


Horizon 2020 Societal challenge 5: Climate action, environment, resource efficiency and raw materials

# COP21 RIPPLES

## COP21: Results and Implications for Pathways and Policies for Low Emissions European Societies

GA number: 730427, Funding type: RIA

| **Deliverable number** (relative in WP) | **D4.4** |
|---|---|
| **Deliverable name:** | Linking the international climate regime to the political economy barriers of raising ambition. |
| **WP / WP number:** | 4 |
| **Delivery due date:** | Project month 33 (31/08/2019) |
| **Actual date of submission:** | 17[1]/01/2020 |
| **Dissemination level:** | Public |
| **Lead beneficiary:** | UCT |
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[1] Discontinuities in project teams led to re-contracting with this due date

1. **Changes with respect to the DoA (Description of the Action)**
   *Discontinuities in project teams led to re-contracting and changes in due date*

2. **Dissemination and uptake**
   *The deliverable is useful for the analysis of political implementation risk at national level, providing a research framework for such analysis, examples of applications of the framework and interesting results from country studies which are relevant to global governance and potentially also to other countries, besides the study countries. The insights emerging from this research piece have fed Tasks 4.1, 4.2 and 4.3, contributing to the characterization of the international governance regime by enhanced understanding of emerging economies perspectives, as well as D2.5 which establishes an overall framework to assess the adequacy of the global climate response to COP21. The work under this Task 4.4 is also designed to contribute to the uptake of political economy research assessments by the academic community, particularly researchers based in the South.*

3. **Short Summary of results (<250 words)**
   *National mitigation policy takes place within a 'soft' law context of international governance in which 'obligations of outcome' cannot be enforced. This is important in managing implementation risk. Political implementation risk is influenced by the different kinds of modes of operation of actors in networks that have different core features. Of interest are key features of these networks and how these features affect the influence of actors and how this impacts policy. The extensively used Policy Network Analysis (PNA) is used to explore this. According to PNA, on a continuum, at one end of a spectrum are more open, transparent, inclusive Issue Network-type networks; on the other end more closed, exclusive Policy Community-type networks. Empirical evidence found that in many cases where there had been progress in formulation and implementation of policies explicitly aimed at public welfare and environmental protection, networks tending more to Issue Network-type features had often played a significant role. As a result, greater effective involvement of actors in Issue Network-type networks is often associated with reducing political implementation risk of climate policies which are largely concerned with wider public welfare.*

   *Policy Community-type networks usually act in the exclusive interests of their members, often to the detriment of policies advocating public welfare and environmental protection. Hence greater influence of actors operating in networks exhibiting Policy Community network-type features increases political implementation risk of climate policies. Actors operating in these kinds of networks were also found to be more prone to higher levels of rent-seeking, patronage and corruption and this further increases implementation risk of policies aimed at broader welfare. It was found that in specific policy arenas there is a periodic shift between greater influence of actors operating in Issue Network-type networks and actors in Policy Community-type networks. These shifts are effected by the broader political environment and engagement with actors in other networks, domestically and internationally. Thus the effectiveness of actors operating according to the different relationships that characterise these networks is influenced by the global governance context. There is potential for NDC policy processes to be positively influenced by supporting actors operating according to the transparent, open Issue Network-type networks explicitly orientated to general welfare by the governance functions identified in COP21 RIPPLES*

*WP4.1 - Key concepts, core challenges and governance functions of international climate governance.*

## 4. Evidence of accomplishment

*This report serves as evidence for the accomplishment. Designed to be stand-alone for dissemination purposes, it contains an introduction; the country case study research framework which is a key deliverable; summaries of the country case studies, and a conclusion. The summaries in the body are based on four papers in the appendices, each of which is designed as a stand-alone paper for dissemination purposes, namely the three country case studies and a study titled 'Climate policy risk in South Africa and Brazil'.*

Contents

## 1. Introduction

A central feature of the Paris Agreement (PA) is the Nationally Determined Contribution (NDC). Parties to the PA are not legally bound to achieve the mitigation[2] outcomes specified in the NDCs in terms of quantified GHG emission reductions. Instead, parties are subject to "obligations of conduct" (Oberthür & Bodle 2016), including preparation, communication and maintenance of successive NDCs and reporting information necessary to track progress in implementing NDCs, including GHG inventories. This creates a 'soft law' environment for governance of mitigation outcomes (Lawrence and Wong 2017). While there is a 'soft law' feature in terms of mitigation outcomes results (achievement of quantitative targets), the PA is legally binding in terms of parties being required to regularly submit mitigation components of NDCs, information on implementation of mitigation actions (Article 3 and 4) and biennial transparency reports. These are to be done within the support of a set of core long-term goals (Article2). National climate action in the context of the Agreement is internationally verified through transparency provisions in Article 13, which provide for reporting on mitigation, adaptation and the provision and receipt of support.

