

The dynamics of energy and climate governance in South Africa: Business and Government on a common road to a low-carbon economy?

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1. Introduction

Clean technology is central for the mitigation of greenhouse gas emissions in the energy sector. In coal-based emerging economies such as South Africa, the switch to cleaner and more efficient technologies is crucial – both in terms of managing climate change and to assure long-term energy supply for economic growth. In the Copenhagen Accord, South Africa has committed to a reduction of its greenhouse gas emissions of 34 per cent compared to a business as usual-scenario. Also, the South African government seeks to strengthen its position as a member of the BASIC-group and has been very active at the international climate negotiations in recent years (Never/Eucker 2009).

Domestically, a continuous economic growth is necessary to counter unemployment and inequality. A steady economic growth requires reliable electricity supply, which, in turn, means rising emissions, as 92 per cent of electricity generation in South Africa derives from coal (Winkler/Marquand 2009). Despite the high amount of coal available in the country, power cuts continue to occur. In 2008, widespread power cuts and load-shedding cost the economy 250 Million US dollars (Pegels 2009). Since the parastatal electricity provider Eskom was at the limit of its production and financial capacity, the World Bank granted a

loan of 3, 75 billion US dollars to build the coal-fired power station “Medupi” in April 2010. And another coal-fired power station called “Kusile” is already planned as well. This puts mitigation goals at jeopardy and shows the quandary both government and companies are in. The integration of energy governance, economic growth and climate governance presents a challenge with high political and practical relevance, not only in South Africa, but for other emerging economies as well. This paper addresses this challenge, with particular emphasis on the role of government and business from a governance perspective.

There are different strands of research on governance, but only some are directly relevant for climate and energy governance. First, the debate about a typology of governance (with or without government, state-centred, networked, reflexive or deliberative) and the extent and influence of the shadow of hierarchy (Leach et al. 2007; Börzel 2010) are relevant. This body of research relates to the changing role of the state and the future of statehood as well as the transferability or conceptual travelling of the Western/Northern concept ‘governance’ to areas of limited statehood (Risse 2007). Here, the question arises which governance mix would be the most appropriate and effective one to enable the transition to a low-carbon economy. Moreover, climate governance is conceptualized as multi-level governance field in which actors and their actions are interrelated and influence each other across levels (Brunnengräber et al. 2007; Armitage 2008). Here, the question would be which level(s) of action presents the most appropriate one for integrating energy and climate governance on a path towards sustainable development. Further, a growing body of literature stresses the importance of boundary organizations (Guston 2001) and informal networks which may cross-cut actor levels (Armitage 2008; Olsson et al. 2006).

This paper seeks to contribute to answering the question of an effective governance mix at the climate/energy nexus by providing empirical insights from South Africa. It focuses on the drivers and obstacles of climate governance, and contrasts them to recent developments in the energy sector. The role of government and business as well as their interaction will be addressed, focusing on the relevance of the shadow of hierarchy for governance. My main argument is that coordination and collaboration between actors present a key to effective governance. Government is important in this respect, but the shadow of hierarchy seems to only propel governance efforts if the implementation of potential executive decisions and/or legislation is (a) deemed to be truly enforced (statehood), (b) the prospective content of the potential decision or legislation is sufficiently clear, and (c) a rough time frame for potential governmental action exists. Poor collaboration and coordination between government departments and institutions challenges the credibility, or threat, of the shadow of hierarchy.

The first section of the article briefly discusses different concepts of governance and gives the relevant definitions. In the second part, I summarize the state of South Africa's climate governance and discuss the drivers and obstacles defining it. In the third section, the structure of the energy sector, its relevance for mitigation and recent developments in terms of the governance mix will be presented and discussed, relating them to climate governance aspects. The article concludes with a summarizing assessment of South Africa's current governance mix, the role of the shadow of hierarchy and an outlook concerning the integration of climate and energy governance.

2. Governance concepts

Governance is still a buzzword for both social science researchers and practitioners. The number of definitions and conceptualizations of governance is extremely high, giving the impression of a catch-all term. Since governance consists of both structure and process (Börzel 2010), research on governance can be differentiated along those lines as well: either actors and institutions (structure), or the mechanisms and modes of governance (process) receive more attention. To map and further understand social science research on governance, the more differentiated typology of Leach and co-authors is helpful. They differentiate between the block of (1) state-society-corporate governance, (2) networked governance and (3) adaptive/deliberative/reflexive governance (see Leach et al. 2007).

In this paper, governance is generally defined as including public, public-private and private activities and processes that produce social order with a minimum of intentionality (see Risse 2007). This definition combines the understanding of governance as activity and a process, which has been identified as a dividing line between many approaches, especially in the understanding of practitioners (Hyden et al. 2003). The condition of intentionality excludes contingent governance products, ie when governance develops by accident as an outcome of an activity that has a completely different purpose. But the definition includes all forms of the often-used distinction between governance by, with and without government (Rosenau/Czempiel 1992).

