöfartsverket)... They operate the practical work dictated by the State and they receive money for that purpose.
Then at the regional level Sweden is divided into 21 counties and political tasks are undertaken by the county council, whose decision makers are directly elected by the people of the county in general elections. The operations of the county councils are financed by government grants and county council taxes and charges. There is also the County Administrative Board led by a governor who is nominated by the government and who therefore represents the state authority on the regional scale. At the regional level there are also some public authorities such as health and medical care or public transport. Finally at the local level there are 290 municipalities. Each municipality has an elected assembly, the municipal council, which takes decisions on municipal matters. The municipal council appoints the municipal executive board, which leads municipality work. Operations are financed by local taxes, government grants, and charges. Municipalities have the planning monopoly and decide everything when it comes to physical structures. Of course the County Administrative Board or the Government can interfere and sometimes they overrule municipalities’ decisions, but it's very rare; the municipalities have an important power when it comes to housing, local infrastructures, technical systems, water management, green structures…. There is also an organisation called the Swedish Association of Local Authorities and Regions (SALAR) which deals with social issues, education, planning, climate and environment for example. It is a politically controlled organisation, but not an authority (SALAR, 2009). These three levels of the Swedish model of government administration can be explained by Figure 1.

In the Stockholm region, the County Council is in charge of regional planning, which is particular to Stockholm since its relative importance compared to other regions. The Office of Regional Planning (Regioneplanskontoret - RTK) collaborates very much with the
Stockholm region’s municipalities, but also with the state agencies and administrations which belong partly to the regional level. They also work together with the County Administrative Board and SALAR because “they have a good structure to meet the politicians from the municipalities (…) and we often see that it is necessary to cooperate” (Office of Regional Planning, interview, 2010-04-15). Because of the planning monopoly held by municipalities, the Office of Regional Planning has to cooperate with them:

“In the plan we [Office of Regional Planning] work at the regional level saying that we have a more holistic view, whereas municipalities look only at their territory. So when we meet them, even if there was a long dialogue process in the plan, there are still things where we don’t agree on, because we have a wider perspective and we say that some things should be done in another way that the municipalities think and they have the last word. But they must understand that there are some things that are bigger than the municipalities.”

(Office of Regional Planning, interview, 2010-04-15)

4.1.2 Two State Agencies: The Swedish Energy Agency and the Swedish Environmental Protection Agency

This section aims at briefly presenting two state agencies which are important in the shaping and implementation of environmental and climate policies.

The Swedish Energy Agency (Energimyndigheten) is a government agency for national energy policy issues; it has around 250 employees (Swedish Energy Agency, 2009). The agency has four departments: energy analysis department, energy technology department, energy efficiency department and market development department. The agency is a major financer of research and development in Sweden and produces knowledge about supply, conversion, distribution and use of energy for investigations ordered by the Government. At the moment, one of the major agency’s focuses is on improving energy efficiency, because “established climate changes and increasing energy prices make it even more important to use energy more efficiently” (Swedish Energy Agency, 2009). This work on energy efficiency is applied in one of the agency’s most important programmes at the moment called “The Sustainable Municipality”. This programme for a Sustainable Municipality is a cooperation between the Agency and more than one fifth of Sweden’s municipalities. It is based on the participating municipalities’ ambitions to make their local communities more sustainable. The Swedish Energy Agency contributes with knowledge, information and networks which facilitate and make the work done by each municipality more efficient (Swedish Energy Agency, 2009).

The Swedish Environmental Protection Agency (Naturvårdsverket) is the national agency for environmental protection and nature conservation as well as outdoor recreation and hunting issues. Its key tasks are to present proposals for environmental policy and legislation to the Swedish Government and ensure that environmental policy decisions are implemented. The Swedish EPA supplies expert knowledge and proposals to central government in its national, EU and international work on environmental issues. Nationally the Agency regulates, sets standards and acts as a guide, coordinator and evaluator. Funded by central government, the Swedish EPA is an independent authority acting on the basis of a government ordinance that defines its terms of reference (Swedish Environmental Protection Agency, 2009). Among other responsibilities, the Swedish EPA evaluates the
effectiveness of different measures in attaining the National Environmental Quality Objectives (see section 4.1.3) and proposes new measures where necessary.

4.1.3 ENVIRONMENTAL WORK

Environmental work in Sweden and specifically climate change policy, is firstly shaped by the European environmental work, which fits itself into the international environmental framework. Over a decade ago an international treaty was signed by most countries: the United Nations Framework Convention on Climate Change (UNFCCC); the European Community and 37 industrialised countries signed an addition to the treaty, the Kyoto Protocol. The Kyoto Protocol is a legally binding agreement to reduce greenhouse gas emissions worldwide and entered in force in February 2005. It requires the 15 countries that were EU members when it was signed in 1997 ('EU-15') to reduce their collective emissions in the 2008-2012 period to 8% below 1990 levels (United Nations Framework Convention on Climate Change, 2010). In 2000 the European Commission launched the European Climate Change Programme (ECCP), which led to the adoption of policies and measures such as the EU Emissions Trading System². In 2007 EU leaders endorsed an integrated approach to climate and energy policy and committed to cut European emissions by at least 20% of 1990 levels by 2020 (EUROPA, 2010).

Sweden started its work with general environmental issues quite early compared to other countries. The first important world conference on environment was held in Stockholm 1972, 40 years ago, ”and this was the very starting point I would say which influenced a lot of stakeholders here” (Office of Regional Planning, interview, 2010-04-15). The Swedish EPA started very early, it was created in 1967 (Swedish Environmental Protection Agency, 2009), where other countries did not really care yet about environmental issues. Sweden has had these institutions for three or four decades now and this has significance on how advanced environmental work is. Then with the entrance of Sweden in 1995 in the European Community, this was even accelerated because of European grants enabling more environmental projects and research. A regional planner working at the Office of Regional Planning tells about Sweden’s early environmental work:

“I've worked here [in Sweden] since 1997, I'm from Germany, and I was involved in the very first so to say climate project, and the Kyoto Protocol played a role in converting the bus fleet, building logistic centres in more energy efficient housing, etc. so I would say this says a lot, we have reduced our emissions per capita by 12% between 1990 and 2005.”

(Office of Regional Planning, interview, 2010-04-15)

When it comes to why Sweden started so early to work with environmental issues, I always heard this answer that Sweden “always” had a tradition of taking care of its environment and natural areas. The reason could be “this 200 year-old tradition that you are allowed to go in the nature, to pick the berries (…) even if you don’t own the land” (Stockholm City Development Administration, interview, 2010-02-16). This Swedish Right of Public Access is called ”Allmansrätten” in Swedish and is an important part of Swedish cultural heritage.

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² EU ETS is an emissions trading scheme under which large emitters of carbon dioxide within the EU must monitor and annually report their CO₂ emissions, and they are obliged every year to return an amount of emission allowances to the government that is equivalent to their CO₂ emissions in that year (EUROPA, 2010).
In 2002, Sweden elaborated a Climate Strategy and set some objectives in this Bill. Concerning carbon dioxide, "Swedish emissions of greenhouse gases are to be at least 4 per cent lower in 2010 than they were in 1990" (Ministry of the Environment, 2003). In 2009 decisions were taken on a new climate and energy policy. The target is for Swedish greenhouse gas emissions, from activities not included in the EU Emissions Trading Scheme, to decrease by 40 per cent by 2020 (in comparison with 1990). This means that emissions must decrease by around 20 million tonnes, expressed as carbon dioxide equivalents. Emissions reductions need to take place principally in the transport sector, from housing, waste management, agriculture and forestry, aquaculture and other parts of industry (Swedish Environmental Protection Agency, 2009). Next to this Climate Strategy, Sweden has set goals for the future for its environment. These goals are constructed around the 16 "Environmental Quality Objectives", which are for example: reduced climate impact, clean air, a non-toxic environment, a good built environment, etc. These objectives describe the quality of the environment Sweden wants to achieve by 2020 and all of them have been translated to regional and local objectives to create coherence between the different decision making levels.

In 4.1.3.1, 4.1.3.2 and 4.1.3.3 follows a presentation of the main measures taken by the Swedish Government to reduce climate impact.

### 4.1.3.1 The Carbon Dioxide Tax

The carbon dioxide tax was introduced in Sweden in 1991 and it "has played a considerable part in reducing effects on the climate in a socio economically effective manner" (Swedish Energy Agency, 2009). It is levied on the emitted quantities of carbon dioxide from all fuels except biofuels and peat and it is intended to reduce carbon dioxide emissions from fossil fuels. In 2009 it reached a level of 105 öre per kg of carbon dioxide. The introduction of carbon dioxide tax has given biofuels a favoured position. Their use increased substantially in 2008, to almost 22 % more than in 2007, so that they supplied no less than 71 % of the total fuel input (Swedish Energy Agency, 2009):

"I think it was an important step forward because when the carbon tax was introduced then there were some investments in wind power, CHP plants, bio fuels and so on. (...) I think that the carbon tax was an important action and I don't think that the price level was the most important aspect, but just the fact that it was introduced, because the price was not so high at the beginning; but it created a consensus on climate policies."

(Energy Agency, interview, 2010-05-20)

What is interesting here is the fact that the carbon dioxide tax was introduced in 1991 in Sweden, which is quite early, and that only five other countries in the word at the moment have introduced it: Finland in 1990, Great Britain in 2001, where it is called "climate change levy", Boulder (Colorado, United States) in 2007, Quebec in 2007 and British Colombia in 2008 (Carbon Tax Center, 2009). And apparently it was not so difficult to introduce the carbon tax in Sweden, as told me an energy expert (Energy Agency, interview, 2010-05-20): Sweden at that time was already not so dependent on coal because of the use of nuclear power and because of the fact that Sweden does not have any natural resource of coal, gas or oil. Coal was mostly used for electricity production, and this was not taxed at all. Therefore there was no resistance from the energy companies and nor from the district heating companies. Actually, the change for district heating companies was quite small because they
had already gone very far on the reduction of fossil fuel (Swedish District Heating Association, interview, 2010-05-05).

When the carbon tax was introduced, the Social Democrats were the majority in power at the government “but everybody wanted it” (Swedish District Heating Association, interview, 2010-05-05). According to the interviewee, the carbon tax encouraged people to be more creative. Indeed when the Government introduced the tax, they did not mention what should be used instead of oil, therefore the district heating producers had to find themselves an alternative. For example, they started using waste to produce energy or the surplus heat from heavy industry, which provides hot water. Nowadays district heating producers burn bio oils and bio liquids which are coming as waste from industry; and they can be imported from anywhere because it has no values in other countries

4.1.3.2 The Congestion Charge
The Stockholm congestion charge is a traffic congestion and environmental tax that has been imposed on the majority of vehicles in Stockholm; it is the second of its kind to be introduced in Europe following the London Congestion Charge introduced by the London Mayor, Ken Livingstone.