These features of the PA create opportunities and challenges at the level of national climate governance which is where many policies have ultimately to be implemented. The PA provides a context within which parties are legally bound, at the national governance level, to continually develop, implement and account for their mitigation policies. However, the 'soft law' environment also provides a context at the national level within which those who are opposed to mitigation policies can more successfully resist policy progress and implementation than if the parties were legally bound by outcomes of result. Significant political resistance to mitigation policy has been evidenced at the national level and thus an understanding of the dynamics of successful policy progress and problems in the political dimension are relevant to governance, especially within the overall scientific context of the speed required (Rogelj et al. 2019) for progress in mitigation policy development and implementation.

The above context informs the primary task of COP21 RIPPLES WP4.4 which is to **"analyse the policy and domestic political economy issues related to implementation of (I)NDCs […] in major non-EU countries"** (IDDRI 2016).

Reducing the levels of GHG to meet the goal of the Paris Agreement on climate change "requires a fundamental transformation of our economies and societies at a global scale" (Oberthür et al. 2017:9). Energy systems will have to undergo fundamental transitions to be consistent with the PA (Pachauri & Meyer, 2014: 55, 81). These transitions provide benefits but are also associated with resistance from those who benefit from the status quo. Political actors from state, non-state, institutional, informal, governmental (at all levels and inter- and intra-governmental), non-governmental and civic organisations are involved with developing, advocating and also opposing or resisting mitigation policy.

The focus of this report is an analysis of core aspects of the domestic politics of implementation of national policies related to transitions in the energy sectors of three case study countries regarded as

[2] This paper focuses on mitigation. There is no legal obligation of result on finance either, and adaptation is entirely voluntary. The legal form of obligations is not mitigation-specific.

major non-EU countries: South Africa, Brazil and China. The extensively used Policy Network Analysis (PNA) approach is the primary lens used to study advocacy, promotion and support and also resistance to policies relevant to transitions. The analysis yields key insights relevant to the politics of implementation of NDCs and related national and international climate policy governance.

### 1.1. Report contents

The research framework used to guide the country studies has been a core aspect of the project work and is a subantial component of the report. It is presented first. Then summaries of country case studies are presented followed by conclusions from those studies and an overall conclusion of the results within the context of COP21 RIPPLES work on international climate governance.

### 1.2. Appendices

The case studies are appended to this report as well as the additional paper with the framework for the analysis of political risk factors.

## 2. Research framework including conceptual frameworks

The research framework responds to one of the key aims specified in the COP21 RIPPLES DOA, see P19 of Part B**.** The Methodology section states that: "*Given the still quite recent development of climate policy in developing countries, a key aim of this research will be to develop a structured research framework grounded in relevant academic disciplines, …"* (IDDRI 2016). The research framework is an output in its own right and was used to guide the country case studies in China, Brazil and South Africa.

### 2.1. The politics of implementation of transitions

Energy systems need to undergo fundamental transitions to avert risks of catastrophic climate change (Pachauri & Meyer, 2014: 55, 81). Pathways for these transitions have been described in techno-economic terms. The basic techno-economics and sectoral transformations are well described and understood[3] and are presented as results from Task 2.1 as inputs to Work package (WP) 4 in COP21 RIPPLES. Deliverable WP4.1, *"Key concepts, core challenges and governance functions of international climate governance"* speaks of "transition in the transformative sense" of fundamental transformations of economies including deep change of sectors including energy. But, energy systems are embedded in social systems and many complex social aspects of energy transition pathways are poorly understood. Since the advent of systematic studies of policy implementation more than forty years ago there has been acknowledgment of the difficulties involved in the complex processes of altering social behaviour (Sabatier & Mazmanian 1979:481). This social behaviour includes the political aspects of governance.