Governance by government refers to (traditional) modes of steering by state actors. Here, government can use coercion and its statehood to implement decisions. Governance with government refers to a setting in which state actors are on the same horizontal level with all other actors – no coercion or hierarchy exists. Finally, governance without government primarily means private governance between private actors who negotiate, coordinate themselves and agree on the provision of common goods. Thus, action is based on non-

hierarchical coordination and relies mostly on voluntary compliance, even though mechanisms of shaming or bargaining may change actors' interests and strategies.

The general definition of governance given above can be specified for climate governance. Climate governance is, first of all, the governance of climate change, not the governance of the climate. Following the definition of Jagers and Stripple, climate governance includes ““all purposeful mechanisms and measures aimed at steering social systems toward preventing, mitigating, or adapting to the risks posed by climate change” (Jagers/Stripple 2003: 388). Here, the purpose or intention to mitigate or adapt is emphasized as well. As for the general definition above, a certain intention to provide or influence the provision of a common good is implied. Effectiveness itself is not a defining condition of governance, but - as for policies - a goal of its outcomes.

Beyond the problem of defining governance, two questions within the scientific governance debate are relevant for this article. The first one concerns the role of the state and the 'shadow of hierarchy' (Scharpf 1993; Börzel 2008). The shadow of hierarchy describes the indirect influence governments and states have on non-state actors' behaviour through the threat of executive or legislative decisions on the subject matter (Scharpf 1993). With respect to the transition to a low carbon economy, this relates to the role of the state in the integration of climate and energy governance: who should occupy which function, and how much state is necessary and effective here? Börzel argues that “the shadow of hierarchy cast by governments that can draw on consolidated statehood is a major condition for the emergence and effectiveness of governance with and without government” (Börzel 2010: 5). Her argument simultaneously underlines the role of the state and questions the existence and efficacy of purely private governance – but it still needs thorough empirical testing.

The second issue concerns the designation of a suitable level of governance for inducing the change to a low-carbon economy while securing development. Climate governance has been identified and conceptualized as multi-level governance (see Brunnengräber et al. 2007; Armitage 2008). Actors, activities and responses are interconnected and mutually dependent across levels. The international climate negotiations of the UNFCCC face increasing difficulties, with the Copenhagen conference in 2009 leaving a rather bleak outlook for an effective post-2012 regime. Transnational, national and local initiatives that take place - at least somewhat - irrespective of the UNFCCC are thus gaining in importance. On the one hand, the market approach of the Clean Development Mechanism (CDM) has thus far not led to the widespread results initially hoped for because the bulk of projects concentrates on just a handful of countries. In South Africa, only 14 CDM projects

have been registered this far. On the other hand, the growth of renewable energy technology markets and its revenues have the potential to economically drive the spread of low-carbon energy supply. Moreover, transnational networks such as the AP6 or ICLEI provide smaller, more regionally or locally focused approaches. Also, transnational networks may exert a certain norm-building function (Jakobeit et al 2010), thus providing an alternative to the international/global governance level. The implementation of (global) climate governance primarily happens at the national and local levels. Given the difficulties of the international negotiations, it may prove useful to turn towards alternative modes of governance at these levels which are not as dependent on international outcomes.

For developing countries, whether large or small, the integration of climate governance into development paths is central. Here, mitigation and adaptation strategies may overlap, and therefore economic, political and social motivations interact as well. Regardless of the appropriate level of action and the most suitable actor constellation, the reliable provision of electricity at affordable prices at the national and local levels is often a condition sine qua non for continued economic growth. Economic growth, in turn, is necessary to alleviate poverty and unemployment. Therefore, both the conceptual-analytical and the practical debate about climate and governance in South Africa have to be understood from this perspective.

3. South Africa's climate governance

3.1 The state of climate governance

In this part, I give a brief overview about major actors and developments in South Africa's climate governance. Analysis draws on 35 interviews¹ conducted with representatives of government, business and business associations, NGOs and experts of climate governance issues, from January to March 2010 in Pretoria, Johannesburg and Cape Town. Additionally, data and reports of the Carbon Disclosure Project (CDP) of various years as well as primary and secondary documents are used.

South Africa's first National Climate Change Strategy was published in 2004 (South Africa 2004), but it did not translate into concrete measures that were implemented. Actual momentum only occurred from roughly 2007 onwards. It is safe to assume that the publication of the IPCC 4th Assessment Report in early 2007 triggered a lot of global attention, from which South Africa was not exempt either. In December 2007, the ruling party African National Congress (ANC) adopted a declaration on climate change for the first time

¹ Confidentiality has been agreed with all interview partners.

(ANC 2007). While not a concrete policy step, this lifted climate change onto the ANC agenda and certainly raised awareness among ANC policy makers. In July 2008, the Long-Term Mitigation Scenario was published (LTMS 2008). The LTMS is a scientific document that lays out different options for mitigating South Africa's emissions. Within the year 2010, a green paper, and potentially a white paper on South Africa's national climate policy are supposed to be published. These promise to lead towards an emission reduction goal of 34 per cent compared to the “business as usual- scenario”, signed in the Copenhagen Accord, and promote adaptation measures. Moreover, a small carbon tax on new vehicles will be introduced in October 2010. The biofuels strategy, published in 2007, and the National Cleaner Production Strategy, published in 2005, can also be counted as at least co-beneficial measures to climate protection, even if their implementation can hardly be deemed sufficient yet. Also, nearly all government departments at the national level now have a climate change appointee or a climate change team.