The Stockholm congestion charge was first introduced as a trial between 3 January 2006 and 31 July 2006. A referendum on the future of the congestion charge was held in September 2006; the residents of Stockholm municipality voted yes, and 14 other municipalities voted no to implement it permanently. In October 2006, the Swedish Government declared that the Stockholm congestion charge was to be introduced permanently during the first half of 2007. The incomes from the reintroduced congestion charges in Stockholm were supposed to be used to finance public transport in the Stockholm region but are now to be used in partly financing a new bypass road, “Förbifart Stockholm” after the election of the Moderates/Alliance in 2006. The Swedish Road Administration is the body responsible for the administration of the charge and its systems.

With this congestion charge, emissions of fossil carbon dioxide in the city have decreased by about 4 % since 2006 (SLB Analys, 2009).

4.1.3.3 The Klimp Investment Programmes
The Swedish Government’s support to Climate Investment Programmes, "Klimp", is a tool for reaching the Swedish climate objective as formulated in the Swedish climate strategy in 2002. Klimp has enabled municipalities and other local actors to receive grants for long-term investments that reduce greenhouse gas emissions. The grants have been distributed five times by the Swedish Environmental Protection Agency between 2003 and 2008. The Government (Moderates/Alliance) has no plans to make any further grants. The investments are estimated to reduce emissions by 1.1 million tons of carbon dioxide per year (Swedish Environmental Protection Agency, 2009), which corresponds to about a third of the Swedish climate objective, which is to cut the level of greenhouse gas emissions by four percent over the period 2008-2012 compared to the 1990 level. Between 2003 and 2008, Klimp funding of SEK 1.8 billion was granted for 126 climate investment programmes. The grants have been invested in 67 municipalities, seven municipal associations, five county councils and four companies in all counties throughout Sweden. The City of Stockholm received in 2008 29.6 million Swedish Kronor in grants from the Environmental Protection Agency to local climate investments, which include
investments in district heating and biogas (City of Stockholm, 2009). See Figure 2 for the repartition of the grants between the different sectors.

Figure 2: Klimp 2003-2008, grants per sector. Source: Swedish EPA’s website: http://www.naturvardsverket.se/en/In-English/Menu/Legislation-and-other-policy-instruments/Economic-instruments/Investment-Programmes/Climate-Investment-Programmes-Klimp/

4.1.4 Statistics – Results
In 2008, Sweden emitted 64 million tonnes of greenhouse gases. Compared with 2007, this is a decrease of almost 2.2 million tonnes. Emissions are around 11.7 per cent below 1990 levels (Swedish Environmental Protection Agency, 2009). See Figure 3 below to see the evolution of greenhouse gas emissions in Sweden from 1990 to 2008.
The greatest reductions in emissions over the period took place in the residential and service, agriculture, waste and some industrial sectors. Greenhouse gas emissions from the residential and service sector have deceased since 1990 due to a change-over from individual heating with oil to district heating, heat pumps and biomass fuels. Besides, the waste that was previously sent to landfill is now largely incinerated for district heating production.

Emissions from the transport sector have had an increasing trend during the period 1990–2008 and were higher in 2008 than in 1990. It is freight transport in particular that is accounting for the increase, with the volume of transport following the trend in the national economy. The emissions have however been at about the same level since 2005 (Swedish Environmental Protection Agency, 2009).

4.2 THE STOCKHOLM CONTEXT

4.2.1 POLITICAL ORGANISATION – HOW THE CITY IS GOVERNED
The City Council is the City’s supreme decision making body and is Stockholm’s own “parliament”. The 101 councillors are appointed following general elections held at the same time as the parliamentary and county council elections. The City Council establishes goals and guidelines for the overall work of the municipality. The matters on which the councillors decide have generally already been drafted and discussed by various boards and committees. Once political decisions are referred for practical implementation, the employees of the City administrations and companies take over. If the Council functions as Stockholm’s parliament, the City Executive Board can be thought of as its “government”. The City Executive Board expresses an opinion in all matters decided by the Council and bears the overall responsibility for ensuring that its decisions are executed, followed-up and evaluated. The Board is also responsible for the City’s financial administration and long-term development. The City Executive Board consists of 13 members who represent both the majority and the opposition.

The City’s political organisation also comprises eight governing Vice Mayors who are full-time politicians and are appointed by the City Council. Each Vice Mayor is head of an administrative division (e.g. Environmental and Traffic Division). There are also four Oppositional Vice Mayors. Together, the Vice Mayors form the Council of Mayors. The work of the Council of Mayors is headed by the Finance Commissioner, who chairs both the Council of Mayors and the City Executive Board (City of Stockholm’s Executive Office, 2010).

Concerning the political situation in the City of Stockholm, there are two big parties, two middle-sized and some small parties. The big ones are the Social-Democrats and the Moderates (former Conservative party); the middle-sized ones are the Liberals and the Left Party, while the smaller ones consist of the Green party, the Christian Democrats, the Centre Party and the local Stockholm Party. On a left-right axis the Moderates find themselves on the right, closely followed by the Liberals, while the Left Party is located on the left side. The Green Party claims to be in the middle, but frequently votes with the left. To form a majority it is necessary to have at least three parties in the coalition. If there is a victory for the left this means that the Social-Democrats have to agree on a political platform with the Left and Green parties. If there is a victory for the right the Moderates have to form a coalition with
the Liberals and one of the small parties to the centre-right (Vestbro, 2004). Elections occur every four years in Stockholm and the coalition has been shifting at each election in recent years from left-green (1994-1998) to right (1998-2002) to left-green (2002-2006) to right (2006-2010) (Statistics Sweden, 2008). Therefore the party ruling during the period the interviews were conducted (between January and June 2010) was the Moderate Party, in alliance with the Liberals, the Christian Democrats and the Centre Party. The next general elections will be in September 2010.

4.2.2 STOCKHOLMS STAD – CITY OF STOCKHOLM

The City of Stockholm’s work is supported by different administrations. Here is a presentation of the most relevant ones for this study:

**Stockholm City Development Administration** (Exploateringskontoret): this administration leads the work on the implementation of the plans related to the physical environment in Stockholm. This means the management, development and exploitation of the city’s land.

**Environment and Health Administration** (Miljöförvaltningen): this department is responsible for the environment in the City of Stockholm and this can range from traffic to water issues, chemicals, air quality and hygiene. One of the administration’s main tasks is monitoring the effects of measures taken by the City. They also work with Stockholm’s environmental programme and with information campaigns towards citizens.

**City Planning Administration** (Stadsbyggnadskontoret): this department is responsible for the elaboration of strategies for the city’s overall development. Their most important task is to “promote an attractive and well-functioning city with attractive and functional buildings and urban environment” (City of Stockholm, 2010).

4.2.3 ENVIRONMENTAL WORK - STOCKHOLM’S ACTION PROGRAMMES AGAINST GREENHOUSE GAS EMISSIONS

Since 1995, Stockholm has actively endeavoured to reduce emissions of greenhouse gases in conjunction with which two action programmes against greenhouse gas emissions have been carried out (1995-2000 and 2000-2005). The target of the Environmental Plan for Stockholm (1995-2000) was, by the year 2000, not to exceed the level recorded in 1990 for greenhouse gas emissions from electricity, heating and transportation, which was achieved (4.5 tonnes per capita and per year compared in 2000 compared to 5.4 tonnes per capita and per year in 1990). In the second action plan adopted in 2003, a new target specified that greenhouse gas emissions should be reduced to 4.0 tonnes per capita by the year 2005, which was achieved as well (City of Stockholm, 2010).

In 1995, at the same time as the first plan was adopted, a decision to join the ICLEI (International Council for Local Environmental Initiatives) campaign “Cities for Climate Protection” (CCP) was made. Since then, the City of Stockholm has systematically worked to comply with the five milestones of CCP:

- **Milestone 1**: Conduct a baseline emissions inventory and forecast
- **Milestone 2**: Adopt an emissions reduction target for the forecast year
- **Milestone 3**: Develop a local action plan
- **Milestone 4**: Implement policies and measures
Milestone 5: Monitor and verify results
At the end of the programme, when the actions have been implemented, a follow-up of the process and results is carried out (City of Stockholm, 2009).

A new programme has been released this year, in 2010: "Stockholm action plan for climate and energy 2010-2020". Even if the name changed, the structure remains the same as the two previous plans: what has been done and achieved until now; what is the expected development for the different sectors, taking into account the ongoing and planned measures; and what are the conceivable measures.

In the City of Stockholm, the emissions of greenhouse gases from traffic, electricity and heating are estimated to decrease by over 24% between 1990 and 2009. During the same period, the population of Stockholm has increased by 22%, therefore the reduction in greenhouse gas emissions is estimated to be 38% per resident between 1990 and 2009 (City of Stockholm, 2010). It is the City's target to reduce greenhouse gas emissions to 3.0 tonnes per capita by the year 2015 (cf. Figure 4 below).

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**Figure 4: Different scenarios for greenhouse gas emissions in the City of Stockholm per capita between the years 1990 and 2020. Source: Stockholms Stad, 2010:4**
The City’s long term goal is to be fossil fuel-free by 2050 (see Figure 5 below).

The City of Stockholm is clear when it comes to why such an important reduction of greenhouse gas emissions has been possible: it is mainly thanks to the expansion of district heating in the city: "In an increasing number of properties, oil and gas-fired boilers are being replaced by district heating and heat pumps. This is the single largest reason for the decrease in emissions in Stockholm. Today, district heating is being produced with almost 80% renewable energy sources or energy from residual waste or residual waste heat. The district heating system covers over 80% of Stockholm’s total heating needs." (City of Stockholm, 2010:11). The other main reasons for this reduction of greenhouse gas emissions are energy-efficiency improvement in buildings, production of district cooling, clean vehicles and renewable fuels, congestion tax and investments in public transport (City of Stockholm, 2010). Figure 6 shows the share of greenhouse gas emissions in the heating, electricity and transport sectors for the city of Stockholm.

Figure 5: the City’s climate targets. Source: City of Stockholm, 2010:9 (see references)

Figure 6: Share of emissions by sector in Stockholm, 2007. Source: City of Stockholm, 2010:12 (see references)
Now that the overall picture of the national and local contexts has been given, let us listen to what the different actors said during the interviews; and let us analyse their discourse, keeping in mind the main question of this study: what are the interactions between energy transition policies and politics?

5. Analysis of Interactions Between Energy Transition Policies and Politics in Stockholm

5.1 Influence of Environmental and Climate Concerns on the Society

Environment and climate change concerns gain more and more interest nowadays in people's minds. This increased importance has an influence on institutions and administrations, and can be seen through their day-to-day work and their general organisation.