Policies to 'implement' these pathways often do not take account of many of these complexities and are specified in over-simplistic techno-economic terms where policy instruments are often limited to state-

[3] This was already the case from the results of the DDPP

procurement, pricing of energy, top-down regulations or unspecified infrastructure and innovation policies (Bruckner et al. 2014:564). Meadowcroft (2011:73) argues that more needs to be done to understand the politics of sustainability transitions. This has become increasingly evident in the failure to implement GHG mitigation policies (United Nations Environment Programme UNEP 2017), (Adger et al. 2010:547).

Some aspects of the complexities of the interactions between politics, economics, and technology and society have begun to be addressed using concepts including creative destruction, technological paradigms, path dependence, lock-in, socio-technical systems, technology innovation systems, policy networks, political economy studies and a variety of areas of political science. The study of transitions has burgeoned over the past decade or so. Articles on the subject of sustainability transitions have increased from less than five each year in the peer-reviewed literature until 2004 to over 314 a year currently (Trollip 2020)[4]. However, despite this increased effort there appears to be near agreement that "'systematic understanding of national energy transition remains elusive' (Cherp et al. 2018). (Cherp et al. 2017:175). Complex system innovations and politics are core issues (Bergek et al. 2008), (Meadowcroft 2011).

The very broad range of study areas and issues involved in transitions implies that for practical reasons it was necessary to narrow the focus of COP21 RIPPLES WP4.4 further from "analysis of the policy and domestic political economy issues related to implementation …":

(Meadowcroft, 2011:73) argues that more needs to be done to understand the politics of sustainability transitions when he states that:

> *"So far, sustainability researchers have focussed largely on policy: what it is and what it could/should be. … there must be thousands of academic articles on the design of climate policies and instruments. However, much less attention is devoted to the political circumstances that make the adoption of such policies likely. But behind policy there is always politics, and getting the politics right appears to be a prerequisite to getting the policies right."*

and when he explains that:

> *"…from the outset, sustainable development was understood as a political project; because the operation of social institutions does not spontaneously generate a sustainable development trajectory. … Most importantly, intervention disrupts established entitlements*[5] " (Meadowcroft 2011:72).

Thus the COP21 RIPPLES WP4.4 analysis narrows its focus further to the **politics of implementation of transitions**.

[4] See appendix

[5] Emphasis added – this observation confirms much of what has been observed in initial research on COP21 RIPPLES WP4.4 and informs much of the design of the COP21 RIPPLES WP4.4 research.

## 2.2. Policy Network Analysis (PNA)

The term 'politics' can be widely interpreted, even within the context described above. With regard to designing the research focus on politics for WP4.4, we adopt the notion from the Oxford Handbook of Political Networks (Victor, Alexander H. Montgomery, et al. 2017) which states that: "Politics is about relationships". The research framework thus guides the study in the direction of exploring how particularly relevant/interesting relationships between actors are involved in the implementation of policies related to transitions in energy systems in the case study countries. Accordingly, the basic objects of the study are the relationships between political, economic and institutional actors involved in carrying out, promoting and/or resisting transitions.

Rhodes' Policy Network[6] analysis (PNA) is the primary conceptual framework chosen to guide the country case study analysis. It has been used extensively and has an associated large literature (Raab & Kenis 2007:187) (Rhodes 2017). It is situated in the relational paradigm, one of the major social science innovations in past decades (Victor, 2017), (Rhodes 2017a:37), (Raab & Kenis 2007:189). There is a vast literature on network analysis in the social sciences in general. The relational paradigm is fundamentally different from the methodological individualism[7] paradigm which was dominant in public policy analysis for the second half of last century and which informs much of the techno-economic pathway analysis. Methodological individualism underpins economistic thinking. Relational thinking does not supplant methodological individualism but has become an important complement with explanatory value, particularly in the political dimension of policy analysis.

PNA focuses on how political actors interact in specified types of networks. The type of these networks can be placed on a spectrum according to key features. Towards one end of the spectrum, **Issue Network**[8]**-type** networks are more open, transparent and inclusive and are empirically associated with development and implementation of policies involving transitions that promote greater public welfare. They "…constantly communicate criticisms of policy and generate ideas for new policy initiatives'' Heclo, 1978, cited in Rhodes, 2006: 428). Towards the other end, **Policy Community-type networks** are more closed, un-transparent and exclusive.

