Exploring the politics for a low-carbon transition. Insights from the Swedish example.

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Abstract
This paper presents and discusses results from the research project LETS 2050 that studies the governance challenges of a transition to a low-carbon transport and energy system in Sweden by 2050 (www.lets2050.se). A key starting point of the project was that a low carbon transition is technically possible and economically feasible, while the main challenge is political. At the moment there is an on-going process both internationally and by national governments to develop road maps for a low carbon transition. While there is an emerging consensus on the need for a low carbon transition there is disagreement and uncertainty regarding how such a transition will look like. Furthermore, there is even more uncertainty on what kind of politics is needed for a successful transition. The aim of the paper is to explore how a politics for a low carbon transition might look like for Sweden. The Swedish case is analysed through the lens of two theoretical perspectives – transition studies and political ecology – which both deal with the question of system change towards sustainability. In the paper we discuss the potential role of a positive narrative about a low-carbon future and the need for a re-negotiated 'social contract' for change. The objective to avoid dangerous climate impact will in itself not be enough to establish societal consensus for the transition. Instead, in analogy with the genesis of the welfare state, a transition embracing society as a whole has to appeal to other societal interests and to all major social groups. Special attention is devoted to rethinking the role of the state in a future transition. We argue that the challenge will require a revitalization of politics and the return of the state, although not necessarily in its traditional hierarchical form. The paper is based on empirical research in Sweden and we illustrate our findings with examples from the fields of energy and transport policy. The results show that there is a lack in Swedish climate governance when it comes to supporting technology development and in institutionalising low-carbon priorities in policy making.
1. Introduction

In the latest climate and energy bill the Swedish government decided on a long term vision that “Sweden by 2050 will have no net emissions of greenhouse gases in the atmosphere” (Swe. Gov., 2009). Though there remains uncertainty as to how “net emissions” should be interpreted² the Swedish policy can be framed as a vision to achieve a low carbon transition within the next 40-50 years. Similar developments can be seen in elsewhere. In 2011 the European Commission (2011) published its “Road map for moving to a low carbon economy” and countries such as the UK and Denmark are developing their own road maps. In 2011 the Swedish Environmental Protection Agency was given the task to develop the knowledge bases for a road map to achieve the Swedish vision and their final report is due in December 2012 (SEPA, 2012).

While there seems to be political agreement on the long term goal of a low carbon future (at least in rhetoric and in some countries) the political landscape is much fuzzier and less developed, regarding what a low carbon future really means and how it can be achieved. From scenario studies we know what a low carbon future could look like, with a move towards renewable energy, energy efficiency and other low carbon technologies, while phasing out fossil fuels. It is clear that the vision of a low carbon future requires a major transformation of all key sectors in society such as transport, industry, energy, housing and agriculture. Still, there is important uncertainty and disagreement on, for example, how much we can rely on technology and to what extent we also need to shape our societies towards less wasteful habits and behaviours. This means that the development towards a low carbon society inevitably will be marked by political dispute although there is consensus on the general goal.

However, there is also significant confusion regarding how a politics of a low carbon transition might look like. While very ambitious long term goals are being formulated, climate policy practice is still locked in the Kyoto mind-set of achieving short term emission reductions at low cost. We argue that a low carbon transition goal means that climate policy has to be reconsidered. Is it enough to find policy instruments that reduce greenhouse gases in a cost-effective way? Or does it have to be wider and encompass

²It is e.g. uncertain to what extent emission trading and carbon sinks can be included in achieving “no net emissions”.
many policy areas and multiple goals in order to contribute to processes of change? Maybe the challenge of a low carbon transition even implies a changed role for the state vis-à-vis the environment?

With the above background in mind the aim of this paper is to explore how a politics for a low carbon transition might look like for Sweden. In order to do so we will start out from the present climate policy and ask to what extent it promotes long term change towards a low carbon transition. The Swedish case will be analysed through the lens of two theoretical perspectives which both, in different ways, deal with the question of system change towards sustainability. The first perspective is transition studies, which has been mainly engaged with the questions on how sustainability transitions occur and how they can be governed and facilitated. The second perspective comes from political ecology and concerns explorations on how an ecological state might look like and how it can emerge.