5.1.1 Increased Awareness Among the Society

An overall conclusion from the interviews is that there is an increasing awareness and concern about climate change and environmental issues among the Swedish public opinion. And something which can prove this statement advanced by the interviewees is this study led by the Swedish EPA and reported by The Local (newspaper giving Sweden's news in English): "Swedes claim climate conscience". The results show that 9 in 10 Swedes consider themselves conscious of climate issues and half suffer a guilty conscience when their actions impact negatively on the environment. More precisely: Of the 1,000 Swedes polled in the survey 89 percent replied that they "absolutely" (26 percent) or "to a certain extent" (63 percent) see themselves as climate conscious. Furthermore 70 percent responded that it was considered important in their social circles to show respect for the environment. The Swedish EPA concludes that the environment and climate change has become an important lifestyle and identity issue. The poll showed a four percent increase on the 2008 survey in the number actively striving to reduce their climate impact. The majority, 83 percent, responded that they recycle more. 78 percent replied that they re-use things, an increase from 62 percent last year. Eight of 10 have done something to reduce energy consumption in their homes, two of three changed travel habits, four of 10 their food habits, and a third their holiday plans.

5.1.2 Impact on Organisations

The increasing importance of environmental and climate issues has had an impact on institutions, companies and other organisations over the past ten years. When asked the question "are you working with environmental issues?", the persons I interviewed (were they researchers, energy consultants, civil servants or working for housing companies) all answered that they were indeed dealing with them: "(...) you cannot say that some of our programs are directly aimed at the climate issues, but everything is. It is always in the background" (Energy Agency, interview, 2010-05-20).

This impact of environmental concerns on organisations is to be seen through tangible signs such as a change in the priority sector they focus on. For example, according to two energy consultants, one working at WSP and the other at the Energy Agency, there was a clear shift of focus about 10 years ago from energy efficiency and security of supply in the 80s to the
climate change issue; In some companies environment has been officially declared as one of the most important issues to work with: “[environment and energy market situation] is identified as one of our key issues to work with. (...) It’s been declared a key issue for maybe ten years” (Fastighetsägarna, interview, 2010-06-02). Another tangible sign shows the influence of energy and climate issues on organisations: a change in the resources (money and/or manpower) allocated to work on environmental and climate issues. At HSB (housing company) for example, more people are working specifically on reducing the CO\textsubscript{2} emissions, since the company signed an agreement about two or three years ago to halve them by 2020 and to cut them down to zero by 2050; at Stockholmshem (municipality owned housing company), it is not really that more people are working on the issue but more money has been allocated to work on the reduction of energy use and of CO\textsubscript{2} emissions, and this extra money does not come from the municipality but from the selling of the “bostadsrätt”\textsuperscript{3}, which could be translated by tenant-ownership. At the City of Stockholm, the number of employees working at the Environment and Health Administration, has doubled (from four to eight) over the past four years; but as it will be seen in the next chapter, this can also be interpreted as an effect of the change of government that occurred in 2006, and a sign of the different parties’ ways of working with environmental issues.

Environmental and climate concerns have had a clear impact on the society over the past ten years, but the interviews showed that they have also had an important influence on politics, which will be analysed in the next chapter.

5.2 PARTY POLITICAL DIFFERENCES

Of course there are differences between political parties, and this also applies when it comes to environmental issues. But it seems like the increased awareness among the society about climate change and environment has brought about a large consensus among all parties. The purpose of this chapter is to analyse the concrete influence of this increased concern and awareness on the different parties’ ways to approach the issue and to work with it.

5.2.1 HOW DO THESE DIFFERENCES CHANGE OVER TIME?

Something that has been quite clear in all the discussions I had with the different interviewees is that, according to them, the Moderates have definitely become “greener” over the past four years; according to most of them they are more interested in environmental issues.

“Now it’s amazing since the last elections, I mean now they [the Moderates] have an environmental policy, that’s really a step forward. [...] You cannot imagine what they used to say; we had a debate and one of the conservatives said that the problem with green areas is that you have a lot of small insects that sting humans; that was an argument for questioning the existence of green areas.”

(Green Party, interview, 2010-05-17)

\textsuperscript{3} In Sweden, members of a housing cooperative (bostadsrättsförening) formally own the right (bostadsrätt) to inhabit their respective apartment for an unlimited time, a right that can be bought and sold on the open real estate market. This is one of the main forms of home ownership in the country, and a membership in a housing cooperative is generally held to be the same thing as owning (as opposed to renting) an apartment.
“(…) The right wing got definitely greener; they are pushing for the light rail.”
(City of Stockholm, City Planning Administration, interview, 2010-02-16)

And actually, the same can be applied to the Social Democrats, according to themselves:

“At the start, the Social Democrats was a grey party, we did not think about the environment. (…) we are more concerned now than before; (…) more people today work on environmental questions; (…) if I look to myself, ten years ago, I was a politician and I was not interested in environment; and today I am very interested.”
(Social Democrats, interview, 2010-06-03)

When it comes to why politicians got more interested in environment, the answers were pretty much always the same: it corresponds to an overall change in the society, and as a part of it, politicians have changed as well. The environmental awareness has risen everywhere in the society, so has it in politics:

“(…) the climate debate got really deep in Sweden and I think that one of the best signs of that is that no party can shut their eyes on the climate issue.”
(Green Party, interview, 2010-05-17)

Of course, one should still keep in mind that besides this genuine interest touching the whole society, since politicians are elected by the people, what is important for the voters should also be important for them. As told me a politician from the Social Democrats, regarding the elections and the Green Party that is going further with environmental questions, all the other parties want to be as good as the Green Party is to win the elections: “(…) all parties want to take the Green Party’s questions and put them on their agenda” (Social Democrats, interview, 2010-06-03).

Others have suggested that politicians supported this environmental work done in Stockholm because it helped putting the city on the map, especially with the European Green Capital 2010 award. Projects such as the green urban development in the Royal Seaport area, which has been selected as one of 17 urban development projects in the world to be supported by the Clinton Foundation’s Global Climate Positive Programme, contribute particularly to put Stockholm in the spotlight on the environmental scene, and therefore receive political support.

Another possible reason could be the fact that once politicians committed to an objective such as the Fossil Fuel Free City 2050 objective or signed an environmental agreement, they cannot really step back.

With this evolution of environmental concerns among the two major parties, the Moderates and the Social Democrats, the Green Party had to somehow redefine its role and had to evolve as well. Since all parties now care about environmental issues and develop environmental programs, the Green Party gets more extreme and pushes further the other parties’ ambitions.

“For many years we were quite comfortable at working with politicians telling them that they don’t understand the environmental issues; that it is much bigger than they think… and then this changed when other parties said as well that climate change was an important issue. Our role needed to be redefined then and now we focus on what is it
that the other parties are missing now with the climate issue. (...) it is getting more diverse and deeper.”
(Green Party, interview, 2010-05-17)

In this context, where all parties seem to converge to the same ideas when it comes to environment and climate issues, is it possible to distinguish them in the end? And is there still a political debate going on around these issues?

5.2.2 Search for Consensus?

It can be said that the search for consensus has been a characteristic of Swedish politics as a whole for many years, as noted Petersson (1994:34): “The aim of political decision-making has been to avoid divisive conflicts; an emphasis on compromise and pragmatic solutions has led to a political culture based on consensus”. And this may also apply to the environmental politics.

If one studies the environmental programmes set by the different parties, is it possible to distinguish them on these issues? According to the different people I interviewed, even those working closely with politicians at the municipality, there are no real differences between the different parties, or to be more precise, between the Social Democrats and the Moderates. According to a planner these two parties have pretty much the same way to look at traffic, transport and buildings; only details differ (City of Stockholm, Environment and Health Administration, interview, 2010-04-16). This was confirmed by the CEO of a housing company; according to her there are no big differences between the parties because no one today would say that they do not want to work with climate change (HSB, interview, 2010-05-07). A person working at the national Energy Agency confirms this:

“I think now parties agree so much on everything and it is almost impossible concerning the climate issue to distinguish their different views. We expected the energy and climate issues to be a headline for the next elections in autumn, but I think we won't see any big difference.”
(Energy Agency, interview, 2010-05-20)

Politicians themselves admit that environmental and climate issues bypass strictly partisan or ideological differences; and a politician from the Social Democrats said that it was precisely something interesting with the Green Party: that it is a party in the middle somehow, not left nor right, and that in the end environmental issues are not a question of ideology (Social Democrats, interview, 2010-06-03). A politician from the Moderates confirmed this point:

“(…) that was a strong point when we were talking to the jury at the European Commission [for the Green Capital 2010 award] that environmental issues are above partisan issues.”
(Moderates, interview, 2010-04-29)

But in order to bypass ideological differences, it is clear that the different parties work actively towards reaching a consensus, and sometimes at the expense of some questions which would need a real debate. For example when working on the report about the energy’s future in the Stockholm region, “Stockholmsregionens Energiframtid 2010-2050”, an issue was not discussed: the improvement of competition on the district heating market:
“(…) I believe this is one of the most important questions to address within the region but it was taken off the agenda. (…) I was a little disappointed that it was taken off the agenda but there was consensus, as always” (Stockholm Property Association, interview, 2010-06-02).

Here, an issue has been taken off the agenda to ensure that a consensus would be reachable. This can be directly related to the theory on power and conflict elaborated by Connely and Richardson (2004) about suppressing a subject that would possibly create a conflict to ensure consensus. Further reflections on this are saved to the Conclusion and Discussion section.

5.2.3 Practical Differences

Even if the different political parties can find agreements on a lot of environmental issues and try to reach a consensus as often as possible, some differences in working with environmental and climate issues still remain. These differences appear in the day-to-day work of people dealing with these issues, at the municipality or other agencies, and they somehow reflect the influence of politics on the environmental work.

For example, organisational changes and a change in the resources allocated to work on environmental and climate issues can occur after a change of the party in power in the government. This was explained by a planner: around 200 people work at this department and currently eight of them are dealing in particular with energy and climate issues and this number actually changed from four to eight when the government changed in 2006; the extra four persons work with information and communication with the inhabitants on what they can actually in their day-to-day lives to reduce their climate impact (City of Stockholm, Environment and Health Administration, interview, 2010-04-16). To be able to work on a project, the Environment and Health Administration has to present it to the politicians and if they accept it then the department receives money to work on it. In this case, the money received to work with information to the inhabitants of Stockholm and which enabled them to employ four more people, shows the interest of the current Vice Mayor, Environmental and Traffic Division, Ulla Hamilton, in communication and in working with the community: “[Politicians] think it’s important that the inhabitants can learn about what they do and (…) think it’s important to inform the inhabitants” (City of Stockholm, Environment and Health Administration, interview, 2010-04-16).