[6] We capitalize the three terms we use of for three key concepts, namely Policy Network, Policy Community and Issue Network

[7] The term 'methodological individualism' might seem to the non-political science specialist an over-technical term for this report, which might be better replaced by it's meaning-in-use. However, it is a central doctrine of sociology of the 20th century and has been "embroiled in a number of highly politicized debates". It is not possible to tease out its meaning in a few paragraphs so the technical term is included mainly to position the relational paradigm with regard to it (Heath 2015).

[8] These are specific definitions that have been used a large literature. See (Rhodes 2006) – Policy Network analysis has been developed since (at least) the late 1970's when Heclo (1978) coined the term Issue Networks in this context. There is a large theoretical literature which much fruitful application. There has been little usage so far in the context of the emerging economies studied in this research (for e.g. Marquard, 2006, Bake, 2014) so the current research is still aimed at building foundations.

A key characteristic is that Policy Community-type networks deliberately exclude many political actors (Rhodes, 2006:427). They are arranged specifically to act in the interests of their members[9]. This creates concerns of negative public welfare effects. "The basic interaction in Policy Community-type networks is one involving bargaining between members with resources" (Rhodes, 2006: 428). They are empirically often associated with frustrating more publically developed policies explicitly orientated to achieve specified public welfare goals. Additionally, the exclusive, closed features of Policy Community-type networks are facilitative for patronage relationships and abuses of power that further undermine policies promoting public welfare. They are thus more prone to be associated with abuse of power, corruption and general maladministration of policies seeking to promote constitutionality, rule of law and public welfare. Given the public-welfare nature of mitigation policies and that they are directed at production of public goods, and given that this might impact negatively on status quo/private goods, a study of political actors' activities with relationships tending to Policy Community-type relationships is relevant to understanding the politics of mitigation policy.

### 2.2.1. Rhodes Policy Network definitions

In the extensive literature related to Policy Network analysis[10] different researchers use different terms for the same (or very similar) concepts. For example Miller and Demir, in their book chapter titled *"Policy Community-type networks"* use the term 'policy community' in the same way as Rhodes[11] uses the term 'policy network' in his book chapter titled *"Policy Networks - The Historical Moment Introduction: The ubiquity of Networks"* (Miller & Demir 2006); (Rhodes 2017b).

Rhodes, in a memoir on the development of policy network analysis remembers that: "*…we argued over definitions and typologies. The issues that divided us seemed important at the time. They were not." [emphasis added]* (Rhodes 2017b:35). Regarding efforts to over-specify exact kinds and categorisations of network he writes: *"Networks can vary along several dimensions and any combination of these dimensions; for example, membership, integration, resources. Various authors have constructed continua, typologies, and lists of the characteristics of policy networks and Policy Community-type networks (see, for example, Van Waarden 1992). This lepidopteran approach to policy networks—collecting and classifying the several species—has become a dead end"* (Rhodes 2017b:40).

To avoid these kinds of unproductive efforts, and to meet the purposes of the analysis in COP21 RIPPLES WP4.4, we adopt three key terms Rhodes carefully defined in his chapter titled *"Policy Network Analysis"* in the 2006 Oxford Handbook of Public Policy[12], namely Policy Network, Policy Community and Issue Network. See Table 1 - Types of Policy Networks.

> *"**Policy Networks** are sets of formal institutional and informal linkages between governmental and other actors structured around shared if endlessly negotiated beliefs and interests in public*

[9] See also in (Rhodes, 2006).

[10] A Scopus search on titles, abstracts and key words for the terms "policy community" OR "policy network", yielded a count of 2,970 documents.

[11] A pre-eminent exponent of the policy network analysis field for the past 30 years,

[12] When used to denote these specific concepts we capitalize them throughout the text to indicate we are using the chosen terms for the specifically defined meanings.

*policymaking and implementation. These actors are interdependent and policy emerges from the interactions between them"* (Moran et al. 2006:426).
*"[Policy] Networks can vary along a continuum according to the closeness of the relationships in them.*

***Policy Community-type networks** are at one end of the continuum and involve close relationships;*

***Issue Networks-type networks** are at the other end and involve loose relationships.*

While the actual terms used for the concepts may vary from researcher to researcher, the research framework of the country case studies establishes the essence of the concepts to be used as a coherent tool for the PNA.