The major government departments concerned with climate change matters are the Department of Environment (DEA), which coordinates the prospective national climate policy, and the Department of Science and Technology (DST). The Department of Energy (DoE) does play a role for mitigation, but the relationship between DEA and DoE is characterized by a certain tension and a lack of collaboration (see Section 3.2). Due to its budget allocation function, National Treasury has an impact on climate policy as well. Moreover, Trevor Manuel, former Minister of Finance and now head of the National Planning Commission, counts as the driving force behind the debate about environmental fiscal reform, and the adoption of a small carbon tax on electricity (see Section 4.1). The Department of Agriculture and the Department of Water Affairs are minor players that feed into the overall climate policy primarily developed by DEA. The Government Committee on Climate Change coordinates the ministries so that they reach a common government position with which to enter the National Committee on Climate Change (NCCC).

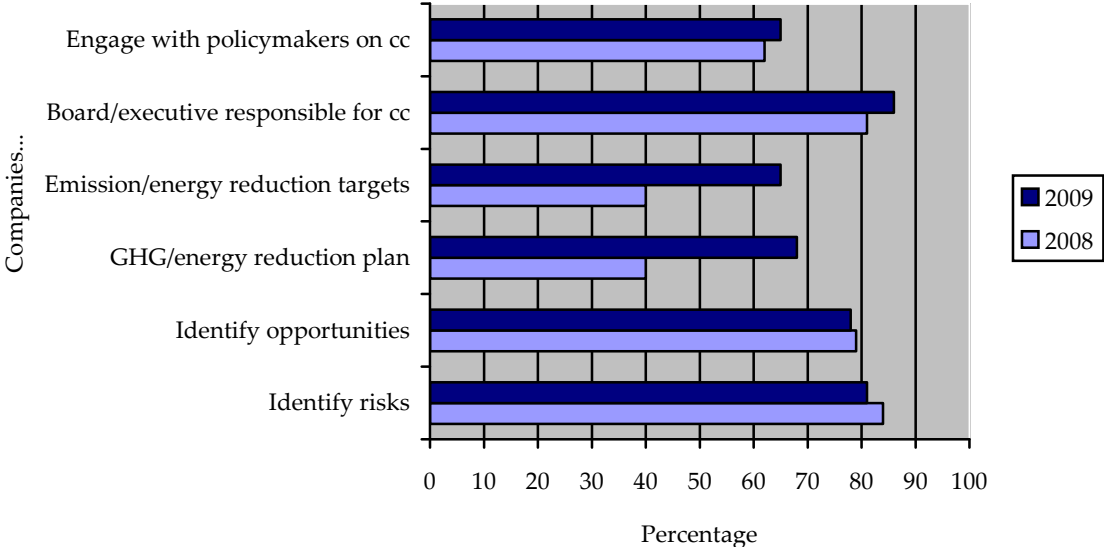
The NCCC includes representatives from government, business, NGOs as well as some experts. It is a stakeholder forum which is supposed to advise the DEA in the development of a national climate change policy. Several interview partners, however, criticized the forum for being too big to function properly, and the process to be very government-driven rather than a true consultation process.

With respect to business, awareness and activities are picking up, but more in terms of mitigation than of adaptation (see Vogel 2009). The National Business Initiative (NBI) not only drove the introduction of the Energy Efficiency Accord (see Section 4.1), but continues

to advocate for climate protection among businesses. NBI also connects different companies wishing to contribute to climate protection by organising workshops and discussion platforms in working groups. NBI seeks to set up a water chapter in the CDP, starting in 2010. Business Unity South Africa (BUSA), another major business association, plans to set up a water efficiency accord to promote adaptation to the impacts of climate change.

Since 2007, big and transnational companies fill out the questionnaire of the CDP on greenhouse gas emissions and their company’s climate protection activities. In the first year, only the top 100 companies listed at the stock exchange were contacted, with the sample increasing to the top 100 from 2008 onwards. Response rates were comparably high from the start. The most current survey was completed by 68 percent of companies; this being the fifth highest CDP response rate internationally (CDP 2009). Key trends in responses of 2008 and 2009 are depicted in Table 1.

**Table 1. South African companies' response to climate change:
CDP Key trends 2008-2009**



Source: CDP Reports South Africa 2008 and 2009. Note: cc denotes climate change

The key trends show that more companies now have a GHG or energy use reduction plan and/or even a target. The percentage of companies engaging with policymakers and the number of companies giving the responsibility for climate change issue to the board or executive level have risen very slightly. These ratings indicate that climate change is an issue increasingly taken serious by many companies, or that it at least cannot be completely ignored any longer. The identification of risks and opportunities for their company with respect to

climate change remains nearly at the same high level (with a slight decrease), pointing towards a good awareness among big and transnational companies. Moreover, the identification of risks includes regulatory risks – the majority companies expect future regulation either on the international level and/or by the South African government, and associate costs with these future regulations. But there is also a great uncertainty as to when and in what form new policy instruments will be implemented (CDP 2009: 31). Thus, while these responses indicate the existence of a shadow of hierarchy here, the uncertainty may counter its actual triggering effect for governance (see Section 3.2).