The paper is based on results from the research project LETS 2050 which deals with the political and societal challenges of reaching zero carbon emissions in Sweden by 2050.

2. Theoretical perspectives on sustainability transformations
This section provides an introduction to two theoretical perspectives that approach the question of sustainability transitions in different ways: transition studies and political ecology.

Transition studies
Transition studies has developed as an emerging discipline in the recent decade concerned with the questions on how (sustainability) transitions occur and how they can be governed. Its theoretical background comes from fields such as innovation studies, evolutionary economics and system theory (Grin et al., 2011.), while scholars from fields such as political science and sociology more recently have taken an interest in the area (Meadowcroft, 2009; Foxon, et al., 2009). Transition management (TM) is one specific variety of transition studies that has developed in parallel both as scholarly theory and as policy practice in the Netherlands (Smith
and Kern, 2009; Kemp et al., 2007). Central to TM is the multilevel perspective where three levels are identified: niches, regimes and landscape. According to TM transitions occur when a dominant socio-technical regime is challenged and replaced by a new regime. Niches are protected spaces where radical innovations, technologies and practices can develop and grow in order to challenge dominant regimes. The socio-technical landscape is seen as an exogenous level which changes slowly and is difficult to influence. However, changes at this level can put pressure on dominant regimes. From a governance perspective a core question of the TM approach is how to create, enable and support innovation at the niche level so that they can grow and challenge dominant regimes (Loorbach, 2010). TM highlights the role of networks for understanding policy change and long-term transformations. Networks of established actors can act as stumble blocks, while new networks consisting of frontrunners and innovators can challenge dominant regimes (Loorbach, 2010). Several observers have pointed to the importance of including power and politics into the analysis of sustainability transitions since they will inevitably challenge dominant interests in society. Meadowcroft argues convincingly that “politics and political processes lie at the heart of governance for a sustainable development” and that “long-term change will be messier and more conflicted than transition management intimates” (2009, p. 335).

**Political ecology: towards the ecological state**

From another tradition scholars within political ecology have asked the question how a future society where ecological concerns lie at the heart of political decision making might look like, and what it takes to achieve such changes. Political ecology is a diverse discipline and scholars disagree on, for example, what role the state can and should play in bringing about sustainability transformations (Whitehead, 2008; Meadowcroft, 2005, Ekersley, 2004), and whether the present liberal welfare states can gradually be reformed into green states or if more radical changes are needed in the way we perceive or relation to nature and in the democratization of politics (Meadowcroft, 2005; Ekersley, 2004).
For the purposes of this paper we will not go into the arguments within political ecology but will instead make use of the approach of Meadowcroft (2005), in his book chapter from 2005, where he asks the question whether the present liberal welfare states can develop into ecostates and to what extent we are seeing such tendencies in today’s societies. Meadowcroft presents a broad definition of the ecological state but ascertains that it is a state “where ecologically oriented intervention comes to constitute [...] an essential responsibility of public power” (2005, p. 4). Furthermore, maintaining that society’s impacts are kept within basic environmental limits “would be an essential objective of an ecological state” (ibid p. 5) alongside other objectives such as security, welfare, jobs and economic stability. In a comparison with the genesis of the welfare state Meadowcroft points to several similarities which speak in favour of the possible emergence of an ecological state. Both involve an extension of state authority, both are responses to perceived failures of markets and voluntary action, both require interventions in the economic interactions of the market and both have contested normative associations. The argument is that the development of the welfare state was far from given but that it rather emerged through the interaction of societal needs and political struggle, and that the same could be true for the ecological state. Meadowcroft also highlights the incremental development of the welfare state which has gradually expanded in a process of policy experimentation, and he sees traces of a similar development in the environmental arena today.