It is important to emphasise that the interpretation of PNA that is used in the analysis in this paper does not view a 'Policy Network' as an actor. 'Policy Network' is a concept, as is 'Policy Community' and 'Issue Network'. Using these concepts actual networks of actors are assessed as to their position on the spectrum. Actors have relationships in a network involved in influencing a specific policy. These relationships relevant to a specific policy process are assessed in terms of how they position the network along the Policy Network spectrum provided by Rhodes. According to this assessment the network would lean more towards either the Policy Community-type or Issue Network-type on the spectrum. A core research interest then is to discern patterns related to, on the one hand, where the network falls on the spectrum and on the other hand, policy outcomes.

There are many kinds of actors involved in networks that are relevant to the analysis. The actors can be institutions, organisations of individuals, or individuals. Examples of actors are: a formal organisation such as a government; a state-owned enterprise such as Eskom; an industry association. Also, relevant actors could be formal sub-sets of these such as a government department, or a department inside Eskom. Other kinds of actors could be an informal groupings such as a grouping inside government or Eskom. Individuals acting with mandates from other actors, or advocating their own interests are also kinds of actors in this interpretation of PNA.

There are very many examples[13] of networks. One (common) example would be an official committee mandated to draft a policy in well-specified definitions and domains of public interest in consultation with a diverse set of groupings and individuals. This ind of network would lean towards the Issue Network-type of network. Another, quite different example, would be a stable, informal (possibly covert), exclusive group, made up of individuals inside government and representing advocating their own interests and also of individuals outside government, working in concert. This newtork would lean towards the Policy Community-type of network.

Newtorks are not mutually exclusive. There are overlaps. Actors can be assessed as belonging to networks exhibiting features leaning towards either or both types of Policy Networks, and this changes

[13] These examples of networks are different from the 'type' of network according to the PNA Policy Network typology.

with time and even the policy issue under analysis. The structures and participation are dynamic. For example, the same actors can be involved in relational processes strengthening a Policy Community-type network while at the same time engaging in a network with relationships largely of the Issue Network-type. There are overlaps and ongoing fluidities in the dominant features, participants and relationships in the networks. Examples of these are presented in the case studies.

Whether these actors or networks work within a legal framework or enjoy more or less legitimacy is not of primary interest in this study. The primary criterion for identifying an actor or network as relevant to the study is whether they appear to have had a significant influence on policy outcomes. This influence is assessed through the qualitative analysis of narratives of policy transitions.

| Dimension | Policy Community | Issue Network |
|---|---|---|
| Membership:<br>– No. of participants<br>– Type of interest | Very limited number, some groups consciously excluded<br><br>Economic and/or professional interests dominate. | Large<br><br>Encompasses range of affected interests |
| Integration:<br>– Frequency of interaction<br>– Continuity<br>– Consensus | Frequent, high-quality interaction of all groups on all matters related to policy issues high quality<br>Membership, values, and outcomes persistent over time<br>All participants share basic values and accept the legitimacy of the outcome. | Contacts fluctuate in frequency and intensity.<br><br>Access fluctuates significantly.<br>A measure of agreement exists, but conflict is ever present. |
| Resources:<br>– Distribution of resources within network<br>– Distribution of resources within participating organizations | All participants have resources; basic relationship is an exchange relationship.<br>Hierarchical; leaders can deliver members. | Some participants may have resources, but they are limited, and basic relationship is consultative.<br>Varied and variable distribution and capacity to regulate members |
| Power: | There is a balance of power among members. Although one group may dominate, it must be a positive-sum game if community is to persist. | Unequal powers, reflecting unequal resources and unequal access. It is a zero-sum game. |

Table 1 – Types of Policy Networks
*Source: (Rhodes 2017b – cited from Marsh & Rhodes 1992.)*

### 2.2.2. The relational versus the methodological individualism paradigm for political analysis

The overarching objectives of the COP21 RIPPLES WP4.4 analyses are to identify and develop an understanding of the relevant features of national policy processes to inform international governance of emissions mitigation policies. International governance in COP21 RIPPLES WP4 "*entails the setting of*

*rules and standards and the provision of support at the international level. It can be pursued by various actors, including state governments, (associations of) non-state actors (both business/firms and civil society actors), local authorities (cities, municipalities and regions) and others"* (Oberthür et al. 2017:11).