Within the big business sector, Eskom and Sasol occupy a special position. They are the two companies that together account for the bulk of South Africa's GHG emissions. Eskom is a parastatal enterprise, and Sasol used to be a parastatal entity during apartheid. For these reasons, relations between government and Eskom and Sasol are of a special nature. The business sector can be divided into three groups: a handful of big companies take the lead and have started acting, a second group have only recently become aware of the climate change challenge and potentially started working on risk assessments. A third, large group of all other companies which are either not aware yet, do not have enough knowledge and understanding, or see the sole responsibility for acting to be a matter of the big GHG emitting companies only (especially Eskom and Sasol):

“ [...] after the big five there is a big gap to other big and small and medium enterprises, they don't feel responsible for emissions. They have other things on their mind, a lot of competing things to worry about”²

Overall, the governance mix in South Africa's climate governance is currently still under development. Regardless of the difficulties with policy and strategy implementation, government plays a central role, and thus governance by government. Private governance initiatives such as the CDP and the initiative of NBI exist as well and may expand. With respect to public-private governance, only very few examples exist. The CDM does not work as well in South Africa as in other emerging economies such as India or Brazil. Analysis of the underlying forces helps to understand the implications of the current shape and development of climate governance with respect to the shadow of hierarchy. The next section provides such an analysis.

² Interview 1, 19/01/10, Johannesburg.

3.2 Drivers and barriers in climate governance

This section discusses the major drivers and obstacles concerning climate governance in South Africa. It draws on the information gained during the interviews described above.

In general, there are three groups of driving forces for climate governance in South Africa. First, there are a number of *events* that helped in raising awareness and started some governance processes. Second, there are several *key individuals and groups* that push for climate governance – here, the relations and exchanges between actors comes into play as well. Third, there is a set of drivers which I call *strategic and knowledge-related drivers*, meaning both companies' activities for competitiveness or market reasons and actors' increased awareness and understanding of climate change (see also Table 2).

In terms of driving events, a further differentiation is necessary. On the one hand, interviewees referred to the triggering effects of developments at the international level such as the publication of the 4th Assessment report of the IPCC, and especially the increase in international attention attached to it. Also, the run-up to the UNFCCC conference in Copenhagen in December 2009 and the conference itself had a push effect. On the other hand, interviewees stressed developments and events on the national level. Here, the declaration of the ANC in Polokwane in December 2007 and the publication of the LTMS in July 2008 have been pointed out as major events. The rise of electricity prices and the energy crisis of 2008 helped in increasing individuals' awareness and climate change-related issues, for instance, for saving electricity.

In the private sector, companies started looking at energy efficiency and investing into measures which co-benefit a reduced energy use and climate change, thus taking climate change onto their agenda. This frequent citation of both the price hike and the power supply crisis shows that triggering events for climate governance do not necessarily have to be directly related to climate change. The driving force of co-beneficial aspects appears to matter in South Africa. Moreover, economic incentives are relevant for the initiation of both individuals' consumer behavior and companies' strategies. This is further confirmed by the third set of drivers (see below). As one interviewee put it:

“The price of power has gone to the roof, so people have started saving more energy because of that, increased energy efficiency, it has nothing to with awareness about climate change, it's about when it gets to people's pockets”³

The second set of drivers concerns key individuals and groups that actively engage in and push for climate governance measures. These are the environmental NGOs: primarily

³ Interview 11, 04/02/10, Telephone interview to Johannesburg.

WWF, Earthlife Africa, and to some extent groundwork and Climate Action Partnership. Greenpeace has only recently established an office in South Africa and therefore does not count as a particularly influential NGO in South Africa yet. Most interview partners emphasized the role of Marthinus van Schalkwyk, Minister of Environment under Thabo Mbeki, in both putting South Africa on the political map in the international climate negotiations and in domestically pushing for the development of a climate strategy. In addition, a small number of scientists seems to effectively drive climate governance activities.

For some companies, the exchange with peers in international associations presents a contributing factor. This concerns the exchange of ideas and practices as well as an emerging general momentum or even peer pressure on this level.

The third set of drivers, strategic and knowledge-related factors, refers to more awareness and increased knowledge – here, primarily a minimal scientific understanding - about climate change. For most actors, this correlates with a positive attitude towards climate protection measures. In terms of raising awareness, the media has an important function. While interviewees generally agreed that the media helps to raise awareness and to stimulate debate in society, most pointed out immediately that only a part of South Africa's population has exposure to this media, especially newspapers. To put it simple: those actors who are aware of climate change and have understood what it means, while also being generally positive about combating climate change, try to do something about it.