The changes of government also affect the day-to-day work in institutions through a change in the areas they should focus on. As mentioned above, a particular attention was put on communication and information on energy and climate issues with the new Vice Mayor, Environmental and Traffic Division; another new focus appeared as well: working jointly with individual companies through a cooperation called the "Climate Pact". Any company active in the region can take part to the programme by setting individual goals aiming at reducing their climate impact and their emissions by 10% by 2011 (Stockholm Climate Pact, Annual Report 2009). When asked about the driving force behind this cooperative venture between the City and its business community, the answer was the Vice Mayor, Environmental and Traffic Division (Ulla Hamilton), who “worked with the companies in Stockholm before; she comes from the business sector, (…) and she was really interested in bringing businesses and the municipality together” (City of Stockholm, Environment and Health Administration, interview, 2010-04-16). According to the latest interviewee her adherence to the Moderates played a role in this interest and shows therefore the
Moderates’ particular way of working with climate issues, which is more business oriented. Other persons perceived a change in their day-to-day work when the majority changed:

“This with this majority it is more like a voluntary way of working actually. Before it was an obligation for all the developers for all projects in the city to follow [an environmental program]; and when the majority came in 2006, they thought it should be a voluntary program. (...) They completely changed the direction for the environmental work.”

(Stockholm City Development Administration, interview, 2010-02-16)

Another concrete example was also put forward: the Moderates’ decision to put an end to the Klimp investment program (presented in section 4.1.3). It is besides expected that the program will be reintroduced if the Social Democrats win the elections coming in September 2010 (Energy Agency, interview, 2010-05-20).

At this stage, one has to notice that these two examples illustrate very well the differences that still remain between the Social Democrats and the Moderates when it comes to environmental policies. They do not really match the consensual way of working nevertheless put forward by both parties, as explained in the previous section. Is this consensus only a facade which hides real political divergences? Or is this consensus only valid in discourses, and then disappears when it comes to concrete actions and measures?

It was actually interesting to ask the politicians themselves from different parties what they thought were the biggest differences in working with environmental and climate issues between them. The answer confirms the questions raised above: in a way everyone claims wanting to go in the same direction, but still the pathways to reach that place are very different:

“If we only focus on climate, nowadays the division is on how ambitious you can be, (...) and then it boils down to what kind of activities or measures you want to implement. (...) Right now the two major parties in climate politics at the national level [Social Democrats and Moderates] have the same long term goal for 2020, but how you implement it is radically different. The main difference is that the current government says that we can do the hardest and most expensive measures to decrease the emissions, in the future; and we say that we need to start with them now because yes, they are expensive, but they are less expensive to do now than in the future.”

(Green Party, interview, 2010-05-17)

This interviewee from the Green Party even mentioned the possibility to change the long term goal, accepted by all parties, to get Stockholm to be a fossil fuel-free city by 2050. Indeed, according to her, the problem with that goal is that the Moderates did not really define what a fossil fuel free city is. The Green Party on the other side has had for several years the goal to phase out fossil fuels by 2030 instead of 2050 (Green Party, interview, 2010-05-17). Therefore even long term goals which all parties agreed on, can change if there is a change of majority in Stockholm’s government.

Here is what answered an assistant political advisor of the Vice Mayor, Environmental and Traffic Division, to the same question on what are the biggest differences between the Moderates and the opposition in the measures taken to achieve the long term goals set in Stockholm’s environmental programme:
“In one way this question is a little bit difficult to answer because we are now the majority ruling and the opposition’s job is to say that we are not doing a good job (...). But our bottom line is really result oriented (...); in every debate you will have the opposition saying “why don’t you spend more on this or that?” and then we’ll try to have a very prioritized environmental work and then you use your money where you can get the results, on few focus points maybe instead of very wide areas. (...) their [the opposition’s] focus was a bit more on a lot of small projects. (...) We try to integrate [the environmental work] and to make it become something that is not on top but integrated in the whole system. (...) I think we are better [than the opposition] in getting this integrated work and getting everyone on board. (...) You should have the companies working together with the city.”
(Moderates, interview, 2010-04-29)

Therefore, according to this assistant political advisor working for the Vice Mayor, Environmental and Traffic Division, the main differences are somehow mainly a matter of approach: selecting fewer but more cost effective projects, and getting the environmental work more integrated. This interview was as well a good opportunity to ask why the Moderates eased off the developers’ environmental obligations, which was mentioned by a planner from the City Planning Administration. According to this political assistant, committing to a certain level of environmental exigencies can lower down the developers’ environmental ambitions: once they commit to a certain goal, even if technologies, for example, improve and can enable them to do better, they will not since they do not have to (Moderates, interview, 2010-04-29).

Finally, according to two members from the Social Democrats, the biggest conflict is about the monetary resources; they say they want to allocate more resources to the Environment and Health Administration to work more in a proactive way on informing people on how they can change behaviour (Social Democrats, interview, 2010-06-03).

Therefore it seems that the Green Party and the Social Democrats agree on the fact that they would allocate more money on the environmental and climate work if they had the majority at the government. Anyhow, the four persons interviewed and representing the three parties recognised the fact that there are some different ways of working with environmental and climate issues between them. When asked what were in particular the areas that brought most conflicts, the answers were unanimous: the transport area, and especially the question of the construction of the new motorway “Förbifart Stockholm”. The Moderates think that “it is absolutely necessary to build it” (Moderates, 2010-04-29), the Green Party is radically against and wants all the money to be invested in public transport instead:

(...)I think that the only tricky question about the Green Party right now is a matter of traffic, because they are really hardcore on traffic. You know “Förbifart Stockholm”, the big traffic project, which is going to be a ring road which is going to remove traffic from Stockholm and put in on the side, they don’t want it. They want all the money on public transport instead, and they really don’t want cars at all.”
(Social Democrats, interview, 2010-06-03)

The Social Democrats’ position itself is not as clear:
“From our side, what can we say... all the party wants that car solution but right now we took the decision that we would go to the citizens and vote about this question; so right now we don't take it inside the party, we want the citizens to vote about it and we will follow the decision.”
(Social Democrats, interview, 2010-06-03)

This question of public transport versus cars is a very central one when it comes to looking at the differences between the Social Democrats and the Moderates on one side and the Green Party on the other side. A crucial point in this case is the fact that this new bypass road will be financed at 80% by money collected from the Congestion Charge (Swedish Society for Nature Conservation, 2010), which represents around 23 billion Swedish kronor. The Green Party is against this project and would rather invest this money in public transport (Őjemar, 2010).

Therefore, even if all parties claim to the necessity of achieving consensus, some important differences remain. These differences bring the repoliticization of environmental issues and conflicts between the different actors, in particular on the measures or actions to be taken to achieve the goals set in Stockholm’s environmental programme. The next chapter tries to look deeper into the question whether political changes and long term goals are somehow compatible or not.

5.3 POLITICAL CHANGES AND LONG-TERM CHALLENGES

Whereas environmental management needs a long-term perspective, usually several decades, politics is characterised by short-term changes. In Sweden and in Stockholm as well, elections occur every four years; and as mentioned in the section 4.3.1, there has been a shift from left to right every four years during the last 20 years. This issue is exactly the one raised by Giddens (2008): there is a challenge in thinking long-term when short-term preoccupations dominate. This following section analyse how this challenge is handled in Stockholm.

5.3.1 SHORT TERM VERSUS LONG TERM

A particular problem arising when dealing with climate issues is the dilemma between the need for long-term change and the short-term concerns of politics. It can be hard for decision-makers to commit to costly and unpopular but necessary measures, in order to reach the ambitious long-term visions. This was explained by a person working at the Swedish Environment Protection Agency, climate division, department for energy and transport:

“One problem that is particular to working with energy and climate (...) is that it is a very long time between your actions and the consequences (...) and it is too far for politicians and people to think about the next generation.”
(Swedish EPA, interview, 2010-06-04)

And to the question do you think that it is hard for politicians to take decisions where they see results after their mandates? This interviewee answered “absolutely”. A researcher at the International Institute for Industrial Environmental Economics at Lund University (interview, 2010-03-18) also talked about this dilemma between the short-term nature of
the political system and the fact that energy systems rely on long-term decisions; according to her there are very few strategies in Sweden when it comes to planning ahead for the future: Sweden has visions, but no strategies to reach them.

I also asked a politician from the Green Party if she thought that it was difficult to implement measures which would bring benefits in the long-term run and she answered that obviously politicians would want to take decisions which bring benefits right away, but this is so often not the case in local politics that they get used to it and in the end take the decisions that are necessary, no matter when the benefits may come (Green Party, interview, 2010-05-17). In that case it seems like politicians are committed to long-term visions and goals and are ready to take short-term measures.

Anyhow, in theory the problem of long-term versus short-term exists; but in practice, do these short-term political changes create barriers when implementing environmental policies? The next chapter shows what the persons who actually work daily with environmental, energy and climate issues think about it, if they perceive the change of political majority every four years as a problem or not.

5.3.2 DIFFERENT PERSPECTIVES
What is initially interesting to notice is that there is not one answer to the question formulated above: some think that it definitely creates barriers, when others do not think that it is such a big issue.

Here are their answers, synthesised in the box 1 below, with on one side those who think that it is possible to manage a long-term perspective with short-term political changes, and on the other side those who do not.

<table>
<thead>
<tr>
<th>It is possible to cope with short-term political changes</th>
<th>A change of political majority every four years can bring barriers when implementing environmental work</th>
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<tr>
<td><strong>Energy expert</strong>: it is not so hard to work with a long-term perspective whereas there is a change of government every four years because nowadays parties agree very much on almost everything. Especially on the climate issue, according to him it is really hard to distinguish their different views.</td>
<td><strong>Energy consultant</strong>: the change of majority every four years is a major problem to carry on environmental policies, because the policies themselves change. The politicians keep the long-term goals but change focus or who will do what. For example the requirements for buildings, that the developers have to fulfil, change with each majority and that was a problem in Hammarby Sjöstad (eco district in Stockholm developed in the 90s): it is hard to have the developers commit if the requirements change all the time.</td>
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<td><strong>Planner</strong> (working on the urban development of an eco-district): no conflicts will arise in the particular case of this urban development between the long-term goals and the short-term nature of politics because all politicians committed for this area to be profiled as an environmental one.</td>
<td><strong>Two politicians from the Social Democrats</strong>: “It is always a problem when we are not in the government [laughter]. Yes, for sure, in the long-term it is always a problem. We had something we called “Miljömilliarder”</td>
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<tr>
<td><strong>Planner</strong>: the Social Democrats and the Moderates have very likely ways to look at environmental issues; and to him it is not such a big difference in his day-to-</td>
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day work if it is the right-wing or the left-wing ruling.

- Politician from the Moderates: Stockholm has a long tradition of working with environment and it has never been connected to who is governing; the environmental issues are above partisan issues. It is easy to maintain continuity in the environmental work in Stockholm.

- Politician from the Green Party: this change every four years can definitely be a problem because major directions are set by small decisions all the time.

Box 1: Different answers to the question: do political changes every four years create barriers to environmental work?