The analysis recognises the importance of networks of actors, state, non-state, institutional, informal, governmental (at all levels and inter- and intra governmental), non-governmental and civil-society. The focus of PNA is explicitly not on the dominant economistic paradigm, which relies on theories involving why actors act as they do because of their attributes (such as utility maximising individual actors or collectives) ***but on analysis of relationships between actors and how features of these relationships impact on social outcomes and hence policy outcomes***. Hence, PNA focuses on attributes of patterns of social relations between actors, not attributes of the actors themselves.

PNA is situated in a relational paradigm. But it exists in a policy-analysis world historically dominated by economistic thinking situated in a methodological individualism paradigm.

The methodological individualism paradigm was the dominant paradigm in political science in the second half of the 20th century. It is *"largely borrowed from economics"* (Victor et al. 2017:24) and remains highly influential and possibly still dominant in public policy analysis today. This became evident in a number of comments in reviews of drafts of this report. In many cases it appeared that the comments could be attributed either to applying the default methodological individualism thinking or to lack of familiarity or practice with relational thinking. It was impractical or inappropriate to address each comment at its point in the text so a more general introduction to specific relevant features of relational thinking applied to PNA is provided in this introduction.

A typical question in reviews, probably stimulated by default methodological individualism thinking, took the form of enquiring how the motivation, or the interest of an actor was used in the analysis even though pains had been taken to specify the object of study being the relationship between actors (relational thinking) not the attributes of the actor, their motivation, interests etc., (methodological individualism thinking). Thus the defining features of relational thinking are explicitly emphasised and elaborated here to assist with avoiding economistic thinking as the default.

Network analysis focuses on patterns of social relations, not attributes of actors.

The academic discipline Policy Network analysis (PNA) is relatively new. Figure 1 shows that it began taking off in the 1980s and only really led to substantial amounts of research publications by the first decade of the 21st century.

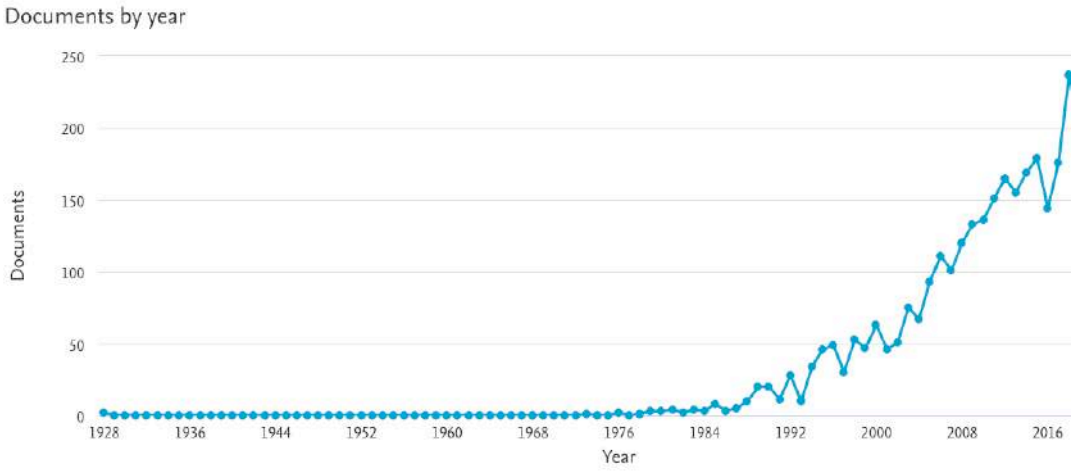


Figure 1: Publications related to Policy Network analysis (PNA) in the peer-reviewed literature. Scopus Search TITLE-ABS-KEY ( "policy community" ) OR TITLE-ABS-KEY ( "policy network" ) =2970 documents

A shift to relational thinking involves a fundamental change from attempts to explain political phenomena using concepts about the attributes of actors, to an approach involving concepts used to analyse the attributes of relationships between actors. When conducting PNA, care needs to be taken to avoid slipping into well-worn tracks of explanation, ingrained by many decades of the dominance of methodological individualism that seek to use attributes of actors[14] to explain social outcomes.

The country case study research does not intend to argue for greater explanatory power of the relational paradigm. However, it does explicitly choose the relational paradigm as the underpinning of its theoretical framework. This is firstly because the analysis aligns with the view that *"politics is about relationships"* and secondly because many important aspects of relationships using theories based in the methodological individualism paradigm can only provide incomplete and insufficient explanations (Victor et al. 2017:2).