For companies, strategic market assessments and competitiveness considerations fuel activity. The mining companies interviewed, for instance, fear that climate change is going to affect their competitiveness when international and European clients abstain from buying their “dirty” coal. The same reasoning – or fear - drives the fruit and wine industry towards more sustainable production and organic products, as different interviewees mentioned. Also, the insurance companies have a vital strategic interest in increasing resilience to climate change impacts in order to avoid having to pay for excessive damages in the future. Some want to develop a green image for public relations reasons, potentially increasing their attractiveness for customers, while some of the environmental NGOs accuse companies of merely greenwashing or re-labelling Corporate Social Responsibility activities as climate change measures. At least those companies interviewed here primarily start acting out of perceived economic risks or benefits, but a normative belief that it is necessary and right for them to do something about climate change matters for them as well.

Table 2: Main drivers and barriers in South Africa’s climate governance

Main drivers	Main barriers
<p><u>Events:</u> Publication of IPCC report and increased media attention, Copenhagen conference Publication of LTMS ANC Declaration Polokwane December 2007 Rise of electricity prices and energy crisis (load-shedding) in 2007/8 Impacts of climate change are being felt/ extreme weather events such as floods are attributed to climate change</p>	<p><u>Cross-cutting problems:</u> Lack of understanding and awareness Communication and learning of science Scientific uncertainty Climate change sceptics and denialists Equity issues (“right to first world lifestyles”) Implementation of measures and trickle-down effect (also towards a change of individual behavior)</p>
<p><u>Key individuals and groups:</u> Key scientists that establish relationships to actors Vocal environmental NGOs Key individuals, eg Marthinus van Schalkwyk International peer associations: exchanges and pressure on companies</p>	<p><u>Government:</u> Lack of cooperation and coherence between ministries („silo thinking“) Need to balance different goals Lack of skills and institutional capacity Weak power position of driving Departments (especially Department of Environmental Affairs) Financial resources</p>
<p><u>Strategic and knowledge-related drivers:</u> Market and competitiveness considerations, “green image” and sustainable products for international consumers Awareness and partial change of mind-set Increase in (scientific) knowledge</p>	<p><u>Business:</u> Waiting for government lead/policy frame A handful of leading companies, the rest rather inactive Lack of awareness, especially for SMEs</p>

The main problems in South Africa's climate governance can be grouped into three rough sets as well.

First, there are a number of *cross-cutting problems* which affect almost all governance actors and processes in some way. Second, there are specific obstacles concerning the *government*, with differences concerning the scope of these problems for the national government and provincial governments. Third, there is a set of problems that slows down progress in *business*.

Concerning the cross-cutting problems, interview partners stressed different points. There was high agreement, however, that the implementation of measures presents a widespread difficulty in South Africa which affects not only climate governance, but other governance fields as well. In terms of policy, the implementation at lower levels of administration appears to be difficult, even if the political will is there at the top level. The implementation of climate

governance measures often touches on individuals' or consumer's behavior which is – probably as in any other country – very difficult to change. In addition, some interviewees pointed out that South Africans feel they have a certain right to catch up on lifestyles detrimental to the environment which were denied to them under the Apartheid regime.

Various experts, companies and some NGOs underlined that there still is a lack of understanding and knowledge concerning climate change both in government and business. While some actors are very well informed and knowledgeable, others lag behind. Several scientists and members of the National Business Initiative argued that the communication of science and the education of actors – in other words, the learning – is crucial and still needs improvement.

The (remaining) scientific uncertainty, in particular the lack of down-scaled data about specific local impacts, presents a difficulty for actors in South Africa. Despite the fact that many countries across the globe have to deal with this problem, and even though most key actors in South Africa do not question climate science fundamentally, overall uncertainty is exacerbated by the vocal presence of groups of climate change sceptics and denialists. In the run-up to the Copenhagen conference, there was a wave of scepticism in the South African media, further fueled by the infamous email-hack in the climatology research unit at the University of East Anglia in December 2009. Interview partners disagreed about the actual influence of these sceptics and denialists, but they do have a voice and get attention in the media. One of my interview partners in business said that he can deal with scepticism in society and even in his own company and in society because climate models do have their problems, but there is simply no common ground for discussion with denialists who try to block any climate governance progress.

With respect to government, several challenges exist: First, a lack of collaboration and coordination between departments parallels a lack of coherent policy. Insufficient collaboration primarily concerns the DEA and DoE, whose relationship is characterized by a certain tension. The third advocate of climate governance measures, National Treasury, has an ambiguous role. Treasury introduced the carbon tax in 2009 without consulting other departments, according to my interviewees. Also, Treasury decides whether DEA or DoE have an access to funding, creating a certain competition. A term that kept coming up in the interview was “silo thinking”, implying that each government department follows his own approach, thinks within its particular box. Moreover, DEA and DoE ministers both count as rather weak departments in terms of power. The same appears to be true for the two ministers of these departments, Sonjica and Peters.

In addition to a lack of knowledge and understanding in some government departments (on all levels of administration), insufficient skills and institutional capacity are a problem. To some extent, these are due to the electoral turnover of staff every five years, and to a lower payment rate compared to similar positions in the private sector. A lack of financial resources was identified as a further obstacle. It was not possible to obtain figures of how much of public expenditure goes into climate change-related activities (either concrete measures or research) – a climate change office of one of the national ministries.