According to the replies in box 1, it seems that the main factor for these political changes not being a problem is that there is a broad and general interest across political parties in environmental questions. According to the interviewees, politicians from different parties are now committed to long-term goals and agree on the overall picture. However, even if the civil servants do not consider these changes as a problem or a barrier, they have to deal with some changes in the actions taken, and one of them working at the Environment and Health Administration even admitted that they were a little bit scared when the change of majority occurred in favour of the Moderates because they did not know what was going to happen with the new government, and especially because they realised that they received nearly half of the previous budget. The administration finally received money from the cooperation with the business sector, and according to him it made no difference in the end in the day-to-day work.

It is interesting to see that the interviewees who are not so bothered by political changes are civil servants and a politician from the party in power, whereas those who think that these changes create barriers to the environmental work are politicians from parties belonging to the opposition and consultants in private companies. Of course, it is hazardous to draw such a conclusion on such a small number of answers, but let us say that this is just a remark which can strike any reader after this section. One possible reason for the fact that civil servants tend to claim that they are not affected by short-term political changes, was advanced by an energy consultant: first, people working at the municipality are maybe not so keen on criticizing their own work and second, they maybe do not follow exactly the amplitude of change asked by the new politicians in power. In other words, they maybe prepare themselves for the next possible change by not absolutely following the directives dictated by the present government. This way, the change of direction in the measures taken could be easier to work with. This can be schematized by Figure 7:
Of course, this is just a hypothesis to explain why the people at the municipality told during the interviews that political changes were not causing so many troubles when working with environmental issues. The other explanation could be that there are indeed no major problems linked to this instable political situation.

Besides, some institutions play apparently a major role in making it possible to ensure a certain level of adherence to long-term goals.

5.3.3 **ROLE PLAYED BY THE INSTITUTIONS: CAN THEY PROVIDE A FRAME TO ENABLE LONG TERM GOALS?**

5.3.3.1 **Environment and Health Administration (Miljöförvaltningen), City of Stockholm**

This idea that the Environment and Health Administration at the City of Stockholm could be a reason why it is possible for the city to reach long-term goals defined in the environmental programme was advanced by a politician from the Green Party. Indeed she thinks that this programme has been a way to stir the discussion and to bring all the actors together; it has also been an important tool to give a direction to the institutions’ work and to politically guide the civil servants. Besides, an interesting point is the fact that period during which the environmental programmes are written (typically four to five years) does not correspond to political mandates, which means that one environmental programme is valid during at least two mandates. This creates therefore stability and continuity along a possible political change:

“(...) So you can have different opinions on certain issues but the environmental programme and the follow-ups give a structure and the different institutions can report how they do. This is a good way to make sure that long-term goals are possible to reach. (...) I would say that, at the local level, if we are able to stick to long-term goals, it has a lot to do with the competence and the knowledge of the people working on a day-to-day basis in the institutions.” (Green Party, interview, 2010-05-17)
According to this politician, the people themselves who are working in the institutions are also an important factor to enable long-term goals since they are experts and non politically driven. According to a civil servant, the City of Stockholm has an important number of experts: “We have a lot of experts here, more than at the governmental level” (City of Stockholm, Environment and Health Administration, 2010-04-16).

5.3.3.2 Office of Regional Planning (Regioneplanskontoret – RTK)
According to someone working at the Office of Regional Planning, it is their role to be a good platform for discussion between the different actors and for information by providing hard facts to the politicians (Office of Regional Planning, interview, 2010-04-15).

The regional level can be seen as a way to bring the municipalities of the Stockholm region together, which implies working beyond political differences since each municipality has its own local government. The Office of Regional Planning published the Regional Development Plan, RUFS 2010, which has challenges for the future development of the Stockholm region and one of them is “reducing climate impact while promoting growth” (RUFS 2010). The plan has a medium-term perspective, up to 2030, and a long-term perspective, up to 2050. It seems quite obvious that if municipalities do not commit to this development plan, the objectives will not be reachable.

5.3.3.3 Swedish Energy Agency (Energimyndigheten)
The Energy Agency receives directives directly from the government. Municipalities are quite independent in Sweden, they do not have to obey to government's offices, but as they are bound by legislation and subsidies, there is a lever for national agencies, and in particular the Energy Agency, to control the municipalities in some way; indeed because of a legislation, municipalities have to have an energy plan and the Energy Agency is the one supposed to control that the legislation is followed. The agency’s influence on municipalities is mainly operated through cooperation and information (Energy Agency, interview, 2010-05-20).

5.3.3.4 Swedish Environmental Protection Agency (Naturvårdsverket)
According to someone working at the Swedish EPA, this also their role “to always remind about the long-term goals” (Swedish EPA, interview, 2010-06-04). According to this interviewee it is especially important to not forget about the long run since people tend to focus on medium-term goals for 2010 or 2020.

Therefore according to people working at these institutions, it is absolutely a part of their duty to act as a frame to sustain environmental, climate or energy policies. They can remind about the long term goals and create somehow a bridge between two political mandates. This is to be related to the literature review on institutions presented in section 3.2. Institutions and organisations evolve to respond to the society’s needs. When it comes to actions against climate change, new departments and structures have been developed, which enable somehow a stabilising mechanism for environmental policies. Institutions represent the society’s shared commitment and values and have thus an important role to play in the sustaining of energy-climate policies.

The analysis of a concrete measure taken by the City of Stockholm to reduce greenhouse gas emissions is needed to understand to what extent the results found in chapter 5 can be
applied in a particular case. The next chapter is a zoom in one of the major measures taken by the City of Stockholm to reduce greenhouse gas emissions, the district heating system.

6. THE DISTRICT HEATING SYSTEM IN STOCKHOLM
As seen in section 4.2, district heating is one of the main actions taken by the city of Stockholm to reduce greenhouse gas emissions. This chapter is an analysis of the interactions between politics and the setting of environmental policies, as presented in section 5, but in the particular case of the district heating system. This focus will be used to exemplify the arguments developed in the previous chapter, through answering the following questions: who are the different actors involved? What are their interests and visions? Is there a political consensus in this particular case? What are the possible conflicts arising between the different actors? Do these conflicts tend to re-politicize district heating issues?

6.1 BACKGROUND

6.1.1 WHAT IS IT?
District heating is a system for distributing heat generated in a centralized location. It arrives at the property in the form of water heated at a central heating plant. This heat is spread among households in the area by transporting the hot water under high pressure through a system of well insulated pipes. This water is at between 70 and 120 degrees, depending on the weather and time of year, and is fed to a district heating centre in each property. There are heat exchangers here that utilise the hot water to heat the radiators in the building and also the hot water in the taps. This isn’t the same water that flows through the various systems – the cooled district heating water is returned to the district heating plant so as to be reheated in a closed circuit (Svensk Fjärrvärme, 2010).

6.1.2 HISTORY OF THE SYSTEM IN STOCKHOLM
The district heating infrastructure was built in Stockholm 50 years ago (City of Stockholm, 2010). At the beginning the network was owned by Stockholm Energi, which was a state owned energy company. In the 90s a lot of municipalities in Sweden sold their energy company and in 1998 (Social Democrat majority) Stockholm Energi merges with the Finnish state-owned energy company Imatran Voima (IVO). The new company is called Birka Energi (electricity and district heating) and the capital is equally shared by the City of Stockholm and IVO. In 2001 (Moderate majority) the electricity part of the company was entirely sold to the Finnish partner, which meanwhile became Fortum. The district heating part was sold as well, but with particular conditions: the City kept 9.9% of the shares of the new company Fortum Värme and 50% of the “influence”, which means that the City appoints 50% of the people sitting at the board but also retains 50% of the economic interests (Boucher-Hedenström & Rutherford, 2007). This led to a situation where the City’s interests got in conflicts with the consumers’ in the way that it is the City’s economic interest to have a price increase, but certainly not the consumers’. The Mayor of Stockholm and Commissioner of finance at the time said that the deal was good for Stockholm taxpayers and energy consumers since it limited the city’s business risks and freed up capital that could be invested in the development of the city’s infrastructures (Fortum, 2001).
6.1.3 The current situation

Nowadays the district heating system covers nearly 80% of Stockholm’s total heating needs. The district heating network is being continuously expanded to further increase the proportion of district heating in the city (City of Stockholm, 2010). The city is supplied by four major production plants: Värtaverket, Högdalenverket, Hässelbyverket and Bristaverket (see Figure 8).

Figure 8: District heating plants in Stockholm. Source: Fortum, presentation

Högdalenverket is a Combined Heat and Power (CHP) plant where wastes are incinerated to produce electricity and heat. The plant has the capacity to receive 700 000 tones of wastes per year (Fortum, 2010).

6.1.4 Towards Renewable

Progressively, district heating companies and Fortum Värme in particular, changed their fuel mix from fossil-fuel to mostly renewable. This shift occurred firstly because of the oil crisis in the 70s which led the district heating companies to start introducing biofuels in their mix. The second reason is the introduction of the carbon tax in the 90s, which was quite low at the beginning, and reached an important level by the end of the 90s: from 28 euro/t CO\textsubscript{2} in 1991 to 84 euro/t CO\textsubscript{2} in 2003 for fuels for heating (but there were no taxes on fuels for electricity production) (Lars J. Nilsson, 2004). This shift in the fuel mix used by district heating producers is described by Figure 9 and Figure 10.
In Figure 9 it is also possible to see the introduction of heat pumps and electric boilers in the 80s due to the Swedish nuclear electricity production, which conducted to low electricity prices.

Fortum followed this overall trend and changed its fuel mix, as can be seen on Figure 11. The share of renewable in the district heating mix evolved from 20% in 1986 to more than 70% in 2006. This shift in the fuel mix is also explained by environmental concerns:

“(…)Nowadays it [the change from fossil fuel to biofuels] is more for the climate change issue [and] the carbon tax.”

(Fortum, interview, 2010-04-19)
Figure 11: Fuel mix for Fortum’s district heating in 1986 and in 2006. Source: Fortum’s presentation

However, in one of the four major plants in Stockholm, Värtaverket, only 45% of the fuel is renewable at the moment (Fortum, 2010). All politicians from the City agree that coal should be phased out in this plant, but the Green Party wants this phasing out to happen earlier:

“But if you look at the climate issue in Stockholm, heating from district heating is a big part so you should do something about it. And so far it’s been mainly the Green party but now the Social Democrats and the opposition they also agree that we should use our voice inside the company[^1] or we should wait for a national legislation to make the price of coal fired district heating much higher. And of course the emission trade system coming from the European level says that the plant in Värtan [nickname for Värtaverket] should buy emission rights. But so far the price for these emissions trades is too low to make it very efficient. The difference is not high enough between making fossil district heating and non fossil district heating. (...)Now they [Fortum] say that they will have a plan to phase out before 2015, and now in the green red opposition we want to have a plan on how to phase out [by 2011].”
(Green Party, interview, 2010-05-17)

“I think if you talk about the red green, the Miljöpartiet [Green Party], they want to shut it [Värtaverket] down immediately, and according to us [Social Democrats] it is a longer process because you have to find ways to produce enough biogas and to collect wastes. (...) I think we have greater ambitions than the Moderates, (...) I never heard during the past four years that the leading party wants to close Värtan, I haven’t heard it, so I don’t think they want to do it, because it’s a lot of money.”
(Social Democrats, interview, 2010-06-03)

A demonstration was even organized on May, the 29th 2010 against Värtaverket. The action group behind this demonstration (Shut It Down) was protesting against the fact that the plant is still half-fired by coal (Bolling & Svahn, 2010).