However, there are also important differences which might cast doubt on the emergence of an ecological state. First, while the development of the welfare state was clearly linked to the role of the working class and social democratic parties, ecological concerns are not directly backed up by a similar social force. Nevertheless, the principle of the welfare state was eventually embraced by all major political movements and the debate has instead come to centre on the size of the welfare state and how services should be provided for. Here lies a central challenge for ecological strategies; how to expand ecological concern so it is embraced by a majority of society and covers all areas of political life. Meadowcroft does not give an answer to this challenge but limits himself to emphasising “the importance of ideas in mobilizing support [...] for social reform” (2005, p. 11). Another important difference is that the welfare state is complementary to
a growing economy and economic growth has, in fact, always been a parallel and equally strong goal for liberal welfare states. For an ecological state the relationship to economic growth is much more complicated. We will not here enter into the debate on whether economic growth is compatible with sustainable development but suffice to conclude that an ecological state has to find means to make sure that economic activity stays within environmental limits, however they are defined. This will undoubtedly call for interventions and a re-thinking of the role of the state in the economy.

**Governance implications of the two perspectives**

Both transition management and the ideas of an ecological state point to a different and expanded role for the state in environmental governance compared to the present situation in most liberal welfare states. Environmental governance has in recent decades seen a shift towards an increased use of market based policy instruments were price signals is the main way to influence environmental behaviour. Environmental governance is mainly focused on reducing the impacts of the existing activities of individuals and firms by e.g. taxes or caps, while fewer policy initiatives exist which aim at transforming the norms underlying the way we do things. In contrast both the above perspectives, in different ways, see it as a state objective to create conditions for more profound changes in the way we impact the environment. For transition management the state needs take a more active role in creating incentives and arenas for the emergence of new innovations, technologies and practices. While TM sees non-state actors as the main drivers of socio-technical change, the state has a pivotal role in nurturing and facilitating new innovations. This could be done in different ways, either by setting up transition arenas as in the Dutch experience or by strategic support to new technologies and innovations that have potential to develop. The key is that governance interventions have as a main aim to support niche development and enable regime change. For the ecological state, institutions and institutional change is a core aspect. Instead of focusing on policy instruments, the development of new (or reformed) institutions that give the environment increased priority becomes a key strategy for change.
In the analysis of climate and low carbon governance in Sweden the two theoretical perspectives will be used to ask questions to the empirical material. From TM the question that is derived is:

- To what extent does climate governance in Sweden include strategic efforts to support and facilitate the emergence of new low-carbon technologies and practices which can challenge existing regimes?

From the ideas on the ecological state we arrive at the following question:

- To what extent does Swedish climate governance include institutional change that increases long-term political priority on a low-carbon pathway?

**How to achieve political acceptance for sustainability changes?**

Before moving to the empirical analysis it is worth dwelling on the question of how to achieve political acceptance for the rather profound changes that are needed in order to transform society in a sustainable direction. None of the above theoretical perspectives have as yet properly addressed it. In transition management there is a strong appreciation that regime change is difficult and that incumbent actors will resist it. However, this does not lead to a developed theory on how to address political conflict and TM has been criticised for neglecting the political (Meadowcroft, 2009; Shove and Walker, 2007). Instead there is an implicit view, similar to that of ecological modernisation, that win-win solutions are available if new technologies and innovations are only given time and space to develop their potential. Within the networks in the transition niches deliberation and co-operation is emphasized while conflict and bargaining is downplayed. The assumption that green growth is possible is however not properly interrogated and there is no perceived need to develop an account how different actors and interests will fair in a transitioned future.

For the ecological state the problem is how to reach a situation where environmental protection becomes a core objective of the state. Meadowcroft acknowledges this dilemma when he asserts that, unlike the welfare state, there is no comparable social movement that backs up ecological concerns. However, he stops at this assertion and makes no attempt to develop an idea of how ecological concerns can gain salience in society. Other scholars within political ecology put their main faith in civil society and an
increased public participation in political decision making (Eckersley, 2004; Dryzek, 2000). Through an open and inclusive deliberation it is argued that an enhanced appreciation for ecological concerns will grow within the citizenry and affect politics.