The overarching challenge for government is the integration of different policy and political goals, or, how to balance different needs. Even some of the environmental NGOs and experts who are in favor of more encompassing climate governance acknowledge that government has to deal with problems that may be more pressing in the short-term, eg housing and job creation or crime prevention and HIV/AIDS.

The final set of problems relates to businesses. In general, companies currently wait for a policy frame and for government to take the lead. On the one hand, this is a problem concerning government (since it blocks progress), on the other hand it does not justify inertia of companies (since pro-active private governance does not need to rely on government). Also, a first mover advantage appears possible as well as an increase of pressure on government, if a higher number of companies were already active in climate governance. This leads to the second issue, the discrepancy between groups within the private sector already described above. The lack of awareness is greater for small and middle enterprises than for the big and transnational companies. Single big companies such as Woolworths try to raise awareness in their supply chain by designing a code of conduct, and/or providing information.

The drivers and barriers identified in this section lead to the following interim conclusions: Both the international and the national level matter, and at least for businesses, transnational influences and initiatives seem to push climate governance forward as well. The situation that some big businesses are waiting for government to give them a frame within which to develop their climate governance actions underlines that comprehensive climate governance in South Africa does not work without the state.

This – cautiously - confirms Börzel's argument that the presence of government is necessary for the development of governance with and without government. South African businesses only very carefully opt for the first mover advantage. The uncertainty and confusion created by a lack of policy coordination and policy coherence undermine the threat inherent to the shadow of hierarchy. Whether the shadow of hierarchy cast by government is sufficient does not seem to only depend on statehood in an abstract way, but more concrete on

the ability of government to make clear what kind of executive decision or legislation may be taken, and in which time frame. The actual enforcement of legislation matters as well:

“One of the big problems in South Africa is that we can have the best, most progressive laws, but there is no enforcement, and people know that.”⁴

Since climate governance, and particularly the mitigation of GHG emissions, is closely connected to energy governance, these results need to be put into perspective with the structure and developments in the South African energy sector.

4. South Africa’s energy sector

4.1 Structure and significance for mitigation

South Africa’s energy and electricity sector is quite simply structured because the prime energy source coal accounts for over 80 percent of electricity supply (Imbewu 2009). The reliance on coal as an energy source explains the country’s comparably high amount of GHG emissions per capita⁵. In addition, South Africa’s economy counts as being one of the most energy intensive ones in the world, with manufacturing and transport accounting for most of the energy demand. For 2007, it is estimated that 78% of GHG emissions result from fuel combustion, 15% from industrial process and 7% from other processes (Winkler/Marquand 2009:50f.). The parastatal company is the sole electricity provider in South Africa.

There is one nuclear power station, Koeberg station, in the Cape region is owned and run by Eskom. While more stations are planned and nuclear has recently been confirmed as an option for South Africa’s future energy mix by Dipuo Peters, Minister of Energy⁶, concrete planning and building has stalled this far due to financial problems.

The potential for wind and solar energy is very high in South Africa, with some regions in the Northern Cape counting among the most suitable in the world for solar thermal energy. Some studies suggest that renewable energy technology could provide up to 50% of electricity till 2050 (Edkins et al. 2010; Grant 2009). Yet only negligible amounts of electricity from renewable energy are currently produced. There is only one wind farm in Darling, operational since 2008. Eskom has a solar water heater programme, which has the goal of selling one million solar water heaters to private households – up to now, the programme has not been very successful. In spite of the subsidized price, the purchase and installation costs for a solar water heater are still significantly higher than compared to a

⁴ Interview 14, 28/01/10, Pretoria.

⁵ In 2000, per capita emissions with land-use, land-use change and forestry (LULUCF) were 10.1 t CO₂ eq, compared to 10.5 of the EU or 22.9 of the US (Winkler/Marquand 2009: 50).

⁶ Reuters (2009), *UPDATE 1-SAfrica plans new nuclear power station by 2020*; <http://www.reuters.com/article/idUSLK59567920091120>; 27.04.2010.

conventional water heating system. South Africa currently imports small amounts of hydroelectricity from Mocambique, but, given the vast solar resources, hydropower is not the first choice for the expansion of renewables.

On the governmental side, the major players are the Department of Energy and the Department of Public Enterprises; the latter holding the shares of Eskom. The National Energy Regulator of South Africa (NERSA), set up in 2004, regulates the liquid fuels, gas and electricity sectors. Its tasks include the conduct of the stakeholder consultation process and the decision-making about electricity pricing. Apart from Eskom, the Coal-To-Liquid (CTL) Company Sasol is important in the energy sector. Sasol used to be a parastatal company as well. During the apartheid legacy in which South Africa faced an oil embargo, Sasol provided synthetic fuel on a large scale by using the CTL process. The CTL technology was initially strongly subsidized by government. Today, the large amount of coal available in the country at low prices as well as low electricity prices makes CTL still highly profitable for Sasol, which currently supplies a third of South Africa's liquid fuels (Tyler 2009).