[^1]: Interviewee referring to the 50% of “influence” the City has in the Board of Fortum Värme.
Therefore the environmental label of district heating is damaged by this plant in Stockholm, and even if all politicians agree on the necessity to phase out coal in this plant, the Green Party wants to go further and to phase out coal sooner.

6.1.5 **The Market Situation in Stockholm**

In Stockholm at the moment the market situation for district heating is a monopoly and Fortum Värme has a free price setting. Figures show that the price of district heating rose by over 30% during the period 2003-2008 (Nils Holgersson, 2009). This increase of district heating prices is highly criticized by housing companies which defend their customers’ rights on the energy market. Fortum answers that the price is set against the prices of the alternatives (Fortum, interview, 2010-04-19). If we look at the alternatives in Stockholm, the major competitor are geothermal heat pumps. Figure 12 shows the heating market situation in Sweden. On this figure it is quite obvious that district heating is the leader on the heating market and that the alternatives are not real competitors when it comes to apartment buildings (the situation is different for commercial buildings and single family houses). Seeing the market situation, an interviewee questioned the fact that Fortum really sets its price against the alternatives; according to him since the alternative represent around 2% of the market, is it really relevant for a company to set its price against such a small competitor? Besides he highlighted the fact that it was a free pricing and that Fortum could set any price (Stockholm Property Association, interview, 2010-06-02).

![Figure 12: Heating market situation in Sweden for apartment buildings. Source: Stockholm Property Association, presentation ("Fjärrvärme=district heating, "Elvärm=electric heating; "Olja=oil; "Övrigt=rest) Another alternative is the development of “passive houses” or “near-zero houses”, which are houses that consume very much less energy than regular houses. There is no real definition of what is a passive construction, but it can be said that it is “a building with such low heat losses that the heat can be transported by hygiene airflow” (Sandberg, Energihus Kalkyl, 2009). In such a building you do not need as much district heating of course. Figure 13 shows the heat needed every month for a passive house and a regular one of the same type, with the same number of people living there. The green part of the picture is electricity for the house equipment and this is about the same amount for both houses. The blue one is the heat and hot water; the amount is much lower in the passive house. 

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If the district heating prices are unacceptable for housing companies, one could think that they can use other ways to heat their buildings, but this is where the situation gets complicated, in particular when it comes to municipality owned housing companies. Since the City has a share in Fortum Värme, and since district heating is one of the City’s major actions to reduce greenhouse gas emissions (City of Stockholm, 2010), what is the real possibility of choice and action for housing companies?

In this case, the different actors involved are Fortum Värme, as the only district heating producer and provider in the centre of Stockholm, the housing companies, as customers of district heating and the City of Stockholm, since they own around 10% of Fortum Värme and the public housing companies. They have different views and interests. The housing companies want to heat their buildings at a competitive price while Fortum Värme wants to expand its network in the Stockholm region and increase its number of customers. The City’s position is somehow a little more confused since they are... in the middle! The next section’s purpose is to clarify each part’s interests and views.

6.2 The Different Actors and Their Interests/Visions

6.2.1 The City of Stockholm

As seen in the background section, the City kept a share in Fortum Värme. It may be because the City saw the importance of district heating, and they did not want to lose completely the control over it (Fortum, interview, 2010-04-19) or in order to restore confidence in the public opinion:

“(…) [I]t was a consensus between the Social Democrats and the non socialists parties to [sell Birka Energi], but of course, in the public opinion at least, it was necessary to tell them, and the housing companies as well, “don’t be afraid, we are still there”. So in order
to make it politically possible, you had to organize something like that.”
(Former SABO’s CEO, Director of Fjärrvärme Kommittén, interview, 2010-06-04)

And besides this share in the company, the City has 50% of the “influence”. But what is the real level of influence of the City when it comes to price setting or other important decisions? This is a question I asked to several persons and here are some replies:

“The City has 50% of the influence but we have very little influence on the investments; we are one of the shareholders not investing in the company.”
(Green Party, interview, 2010-05-17)

“[Fortum] is a Finnish private company, so they have to make the job in business terms.”
(City of Stockholm, Environment and Health Administration, interview, 2010-04-16)

“I think that the City of Stockholm has lost its importance in the company, it is run as a private company; profit is their top priority and they have a very commercial view.”
(Swedish District Heating Association, interview, 2010-05-05)

“My impression is (…) that they are totally without influence and of course Stockholm is a minority shareholder and it is of course a little bit difficult to first sell the company and then say to the buyer that you can’t take the price you want.”
(Former SABO’s CEO, Director of Fjärrvärme Kommittén, interview, 2010-06-04)

“(…) [T]he people from the City that in Fortum’s board, they must work for Fortum, not for the City because it is a business company; so when you are at the board, you must work for the company, no for others.”
(Stockholmshem, interview, 2010-06-05)

“I don’t think [that the City has an influence on the company], it is a private company and it is ruled as a private company.”
(Fortum, interview, 2010-04-19)

These answers give a quite clear picture of the situation: even if the City has a little share in Fortum Värme and especially 50% of the board, they have no influence on the price setting; they cannot use their presence in the board to regulate Fortum’s prices on district heating.

Besides, one could think that, as partners in one of the main measures to reduce greenhouse gas emissions, the City and Fortum Värme would share a common view of what “sustainable development” means and that they should have a common policy for expanding district heating in the city. But this is actually not the case: Fortum’s strategies do not go hand in hand with the public housing companies’ strategies which are supported by the City. Indeed, the public housing companies set their energy efficiency goals in terms of an amount of bought kWh/m²; and in that case it is easier to use heat pumps since they use less kWh: if a building requires 100 kWh one can use either 100 kWh of district heating or 33 kWh of electricity and produce heat with a heat pump. One kWh of electricity can produce three kWh of heating. This way, if no difference is made in the kind of kWh used, heat pumps seem to be the most logical choice. This actually not an easy question and Fortum has a current discussion about it with the City, because the company would like to make the impact on the climate count more than the actual amount of energy used (Fortum, interview, 2010-03-19).

The truth is Fortum Värme and the City do not have the same way of counting carbon
dioxide emissions. The City of Stockholm uses a Life Cycle Analysis perspective on the fuels that are used in Fortum’s mix\(^5\). This calculation is performed by a group of researchers at KTH, Department of Industrial Ecology. Their policy is to be totally transparent and all their calculations are easily accessible. Fortum’s way of counting the emissions of carbon dioxide due to the production of district heating seems to be not as clear as the City’s:

“We [the City] tried to see what can be the true consumption [of energy] and Fortum has a producer perspective and we have a consumer perspective; and because of that we have different views. I have studied their way to do it and I found it a little bit difficult to understand it. (...) [I]t is very complicated because they produce electricity and heat in the same plants, and how much of the emissions goes to electricity and how much goes to heat? And they count in a very complicated way, we can see how they are doing it but we don’t understand why they are doing it this way. Because as we see it, they put a lot of the emissions out in the Nordic electric system, and then when it comes back to Stockholm it is not so much emissions left, they sent it out in the electric system; and perhaps there should be more emissions in the heating system... (...) we don’t find the same results.”

(City of Stockholm, Environment and Health Administration, interview, 2010-04-16)

"Every calculation we make, we have 100% transparency, so if somebody comes and says "you’ve made a mistake here", that’s not a problem, you can easily see every steps of our work. I mean there are a lot of companies that claim that they are carbon neutral or all these kinds of things but you can’t really see how they achieve these kinds of things. So for example, for Fortum, they say that they emit around 70g of CO\(_2\) equivalents/kWh\(^6\) and since district heating is a big think in Stockholm, we calculated the emissions for the district heating mix, using these emissions factors, and we calculated that they emitted about 100g/kWh\(^7\)."

(KTH, Industriell Ekologi, interview, 2010-03-25)

Since they do not have the same way of counting carbon dioxide emissions, of course the City and Fortum Värme do not have the same policy regarding geothermal heat pumps for example. According to the City, if a house owner decides to have a geothermal heat pump and buys electricity produced by hydropower or wind power, then this person has done a very good choice; and the City thinks this is the best way, to get customers think about what they are doing. The City wants to let them the possibility to make the best choice possible and does not think that district heating is always the best way to provide heat. Besides, the City is conscious that there is an issue with the price setting, and understands that sometimes, even in the city centre some customers choose heat pumps over district heating. In the end, “[their] opinion is that the best way to handle this is: let everyone make their own choice” (City of Stockholm, Environment and Health Administration, interview, 2010-04-16). Thus, while the City is talking up the environmental benefits of district heating, they

\(^5\) Since the company is working for profit, this mix can change a little according to the fuels' prices, but also depending on the weather: during extremely cold winters, some extra boilers running on oil will be necessary...

\(^6\) Fortum reports: “The five-year average value of the specific emissions of electricity has decreased since 2006. In 2008, this value was below the 80 g/kWh target value for 2020” (Fortum, 2009).

\(^7\) KTH reports 102.5 g/kWh of CO\(_2\) equivalents emitted for the production of electricity combined to district heating (KTH, Industriell Ekologi, 2008).
are not particularly promoting it towards the inhabitants. There are no agreements forcing the developers to connect to district heating, not even the municipality owned ones. For example Stockholmshem use heat pumps, which reduces its consumption of district heating, and the City cannot intervene because otherwise “newspapers could write about it” (Stockholmshem, interview, 2010-06-05). Therefore the public housing companies are “allowed” to use alternatives to district heating to create a competition with Fortum, and this shows the position of the City in this conflict:

“They [the City] are more in favour of a free competition; they think that it is good that housing companies try alternatives to compete with Fortum. It’s ok if housing companies try to get a better position, but they [the City] cannot say anything to Fortum.” (Former SABO’s CEO, Director of Fjärrvärme Kommittén, interview, interview, 2010-06-04)

6.2.2 **Fortum**

Fortum is a Finnish energy company founded in 1998 from the combination of the state owned Imatran Voima (IVO) and the listed company Neste Oyj. Fortum is focusing on the Nordic countries, Russia and the Baltic Rim area. Their activities cover the generation, distribution and sale of electricity and heat and the operation and maintenance of power plants. In 2009, Fortum’s sales totalled EUR 5.4 billion and operating profit was EUR 1.8 billion. The company employs approximately 11,500 people (Fortum, 2010).