A problem with both perspectives is that they, in different ways, are too narrowly focused both regarding who needs to be included in the transformation process and what the process is about. In transition management the focus is on socio-technical changes through new innovations and the main participants are frontrunners and entrepreneurs. In the ideas on the ecological state it is mostly changes in the political framework that are addressed and the actors are political decision makers and the citizens. In reality a transition to a sustainable future or to a low-carbon society will imply changes in all domains of social and economic life. A reasonable assumption is therefore that any strategy to make ecology a core objective, or to achieve a transition to a low-carbon society, has to include a majority of the population as well as the major groups and interests in society. Furthermore, there is a need to develop a vision or story of such a future society that appeals to different interests. A major reason why the welfare state became such a successful project was that many interests, not only the working class, saw the welfare state as a good society to strive for, also for them. Maybe there is a need to establish a social contract, similar to that of the welfare state, for the low-carbon society. We will not further elaborate on this question but suffice to conclude that there is a lack of theorizing on how to achieve broad political acceptance for change.

3. Towards a politics for a low carbon transition in Sweden?
In this paper we have set out the task to explore whether climate governance in Sweden promotes a transition to a low-carbon society and how such a politics could look like. Obviously it is impossible to cover all aspects of Swedish climate governance and the analysis will by necessity be of a more overview character. The analysis will be guided by the two questions derived in the previous chapter.

Sweden has a history of strong environmental and climate policy and is in many ways regarded as a frontrunner in this area. The energy system is based on renewable energy with nuclear and hydro power providing the majority of electricity production and
biomass accounting for a significant amount of heating. The transport sector is more problematic being heavily dependent on oil with trends pointing to increased transport volumes for both passenger and goods. In the industry sector there is still a considerable use of fossil fuels and there are few ideas on how this dependency can be averted. Sweden has so far been successful in reaching its climate policy goals. The goal of 4% reduction of GHG emissions by 2008-2012 compared to 1990 has been achieved by far (SEPA, 2011). There is also a goal for 2020 on a 40% decrease of emissions compared to 1990 which according to the prognosis is possible but difficult to reach (SEPA, 2011). The long term goal for Sweden is to have no net emissions of GHG by 2050 which basically implies a transition to a zero-carbon society (Swe. Gov., 2009).

**Swedish policy instruments and the low carbon transition**

The first question to be addressed is to what extent climate governance in Sweden includes strategic efforts to support and facilitate the emergence of new low-carbon technologies and practices which can challenge existing regimes.

Swedish climate policy is dominated by different types of market based and economic instruments. The carbon tax which was first introduced in the 1990s is often brought forward as the flagship of Swedish climate policy and aims at increasing the cost of emitting carbon emissions thereby making alternatives more attractive (Kronsell et al., 2011). In 2005 the EU emission trading scheme (EU ETS) was introduced which includes GHG emissions from energy producers and basic industry. For the period 2008-2012 around 750 Swedish facilities are covered by the scheme. The electricity certificate system was introduced in 2003 and is a market based instrument that obliges electricity distributors to include a certain quota of renewable electricity certificates in their portfolio. The quota is set to increase annually thereby supporting new renewable electricity production³. Between 1998 and 2008 the government ran a subsidy programme to Swedish municipalities for investments in environmental and climate projects. The total amount of subsidies has been over € 700 million (6 billion SEK) and the municipalities have been required to invest money from their own budgets. The programme also included requirements on climate strategic planning for municipalities to be eligible.

³ In 2003 the quota was 7.4 % and in 2012 it had increased to 17.9 %.
The combination of policy instruments has been successful in instigating transition processes in some areas with district heating as the most apparent example. The Swedish district heating system has gone through two transformations in the period 1960-2010. First there has been a rapid expansion of the system from less than 5 TWh in 1960 to around 56 TWh in 2007, and today district heating accounts for 86% of heating in multi-dwelling buildings. Second there has been a complete restructuring of the fuels used for district heating. From being totally dependent on fossil fuels until the early 1980s there has been a gradual increase of biomass and municipal solid waste. In 2007 fossil fuels were almost completely phased out while biomass accounted for 44% of the production. Ericsson (2009) has showed that the main factors explaining the transition is a combination of carbon taxes, municipal infrastructure planning and government subsidies to investments. The gradual expansion of district heating has been a municipal responsibility and was facilitated by public ownership of the local energy companies. A main explanation for the shift from fossil fuels to biomass was the carbon tax that was introduced in 1991 and made biomass the most competitive fuel. However, government subsidies to municipal investments have throughout been an important flanking policy that facilitated investments in production capacity, retrofitting and grid expansion (Ericsson, 2009).