A number of other institutions are relevant, contributing to a fragmentation of the energy sector beyond the major actors. Among them are the Central Energy Fund (CEF), a partially DoE-funded body which manages governmental oil and gas assets. CEF and the South African Energy Research Institute (SANERI) are both conducting research on energy issues including energy efficiency and renewables. The National Energy Efficiency Agency (NEEA) and the Center for Carbon Capture and Storage (CCS) also belong to this cluster of institutes. The South African Energy Development Institute (SANEDI), set up by the 2008 Energy Act, is supposed to integrate some of these institutes and push for more renewable energy in the country.

On the one hand, the high number of institutions has been criticized as one central problem within the energy sector, especially with respect to the promotion and implementation of renewable energy projects (see Edkins et al 2010). On the other hand, power is concentrated in the hands of a few actors (namely, DoE, Eskom and Sasol) and moves towards privatization or the opening of the energy market for independent investors keep stalling.

The South African energy sector has always been structured in a way to provide bulk supply in a centralized way. Following massive electrification programmes after the end of apartheid, the spatial legacy of supply patterns concentrated on areas with white inhabitants was somewhat overcome (see Tyler 2009). The White Paper on Energy of 1998, one of the central documents on energy, promotes that 30% of energy should be supplied by independent

power producers (IPP) to diversify South Africa's energy mix and break up the monopolistic position of Eskom. Up to now, this has not happened (see below Section 4.2).

The White Paper on Renewable Energy of 2003 is a second important policy documents. It introduced a target of 10 000 GWh of energy to be produced from renewables by the end of 2010. This goal will most probably not be attained (Edkins et al. 2010). The renewable energy feed-in tariff (REFIT) guidelines published in March 2009 count as a reaction to the widespread power blackouts in 2008 which made clear that alternative energy sources are necessary for both energy security and climate protection reasons (see Edkins et al. 2010). REFIT guarantees power producers a fixed price rate (per kWh produced), thus overcoming the financial barrier that had long impeded any renewable energy production (Edkins et al 2010: 15). The electricity tariff of 2ct/kwh introduced in June 2009, on power generated other than by renewables – already mentioned above - is in fact the first small carbon tax of South Africa. While not making a real financial impact for Eskom, it may be the gateway to further mitigation measures in this area. The second Integrated Resources Plan (IRP), a strategic document outlining the prospective energy mix, will be published in October/November 2010. It is expected to include different scenarios on how to integrate energy, climate and development objectives in energy governance.

In 2005, a public-private Energy Efficiency Accord was concluded. This example of governance with government has been signed by 46 companies (State: end of 2008). While the accord was originally set up to counter the energy supply and demand problems, it is co-beneficial in terms of climate change mitigation as well.

In sum, the South African energy sector is structured around two to three major actors and the prime energy source coal. Some analysts describe the situation as oligopolistic (Tyler 2009). Ties between the major actors are unclear, and the institutional landscape beyond them is rather fragmented. The competitive advantage of South Africa's economy is largely based on cheap coal and cheap electricity, produced in an energy- and carbon intensive way. Competitiveness, economic growth and job creation/security are interdependent. Therefore, the diversification of energy production and the shift towards a low-carbon economy may have to be understood and analyzed from a development perspective, as other authors have already stated as well (see Winkler et al. 2007). Moreover, South Africa is just coming out of recession and has to shoulder the financial burden of the soccer World Cup, making investments into mitigation and clean energy technology somewhat less likely. The current economic growth rate is at roughly 3% - far from the 6% envisioned by policymakers, and far from a growth path that would secure employment and counter inequality (Kappel 2010).

The following section identifies recent developments and barriers, compares these to the developments in climate governance and discusses their implications for the governance mix and the shadow of hierarchy.

4.2 Recent developments, barriers and implications for the governance mix

Three sets of events that certainly had an effect on South Africa's energy governance: First, the load-shedding in 2008; second, the subsequent electricity price hikes of 25% in 2008 and of 24% for each of three consecutive years starting in 2010; and, third, the grant of the World Bank loan for the new coal-fired power station "Medupi". All these events spurred debate about the future of South Africa's energy mix in the light of climate change, and increase the pressure to act.

There are calls for more renewable energy and power provision by independent power producers – hence, for a liberalisation of a part of the market - by policymakers, NGOs and analysts. In his state of nation address in February 2010, President Jacob Zuma, envisioned the participation of IPPs and the establishment of an independent systems operator, separate from Eskom⁷. At the time of writing, it remained to be seen whether this statement moves beyond lip service. Since the first attempt to liberalize the electricity market at the end of the 1990s failed, uncertainty about the conditions under which IPPs can operate continues for the moment. Tyler assesses a failure of energy planning, co-ordination and liberalisation following the publication of the White Paper on Energy in 1998 till present: "The failure of planning, coordination and liberalisation has meant that the status quo of a centralised supply side oriented oligopolistic energy sector based on coal has been maintained" (Tyler 2009: 10). Some of my interview partners further indicated that Eskom keeps blocking the signature of power purchase agreements for IPPs, thus actually hindering a change in the governance structure.