As seen in the background section above, there are some alternatives to heat buildings in Stockholm, and the major competitor to district heating are geothermal heat pumps. Of course Fortum as a private company working for benefits wants to expand its network of customers and therefore explains to households why they should not use heat pumps. And Fortum uses climate change as one of their arguments in order to have households choose district heating over other solutions. According to them, it is a question of education and of showing them what would be the consequences for the environment to have a heat pump instead of district heating: then it is up to the consumer to take the decision (Fortum, interview, 2010-03-19).

This environmental impact of choosing to use heat pumps in a district heating area is explained by the two schemes below (Figure 14 and Figure 15):
Figure 14 shows how wastes ("avfall" on the figure) produced by households are used in the fuel mix and burnt to produce heat ("värme") and electricity ("el"). The heat is delivered to the households while the electricity goes to the Swedish mix ("svensk mix"). The electricity demand in Sweden is signalized by the red line on the scale, which means that more electricity than needed is produced. The extra produced electricity is then exported to Europe ("Elexport till Europa") and contributes to improving the environmental quality of the European electricity mix since electricity production in CHP plants emits much less than electricity production in coal fired plants: "If we produce better energy than they do in Denmark and Germany, we can export it and the carbon dioxide they save is saved in Europe, maybe not in our chimneys but in their chimneys" (Fortum, interview, 2010-03-19).

Another option is shown in Figure 15, where some households choose to have heat pumps instead of district heating.
Figure 15: Fortum's way at looking at electricity production. Source: Fortum's presentation

Here, as previously, wastes from the households are used in the fuel mix to produce heat and electricity. Then if some of the customers decide to have heat pumps ("värmepumpar") instead of district heating, then less district heating is delivered to the households and some electricity is needed to make the heat pumps work. Since more electricity is needed, it might be necessary to import electricity from Europe ("importerad el Europeisk mix"), which is produced with higher carbon dioxide emissions.

Therefore, according to Fortum, the use of heat pumps instead of district heating leads to using poor environmental quality electricity, whereas using district heating could help improving the European electricity mix.

The same kind of argument applies concerning "passive houses": this type of construction uses much less energy but the energy that is used has a bad environmental quality. Indeed, as it was showed on Figure 13, during the summer almost no district heating at all is bought by the passive house. Therefore the cheap heat produced from a waste-based fuel during the
summer will have to be cooled off, since the waste has to be burnt anyway. Passive houses will only buy district heating when it is extremely cold outside and when the heat pump does not make enough heat. But the fuel that is used by district heating producers during that period of the year is partly coal and oil-based. Hence, these houses will use actually more primary energy than they were doing before and will buy electricity (that will maybe not be green) to aliment their heat pumps. Basically the environmental argument used by district heating producers can be sum up this way: passive houses will buy less kWh but these kWh will have a less good environmental quality.

6.2.3 THE HOUSING COMPANIES
The housing companies, municipality-owned or not, have somehow all the same views on district heating: they criticize the monopoly situation, the prices are too high and they try to get more competition thanks to alternative ways of heating their buildings or trying to provide themselves from other district heating companies:

“When I was working at Svenska Bostäder, we used geothermal heating on two plots I think; and at first it was a problem with Fortum, but we had a discussion and we told them that we had to try new technologies. The City didn’t say anything but we had to discuss with Fortum because we had an agreement with them to get lower prices.”

(HSB, interview, 2010-05-07)

In this situation we can see that the City did not intervene, they let the housing company try new technologies which reduce the consumption of district heating. A public housing company, Stockholmshem, has a particular advantage: they still have some boilers working in the city which can deliver district heating to their buildings, which creates competition inside the city for district heating (Stockholmshem, interview, 2010-06-05).

The housing companies’ position was also explained by someone working at Stockholm Property Association, which is an organisation for private property owners:

“Our members are upset, angry, even disgusted of the evaluation of this market and the situation right now. (…) Because it is a monopoly market, the consumer is a weak part in this market. (…) All our members are customers of district heating companies, close to 100% in apartment buildings (…) so we’re all dependent on district heating companies.”

(Stockholm Property Association, interview, 2010-06-02)

In the Stockholm region other district companies exist and they are usually cheaper than Fortum: Solentuna Energi, just outside Stockholm, has no heat production of its own. Therefore it buys all its heat from Fortum and sells it to a price that is 25% lower than what pay the customers in the Fortum area. In other words, the same water bought from Solentuna Energi is 25% cheaper than bought from Fortum; and within Sweden as a whole there is a price range of maybe 100% from the cheapest to the most expensive (Stockholm Property Association, interview, 2010-06-02).

The problem raised here is the fact that some competition could exist in the region since several district heating producers operate in the region, and especially since their different networks are already connected, but this competition is not possible for the moment. Customers cannot choose their district heating provider. A discussion is actually going on at
the moment about this possible competition between the different district heating producers, this will be explained in the section 6.3.

Moreover even the environmental label of district heating is criticized since it is difficult to actually make a comparison with heat pumps or other techniques: it depends on how the electricity used in heat pumps for example is evaluated, compared to the electricity produced in the district heating plants (Stockholm Property Association, interview, 2010-06-02).

6.2.4 SUMMARY OF ACTORS’ POSITION

To sum up, Fortum’s view and the housing companies’ views are quite clear; Fortum is a private company working for benefits, they want to expand the network and connect the multi-family houses that are not connected yet. However, they are threatened by new technologies such as “passive houses” and consider it as a problem (Svenskfjärrvärme, interview, 2010-05-05). But as explained in this section, against heat pumps or passive houses, district heating producers have an environmental argument: these technologies lower energy use but the energy that is used is not environmentally good.

On the other hand, housing companies defend their customers’ rights on the energy market and try to lower heating prices; it is also their objective to lower their buildings’ energy consumption by improving their buildings’ energy efficiency. Indeed energy efficiency in housing is an area with high potential for energy consumption reduction: 50% of energy use could be cut in Sweden just by improving energy efficiency in buildings; and since they represent around 40% of Sweden’s energy use, it means that 20% of Sweden’s energy use could be cut. And this could be done until 2050 without any major problems (Energy Agency, interview, 2010-05-24). A politician from the Moderates also highlighted the fact that this area could be exploited more since the City owns around 1200m² and that working on this would help reducing greenhouse gas emissions but would also be an interesting investment for the city in the long run: improving buildings’ energy efficiency is economically profitable (Moderates, interview, 2010-04-29). Anyway, if housing companies manage reducing their consumption of energy, this will also reduce their consumption of heat.

The position which is the hardest to fully understand is the City’s: as we saw in this section, the City emphasizes the environmental benefits of district heating in its environmental programmes and always gives the permissions to Fortum to expand its network. But then it is up to the developers to connect to the network or not, the City cannot force them to do so. And actually, as someone working at the City said, there is no such mandatory connection so customers can make the best environmental choice (according to the City), which is to have geothermal heat pumps alimented by green electricity. And what is even more surprising is the existence of district heating pumps belonging to a public housing company, Stockholmshem. It seems like what the director of the Fjärrvärme Kommittén said is confirmed by facts: since the City cannot use any influence inside Fortum on the price setting, the City seems to be in favour of a competition between district heating and alternatives, and to encourage housing companies at getting a better position on the market.

These different positions are synthesized in Figure 16.
The next section is the presentation of a project aiming at creating competition on the district heating market in the Stockholm region.
6.3 The Third Part Access Project

As mentioned above, there are five major district heating producers in the Stockholm region (AB Fortum Värme, E.ON Värme Sverige AB, Norrenergi, Söderenergi and Vattenfall AB Heat Nordic), and their networks are already connected into one network, as shows Figure 17.

The possibility of letting other companies use the pipes in Stockholm is called the Third Part Access, and it has been studied for some years now. The pipes would still remain Fortum’s property but it would create competition in the Stockholm area between different district heating producers. A report initiated by the Stockholm Property Association and published in June 2009 describes how such an improvement of competition in the Stockholm region could be realised. What is interesting to notice is that this report has been done in collaboration with the main private district heating producers present in Sweden: E.ON and Vattenfall, which shows their willingness to create competition on the district heating market in the Stockholm region: “The parties’ common desire is for this work to contribute to improved competition on the district heating market in the Stockholm area” (Dahlroth, 2009:2). And apparently, not only organisations defending the consumers’ rights on the energy market and energy providers are in favour of an improvement of the competition on the district heating market: politicians as well are pushing for this solution to decrease district heating prices in the Stockholm region:

Figure 17: District heating producers present in the Stockholm region. Source: Fortum, presentation
Interviewer: There are no differences in opinions between the different parties on this discussion about opening the network?

Politician: No, I think everybody agrees on it.

(Green Party, interview, 2010-05-17)

And this was confirmed at the Stockholm Property Association: “from left to right, they all agree that this is a development [third party access] that they wish to see” (Stockholm Property Association, interview, 2010-06-02). According to him politics plays an important role in this issue, and not only at the local level, but also at the national level with the Swedish Climate Strategy to reduce energy use and the use of non renewable, and at the European level as well. To him there is no doubt that district heating is one of the key elements that Sweden will have to use to pass the goals set in the agreements. But even if all parties agree on the necessity to change the market design, the interviewee admitted that the scenarios might differ a little according to who wins the election in September. Therefore everybody agrees on the necessity to take an action to change the market situation for district heating in the Stockholm region, and all parties are looking in the same direction, but the pathways may differ between them.

Then it is actually interesting to see what is happening on the borders between two municipalities inside the Stockholm region: there, and there only, competition exists between two district heating providers. An example can be given: in the Stockholm University area, there are some student housings and the property owners of these buildings could choose to buy district heating from Fortum, or as an alternative from Norra Energi. Thanks to this particular situation they actually made a deal with Fortum with a discount of around 25% (Stockholm Property Association, interview, 2010-06-02). Therefore competition already exists in some parts of the Stockholm region.

But there are some complications with the implementation of this Third Part Access and not everybody thinks that it will be implemented one day:

“I think the debate will go on for quite some time and I think this is a question that might be affected by which government will come in office after the next election. (…) Of course the opening of this kind of network has a lot of complex effects that are quite difficult to foresee. And people are kind of cowards; we know how it works now and we don’t know how it would be; and we learned from the deregulation of the electricity market.”

(Energy Agency, interview, 2010-05-20)

In 2005 a commission (Fjärrvärme Kommittén) was asked by the Swedish Government and “part of [its] assignment has been to determine what technical and other barriers exist to third-party access to the district heating networks. Here included is to analyze whether it is appropriate to introduce third party access on the district heating market” (Fjärrvärmeutredningen, 2005:31). This investigation was ordered “to improve the customers’ situation so that they can feel more secure in their contractual relationship with the district heating companies” (ibid.:32). The result of this investigation which lasted five years was explained by director of the committee himself during an interview: from a technical point of view the third part access is absolutely possible but the situation gets complicated because of the Swedish constitution and ownership rights. If the Government allows access to a network to another company, the network’s owner has the right to ask for
an economic compensation for the losses to 100%. Therefore if this other company has to pay this compensation, it would be very hard for it to compete with the network owner. The conclusion of the committee was then that this third part access was impossible to implement. Besides, according to the director of the committee, even if this could be implemented then the market situation would simply be an oligopoly where the different district heating producers could have some understandings on the price between each other; which is not a desirable situation (Former SABO’s CEO, Director of Fjärrvärme Kommittén, interview, 2010-06-04).