However, despite the successful example of biomass in district heating Swedish climate policy does not seem to be guided by a strategic goal to facilitate transition processes. Instead the main policy goal is to achieve (short-term) emission reductions in the most cost-effective way. The electricity certificate system has been analysed by Bergek and Jacobsson (2010) with regard to effectiveness, cost-efficiency and technology development. They find that the certificates have been effective in achieving the goals of introducing new renewable energy and cost-efficient in the sense that the most low cost technologies will be introduced first. However, Bergek and Jacobsson question whether the certificates contribute to technology development since more mature technologies are favoured while emerging technologies are locked out. They contend that the electricity certificate system is actually “deliberately designed to avoid forming nursing and bridging markets” (Bergek and Jacobsson, 2010, p. 25). The authors’ conclusion is that there is a gap in Swedish climate and energy policy between R&D and pilot projects,
on the one hand, and support for market deployment, on the other hand. In between these two ends there is a need for more strategic policy instruments which aim at creating niche markets for emerging technologies to develop. Söderholm (2012) supports the conclusion that there is a need for complementing policy instruments in order to spur innovation towards low-carbon technologies.

Dalhammar et al (2011) have studied the potentials for using public procurement in a more strategic way in order to promote innovation of green technology and find that there is a rather large perceived need for such policies among business actors. While public bodies such as the Swedish Energy Agency and municipalities carry out innovation procurement these initiatives are fragmented. The authors argue that there is a need for a coherent national strategy on how to promote innovation through public procurement. Infrastructure and housing policy are other areas that could be more strategically used in order to promote new and emerging technologies (Riksrevisionen, 2012).

**Institutionalisation of low carbon governance in Sweden?**

The other question derived from the literature on the ecological state is whether Swedish climate governance includes institutional change that increases long-term political priority on a low-carbon pathway? The most important change in Swedish environmental governance in recent years was the introduction of the environmental quality objectives in 1999 which established a long-term political ambition to solve all major environmental problems. The long-term goals are set in a fairly general manner with sub-goals that are specified in detail. The main responsibility for goal achievement has been delegated to the relevant government agencies in an attempt to integrate environmental governance with other sectors. Hildingsson (2010) argues that this was an important policy innovation which has set the long-term priorities for and provided the defining framework for environmental policy and governance. However, the actual policy outcomes of the reform are unclear and the priorities have not trickled down to other actors to the degree initially hoped for (Khan et al., 2011). The political ambitions on a low carbon transition are outlined in Climate and Energy Bill from 2009 where it is stated that the long term goal is to have no net emissions of greenhouse gases in Sweden by 2050. Apart from this document the low carbon transition goal has not as of yet been
institutionalised into Swedish climate governance. In 2011 the Swedish environmental protection agency (SEPA) was given the task to prepare the basis for a road map on a low carbon transition, similar to that which the European commission published in 2009 for the whole of Europe. The SEPA will present its results in December 2012 and after that a broader process of developing a full road map is expected to begin. Such a road map has the potential of creating general political legitimacy for a transition including a broad set of societal actors. However, it remains to be seen how the process will unfold.

Results from an interview study carried out in 2011 with almost 60 climate policy makers confirm that the goal of a low carbon transition has not really taken root. Instead policy making is still mainly focused on achieving short term emission reductions in the most cost-efficient way (Hildingsson, 2012). Hildingsson finds that there seem to be two separate discourses on climate governance. On the one hand, a dominant discourse favouring market based policy instruments aimed at low-cost abatement informed by orthodox neoclassic welfare economics. On the other hand, a low-carbon society story emphasizing the transition to an eco-efficient economy by means of sociotechnical system transformations.