In the literature, several other constraints and barriers for effective energy governance are identified. Most of them are relevant with respect to the integration of climate and energy governance, and some are even the same kind of barrier as identified in the section on climate governance:

There is a consensus in the literature that a lack of policy coordination and slow or even lacking implementation present major difficulties in South African energy governance (Tyler 2009, Edkins et al. 2010, Winkler/Marquand 2010; Idasa 2010). In addition, the intransparent, somewhat fragmented institutional landscape, in which the connections

⁷ Jacob Zuma, State of the Nation address, Parliament, 11/02/2010; <http://www.info.gov.za/speeches/son/index.html> , 20/08/2010.

between governmental and non-governmental institutions are not clear-cut, increases uncertainty among governance actors (see Idasa 2010). This has implications for the energy market as well: private investors do not know what to expect, or whether their produced electricity will be purchased. In terms of the market, the cheap price of electricity (due to the cheap price of coal) also increases the risks and costs for investors, and impedes the development of an alternative market (Winkler/Marquand 2009; Edkins et al 2010).

Moreover, the innovation system in South Africa is characterized by path dependency – the reliance on coal, lack of experience with renewables, and the reliance on Eskom and Sasol as the only providers of energy and electricity. Their dominance still pertains in R&D as well, influencing developments in the renewable energy sector (Pegels 2009: 11). Tyler suggests that a single powerful institution is necessary that can coordinate and deal with vested interests of existing institutions (Tyler 2009: 13). According to her, the resistance of dominant energy institutions presents a decisive barrier to a change in the energy system, and the alignment of energy and climate mitigation governance. While the set-up of such an institution may help, the dissolution of existing institutions could be an obstacle

Again, as for climate governance, one major barrier is the lack of policy coordination and coherence. In addition, the structure of the governance sector itself and the distribution of power between actors make the transition to a low-carbon economy appear very difficult. While for climate governance, more governance by and with government seems necessary, the energy sector would benefit from a partial liberalization, thus giving other governance actors the chance to step in and ending the monopolistic position of Eskom. Given the relevance of stable electricity supply for development and the necessity of affordable electricity prices for the poor, bulk supply has to derive largely from coal, and from one or more parastatal entities, in the near to mid-term. To integrate climate and energy governance without challenging development paths too much, some trade-offs seem unavoidable. The strengthening of green job opportunities, eg in renewable energy, presents one governance opportunity that is (co-) beneficial to all three goals (climate protection, energy security, economic growth). A study estimates the potential for green job creation to up to 800 000 new jobs (Global Climate Network 2009).

Finally, on the conceptual scale, the comparison between energy and climate governance in South Africa indicates that governance without government is the exception, and may rather work on the transnational level. In climate governance, more state intervention with a credible shadow of hierarchy is required, while in energy governance, more governance through market forces that break-up oligopolistic structures seem necessary. In

the energy sector, it is not entirely clear whether the shadow of hierarchy is cast by government only, or together with Eskom. In any case, more policy coordination, and a minimum of security what to expect, and when, is decisive for both effective governance and the credibility of the shadow of hierarchy.

5. Conclusion

In this paper, a governance approach to the integration of climate protection and energy issues was taken. Empirical insights from the case South Africa were provided to help identify the appropriate governance mix for a transition to a low-carbon economy. At this stage, government and business are not entirely on a common road to a low carbon economy. In climate governance, more governmental action to provide a frame for other modes of governance is required. To ensure energy supply and to diversify the energy mix, both to prevent future power cuts and to enable mitigation in this area, a partial liberalization of the energy market has been identified by analysts before, and confirmed by the data presented here. Major barriers in both climate and energy governance, and thus for their integration as well, include the lack of policy coordination and collaboration between actors, leading to uncertainty.

This situation undermines the relevance of the shadow of hierarchy in South Africa. It seems possible and likely that more governance without government will come about in the near future, if this uncertainty is reduced and a first mover advantage may more credibly pay off for companies. Therefore, the shadow of hierarchy may indeed present a condition for effective governance with/out government, if actors expect potential state intervention to be truly enforced, if its possible content can be assessed sufficiently, and if it can be estimated when a governmental decision or legislation may come about. But these results apply to the case South Africa only, further research on more cases would be necessary to support this argument.

Alternative approaches to research which may be fruitful for the case South Africa, but for other cases as well, include a focus on networks to identify the connections between business and government and all other relevant governance actors. Also, analysing the integration of climate and energy governance in terms of adaptive governance, or the ability of the governance system to dynamically react to external shocks and changes, may prove useful as well.

For South Africa, the road towards a low-carbon economy has to be a common one in terms of all three goals of climate protection, energy supply and development. Coal is very

likely to continue being the power supply for the major parts of electricity production in the near and mid-term, because the diversification of an energy mix takes time, and the social-political goals of countering unemployment and inequality cannot be ignored. The shift of the energy mix towards a higher portion of renewable energies and more energy efficiency may be co-beneficial, especially concerning job creation in the industry of renewable energy. However, as the results of this article show, this shift needs to be triggered and accompanied by a shift in the governance structure. Here, a stronger collaboration of actors and their activities as well as existing policies, seems like a viable first step.

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