What would be the solution then? Or at least, what would be another way to somehow regulate the prices on the district heating market? The Fjärrvärme Kommittén proposed the creation of a regulation committee, Fjärrvärmenämden, a law, Fjärrvärmelagen and a District Heating Act to supervise the different measures for improved customer protection proposed in the report.

6.4 District Heating Panel (Fjärrvärmenämden)
The “district heating panel” (Fjärrvärmenämden) was formally established on July, 1rst 2008 when the District Heating Act came into force. It has a mediation role in negotiations between the district heating companies and customers. The current board members were appointed by the government from November 1, 2009 to 31 October 2010 and they constitute an independent organisational unit from the Energy Agency. The board also acts as mediators in negotiations between the district heating companies and those who want access to the district heating pipes (Fjärrvärmenämden, 2009). An interviewee explained how this institution works in practice: the principle is that, as a customer you can try to protest on the price and mediate the discussion with Fjärrvärmenämden as an institution. The interviewee also told about his experience of the panel: “We tried that last year and Fortum said “no, we won’t negotiate; the price is set, nice to see you, good bye”. We tried this twice and we got the same response” (Stockholm Property Association, interview, 2010-06-02).

As mentioned by the director of the "District Heating Committee" (Fjärrvärme Kommittén), Fjärrvärmenämden is a rather new institution; it has been functioning for only two years. Therefore it is maybe a little soon to draw any conclusion on its success or failure. Anyhow, as showed the previous quotation, it is already criticized on the real power and influence it can have. Indeed, if the different parties do not commit to discuss, the creation of an arena for discussion is somehow useless.
7. DISCUSSION AND CONCLUSION

Now that the overall picture of the district heating system has been given, and that an analysis of the situation has showed the different actors, the conflicts arising between their different interests and visions, their influence (or not), etc., let us confront this climate measure initiated by the City of Stockholm 50 years ago to the elements found in section 5. When needed, theory will be used to give some perspective to the findings.

7.1 INFLUENCE OF ENERGY-CLIMATE POLICIES ON ORGANISATIONAL CHANGES

This section aims at answering the two first research questions: what is the influence of energy-climate policies on organisations? And what is the influence of energy-climate policies on the evolution of party political differences?

7.1.1 INFLUENCE ON ORGANISATIONS

As we saw in section 5.1, increased environmental concerns had an impact on the whole society: on the public opinion, on different institutions and on politics. Indeed people in general feel more climate conscious, more of the labour force and greater resources are allocated to work on environmental issues and all the major political parties have now environmental programmes. In the case of the district heating system, the organisations are our three actors: Fortum, the housing companies and the City. Section 6 showed that Fortum changed its fuel mix and progressively replaced fossil fuel by renewable fuel. Of course, the first reason was a matter of supply, but then the environmental concern became an equally important reason for this shift. Fortum is definitely using the increasing importance of climate issues in the public opinion to argue in favour of district heating, compared to the alternatives: according to the Finnish company, using district heating favours the production of green electricity which would replace the black one produced in Germany or Poland, whereas using heat pumps, for example, increases the electricity consumption, and presumably the consumption of black electricity. Besides, using heat pumps or other kinds of “passive houses” technologies decreases the consumption of energy, but then the energy used is not environmentally good. In other words, district heating benefits from an environmental label that is deeply anchored in the public’s mind. What is interesting is the fact that, when talking about district heating, the figure used the most by interviewees was: “80% of the fuel mix is renewable nowadays”, which is true in Sweden as an average. But one figure that is often forgotten is the 50% coal fired plant which belongs to Fortum and which is in the centre of Stockholm, Värtaverket. Fortum made the promise to elaborate a plan to phase out coal from this plant by 2015; but nothing binding has been signed.

7.1.2 INFLUENCE OF ENVIRONMENTAL CONCERNS ON PARTY POLITICAL DIFFERENCES

Let us look at the second research question: the influence of energy-climate concerns on the party political differences. According to the different persons interviewed, political differences on environmental issues are not as sharp as they used to be; some even said that they could not differentiate the two major parties, the Moderates and the Social Democrats, on these issues. If the two major parties have decided to start working with environmental questions, it is mainly because it simply corresponded to an overall change of the society, and as a part of it politicians also had to evolve. It is also quite clear that since environmental issues became more important for the people, who are the voters, politicians had to take them into account and that finally they could see the benefits for Stockholm to
be internationally recognised as a leading city in environmental work. Nevertheless, the Green Party still distinguishes itself by going a little further than the other parties, and pushes environmental work forward. It was also unanimous from all interviewees that cross-party consensus was relatively easy to achieve on visions and long-term goals. The district heating system case corroborates somehow these conclusions: there is a consensus among politicians across different parties that coal should be phased out from the Värtaverket plant, but the Green Party is harder on the subject: they want coal to be phased out sooner than the other parties. Then, about the conflict on the district heating market situation between housing companies and Fortum, again all parties are in favour of creating competition in the Stockholm region.

These findings tend to corroborate Mouffe’s theory on the post-political character of politics, and especially Swyngedouw’s theory that directly applies to climate change politics. Nowadays, people tend to think that environmental questions should bypass partisan differences and should not be a question of “left or right”. It was also interesting to see that an element designated by a politician to be a factor of success of environmental policies in the city of Stockholm, was the quality of administrations’ work. This confirms the two previously cited authors’ theory on the fact that in a post-political framework, politics become reduced to a managerial issue and that a “good governance” of climate change is nothing more than a good public management.

7.2 Influence of Short-term Political Changes on Long-term Environmental Policies

This last remark brings us to the third research question, what are the consequences of short-term political changes on long-term energy-climate policies?, and should also be directly related to Giddens’s “return to planning” theory. Indeed, whereas Mouffe and Swyngedouw criticise the consensual nature of climate politics, it is precisely a condition to manage short-term political changes and long-term environmental policies according to Giddens. In the case of Stockholm, besides this cross-party consensus, another element seems to play an important role to enable long-term environmental work: the different administrations and the national agencies. The integration of environmental work at different levels (national, regional and local) in these different governmental organisations seems to enable sustaining the long-term environmental measures taken by the City of Stockholm or by Sweden as a whole. It maybe corresponds somehow to the second feature of Giddens’s return to planning, the integration of environmental work in all branches of government, at all levels.

An important question that was raised in this study was about the reality of this cross-party consensus on environmental issues: is it genuine or only a façade hiding political differences which result from and are sustained by conflictual views and tensions?

Section 5.2 showed that there are actually differences between political parties, and even if everyone claims wanting to go in the same direction, differences still remain when it comes to the pathways used to reach the consensual goal. Even if all parties agree on the vision, they have different ways of working with environmental issues: there are differences in the resources allocated, differences in the focus areas and some changes in investment programmes for example. In the case of the district heating system, the unclear position of the City shows that they do not know actually how to handle the situation. There is a discussion going on about the Third Part Access, but will this discussion actually come to a
tangible result? According to the person interviewed at the Stockholm Property Association, the scenarios may differ according to who will be in power in September. Therefore, under the shared idea that the market situation should change, it seems that no agreement on the action to be taken can be found and tensions remain on this subject. Thus, under the façade of the consensus, the conflicts arising on energy-climate issues put them back into a political context. These tensions and conflicts also reveal some power relations in the case of the district heating system for example. Indeed, it is worth noticing the fact that this burning issue of competition between district heating producers was taken off the agenda when elaborating the Stockholm region’s energy plan for 2050\(^8\), to be sure that consensus would be reached. This is to be related to what the literature says on the exclusion of issues in order to reach agreements. The designers of the planning process managed consensus building, at the expense of a discussion which could have possibly brought a solution to the conflict between the energy producer and the housing companies. Besides, it was interesting to see that the Fjärrvärmenämnden, which is supposed to be a structure creating an arena for discussion, and possibly conflicts, does not seem to fulfil its purpose; indeed, since Fortum does not want to participate to the discussion, as it was mentioned in the interview at the Stockholm Property Association, no debate and therefore no solution are possible. Therefore, by suppressing debates and conflicts, the consumers cannot have the power to improve their situation on the market.

The important question is then: since there are differences between political parties and since there are conflicts and tensions which participate to the re-politicization of environmental policies, what are the consequences of short-term political changes on long-term energy-climate policies? It was interesting to see that according to the civil servants working at the City and according to the party in power, these political changes occurring every four years do not have such a big impact on the environmental work; whereas according to consultants, researchers and the parties in the opposition, this was a major barrier. The figures exposed in section 4.3 showed that environmental work in the City of Stockholm has been quite successful until now, with an important decrease of greenhouse gas emissions; maybe this shows that the City has actually found a way to ally short-term political changes and long-term needs for energy-climate work, in particular through achieving the integration of environmental work in different governmental organisations.

\(^8\) Stockholmsregionens energiframtid 2010-2050
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ANNEX: EXAMPLE OF QUESTIONS ASKED DURING THE INTERVIEWS

Here is a list of questions I sent to the Environment and Health Administration:

Some questions about the current work at the Environment and Health Administration:

- How do you lobby decision makers and politicians on environmental issues? In what way is it (or not) particular to Stockholm?
- Besides, more generally, what do you and your colleagues do on a day-to-day basis to understand, define and implement energy and climate 'solutions'?
- Do you meet problems? To what extent are they specific to working with environmental issues? To what extent do they come from the political world?
- I see that Stockholm has tougher environmental goals than Sweden as a country: why is it so?
- What is the method used by the city of Stockholm to count carbon dioxide emissions?

About the evolution of environmental/energy/climate concerns in the city of Stockholm:

- When did energy and climate policies start out and become important for the city? Why?
- How are the priorities set?
- Who are they set with? Who are the main stakeholders collaborating? Who are the different types of actors involved in the policy making? How and where decisions are made?
- Evolution of tools, instruments used to reach the environmental objectives?
- Stockholm seems to be a 'success story' in energy and climate policy - what are the factors behind that success? Have these factors changed over time?

Finally, more specifically about the interactions between energy-climate policies and political changes:

- How and to what extent have political changes (e.g. with the change of majority in 2006) had an impact on the development of environmental/climate policies? To what extent has political ideology been present in energy and climate policies in Stockholm in the last 10, 20 years?
- In Stockholm what accounts for politicians being supportive of long term policies (e.g. the 2050 goal of being a fossil fuel free city), if indeed they are?
- How and to what extent have energy-climate issues had an impact on the wider political context in Stockholm?