One site were the discursive struggle can be viewed in practice is in the strategic policy development within the Swedish Transport Administration (STA). The STA is in itself the result of institutional reform since it was created in 2010 through a merging of two administrations responsible for road and rail transport. The aim of the reform was to increase co-ordination of transport planning which was previously perceived as too fragmented. In 2010 a climate strategy document was published by the STA were it was concluded that there is a need for a broad strategy to radically reduce GHG emission from the transport sector. Energy efficiency and renewable energy were identified as two pillars of the strategy but it was also argued that much more efforts are needed to reduce transport needs and create modal shifts from road and personal car traffic to railway, cycle and public transport. This would include climate strategic infrastructure investments, land use planning and measures to impact transport behaviour and attitudes (STA, 2010). Despite this rather progressive strategy document mainstream planning within the STA has not been influenced a lot. In April 2012 STA handed in a study on the future capacity needs in the Swedish transport sector which they had made
on a Government assignment (in Swedish called Kapacitetsutredningen). The study was based on traditional prognosis of transport development which meant that an initial assumption was that car traffic would increase substantially (together with other transport modes)\(^4\) and the objective of the study hence became to analyse how such an increase could be accommodated (STA, 2012). The conclusions from the climate strategy document were included in a later stage in the process and they were merely used to highlight that the climate goals will not be reached if the main planning scenario of the capacity study is followed. Thus transport development was treated as something exogenous which cannot be affected by policy. An alternative approach would have been to use the climate goals as starting point and ask how transport policies could be outlined in order to influence transport development so that both climate goals and other transport political goals were reached simultaneously.

**4. Concluding discussion**

From our analysis we can see that Swedish climate governance fails to live up to the theoretical postures transition studies. There seems to be a dominance of incumbent regime actors and there is a lack of apprehension among policy makers on how to create niche markets and support niche actors. Furthermore, the present dominant discourse on short term emission reduction and cost-efficiency is too narrow and will not generate innovation, technological development and long-term system change. However, the judgement that Swedish climate governance is not set-up to achieve a transition might be premature if it is based only on comparing with ideal models. It should be remembered that Sweden until now has been successful in achieving its policy goals and that the goal for 2020 (40% reduction compared to 1990) is likely to be reached. Is it possible that a transition can be achieved within the existing governance framework even if it deviates from theory? Kronsell et al (2012) find that the neo-corporatist governance model, which traditionally has been strong in Sweden, also seems to dominate in the climate field. This model rests on a close co-operation between the state and organised societal interests such as industry and environmental organizations. In the Swedish context it is difficult to think away the corporatist structure (at least in the

\(^4\) From 2006 to 2050 the estimates in traffic increase (measured in person kilometers) were for car traffic 67%, rail 80% and domestic aviation 91%. Total personal transport increase was estimated to 63%. For freight the estimated increase was 61% (STA, 2012, p. 11-12).
short run) and it might therefore be more fruitful to consider how transition strategies can be incorporated into this particular governance context.

While there clearly is a need for more policy attention on innovation and technology development the main question is how this can be organized in the Swedish corporatist governance context. Does regime change have to come from niche actors or can incumbents also be drivers of change? The story of Swedish district heating could be interpreted as a transition within and by dominant regime actors. Likewise a decarbonisation of basic industry would probably be impossible without some kind of joint co-operation and visioning between the state and industry actors. Still, such an opening up of the role of incumbents does not preclude that niche actors also will be crucial in some areas. A successful transition strategy in Sweden will probably have to include a combination of co-operation with established actors and support of newcomers. There is also a need to broaden the view on what climate governance is, so that other policy areas, such as infrastructure, innovation policy, spatial planning, and housing, are strategically used to promote a low-carbon transition.

From the literature on the ecological state we find that too few efforts have been made to institutionalise the goal of a low carbon transition and there are few signs that environmental protection is becoming a core objective of government policies. This begs the question why such an institutionalisation fails even though there is political consensus of the goals of long-term emission reductions. Earlier in the paper we argued that neither of the two theoretical perspectives has really dealt with the question of how to create broad societal acceptance for sustainability changes. While transition studies focus on involving niche actors, political ecology looks at state institutions and civil society participation. Instead, there is a need to develop a vision or storyline of the future low-carbon society that goes beyond the issue of emission reductions and incorporates ideas of how the future good society will look like, much in parallel to the ideas of the welfare state. Such a visioning process must be broad enough to appeal to different societal interests and open enough to allow for disagreement and debate. In Sweden the current work on developing a low-carbon road map could be the start of such a process but then it needs to be opened up to include a broad range of societal interests.
References