Given the ongoing influence of economistic and methodological individualism analyses in public policy analysis, attempts to understand network analysis from inside these paradigms is antithetical to our aims in our choice of network analysis. We adopt the views of (Emirbayer & Goodwin 1994:1414) when they say that: "*The point of departure for network analysis is what we shall call the anti-categorical imperative. This imperative rejects all attempts to explain human behaviour or social processes solely in terms of the categorical attributes of actors, whether individual or collective. Network analysis, as Barry Wellman puts it, rejects explanations of social behaviour as the result of individuals' common possession of attributes*

[14] These actors can be individual or collective. So, for example, when making the shift from methodological individualism to relational paradigms, vestiges of a methodological individualism mind-set could provoke the imagination of a Policy Community as an actor whereas in the relational paradigm and within Rhodes' scheme, it is intended as a conceptual tool used for analysing relationships.

*and norms rather than as the result of their involvement in structured social relations" (Wellman 1983, p. 165)".*

### 2.3. Objective of the study - Aims for use of Policy Network analysis (PNA)

The aim of using PNA under COP21 RIPPLES WP4.4 is to function as an analytical framework to discern patterns that could be relevant to inform governance. It could not (and it is not the objective) to serve as an explanatory theory of the politics of implementation.

It is important to note that the COP21 RIPPLES WP4.4 analysis is not able nor aspires to reach conclusions on causality between the attributes of relationships between actors in policy processes and policy outcomes. The design has preferred to make more tentative conclusions than to be over-ambitious, bearing in mind a history of policy failure based often on under-estimations of the complexities of policy implementation (Pressman & Wildavsky 1984) through to (Howlett et al. 2015), (McConnell 2015), (Trollip & Boulle 2017) and evidenced by the large gap between what is required of global mitigation policy and performance of that policy to date (UNEP 2017). It is recognised that advances are needed in policy analysis to address these issues and that relational thinking provides an important potential area of development.

This is in line with a more modest aims of governance research, given limited successes in positivist approaches attempting to apply generalizable rules to understanding policy outcomes, as proposed by (Fischer et al. 2007:xxii) when referring to an *"enlightenment function of policy analysis instead of neopositivist, technocratic approaches".* From the field of network analysis perspective, generally considered at the initial phase of development, aiming at a definitive research result of causal explanations would also be over ambitious as stated by Victor (2017:3):

> *"In short, we are at a critical moment in the development of a new approach to the study of politics – a moment when new generations of interdisciplinary scholars and graduate students are being exposed to network methods and the new ways of studying politics that they offer."*

In order to discern relevant patterns to inform governance, the analysis uses PNA to explore whether networks which are assessed according to differing types of relationships in them are associated with differing policy outcomes. Thus the uses of Policy Network concepts: *"…guide the empirical perceptions in research on policy making and direct the researchers' perception and attention…"* (Raab & Kenis 2007:189). Bearing in mind that the objective of the work is not the study of the relationships themselves.

This notion of the enlightenment function of policy analysis aligns with Thatcher and Braunstein's (2015) conception of the application of Policy Network concepts in that… *"Neither Policy Community[-type] networks nor Issue Networks[-type] offered a free-standing, developed model of policy making (Thatcher, 1998). Rather, they represented enriching metaphors and useful concepts that were empirically applicable, and provided counterbalances to previous well-established views of policy making. They encouraged disaggregated analysis and drew attention to the effects of the fragmentation of government into subsystems, the interdependence of government and interest groups, and increased specialization in policy making"* (Thatcher & Braunstein 2015).

The emphasis of this analysis is on attributes of the relationships between actors, not on attributes of the actors. Understanding the attributes of the relationships provides insights about the typology of the network they are acting in in the relevant policy process. The studies collate empirical data on narratives of policy processes (with a focus on data relevant to PNA), especially data on the relationships between actors and policy outcomes.

Beyond the contribution to better understand politics related to policy implementation, this COP21 RIPPLES research also provides a foundation for follow-up research to extend the number of case studies that would be necessary to contribute to building conclusive deterministic causal explanations in the politics of implementation between actors' activities in different types of networks and policy outcomes. This would allow us to answers questions such as: *What governance measures can be instituted, internationally, or at the national level, to improve chances of success in mitigation policy implementation?* Or on the political dimension: *What governance measures have a high risk of failure?*

### 2.3.1. Research question

In summary, the aim is to use policy network analysis, as described in Rhodes' 2006 paper titled Policy Network Analysis, to build policy narratives of relevant policy histories which include data on actors and how identify patterns in relationships between actors related to differing types of Policy Networks and to differing policy outcomes. The core research question to be explored is:

> **What interesting features are there in policy processes outcomes where there is a prevalence of relationships that lean more to the Issue Network-type kind of Policy Network than the Policy Community-type of network? Conversely, the question could be: "What are the features of policy process outcomes where there is a prevalence of relationships that lean more to the Policy Community-type of Policy Network than the Issue Network-type?"**

## 2.4. Additional focus on the 'accumulation of distributional coalitions'

In addition to the main analytical framework of Policy Networks as defined by Rhodes, an overarching framework is used to further contextualise the analysis. This overarching theory from Olsen (1982) is that vested interests entrench themselves over time and that: "The accumulation of distributional coalitions increases the complexity of regulation, the role of government, …and changes the direction of social evolution' (Olson 1982:74). A core interest in our exploration of low carbon transitions is Moe's conclusion, using Olson and Schumpeter, that: "*Only states that are able to prevent vested interests from becoming powerful enough to block structural change can have hopes of achieving long-term industrial and economic success*" (Moe 2009: 203).

The Policy Network analysis is also sharpened by concepts of political relationships driven by rent-seeking and patronage (Kitschelt & Wilkinson 2007), which are bolstered by the statement in the introduction to the Oxford Handbook of Comparative Politics that one of the six "crucial questions" addressed by comparative politics is: "Why do some parties run on policy programs, others on patronage?" (Boix & Stokes 2007). Initial research on the South African case at the beginning of 2017

indicated that this was a core issue. Events over the past three years in South Africa have confirmed that it is crucial.

# 3. Summaries of the country case studies

## 3.1. SUMMARY: South Africa Case study - Politics of energy policy transitions in South Africa

Using the COP21 RIPPLES WP4.4 research framework presented above which is based on Rhodes' (2006) policy network analysis (PNA) this paper analyses the politics of six successive and sometimes overlapping phases of South African energy policy transitions to explore the potential association between actors operating in types of Policy Networks and policy outcomes. Empirical narratives of the history of these policy transitions based on existing literature are built and scrutinised via PNA. These policies are relevant to the political context of transitions in South Africa from a coal-based electricity system to a low-emissions one, a central concern for climate change emissions mitigation policy in South Africa.

### 3.1.1. The narratives

Over the colonial and apartheid periods, actors in exclusionary Policy Community-type networks, including a group dubbed the 'industrial policy elite' (Marquard 2006), established themselves in command of the economy in general and the energy sector in particular. They implemented policies to establish the Eskom vertically integrated monopoly (Roberts et al. 2018) at the centre of an extractive 'Minerals Energy Complex' based economy (Fine and Rustomjee 1996) which excluded the majority of the population.

Under a new democratic government, actors in Issue Network-type networks played a crucial role in a transparent policy process in formulating programmatic reform policies with broader social welfare and environmental protection goals. This policy required new power stations to be supplied by independent power producers (IPPs) owned by black South Africans, under a Black Economic Empowerment (BEE) policy. Efforts were made to implement these policies but the industrial policy elite in a re-constituted Policy Community-type network re-asserted itself. Using their power as incumbents they passively thwarted implementation of the reform policies and no IPPs were built. This led to an electricity supply crisis.

Subsequently, government established the necessary legislation and capacities for a public electricity planning process in which actors in Issue Network-type networks played a crucial role. This yielded a legislatively enforceable electricity plan with >6GW implemented via the renewable energy independent power producer procurement programme (REI4P). However, in parallel, actors in Policy Community-type networks also made substantial strides, mainly on the back of the power supply crisis, and embarked on a large Eskom-owned coal-fired power station building programme which had not been the result of a transparent, inclusive planning process. This was a critical set-back for implementation of the official policy developed in the initial post-apartheid democratic phase.

In addition to the influence of actors involved in more general and largely legitimate, or at least legal, Policy Community-type networks, evidence of the influence of even more non-transparent and more exclusive and less-legitimate or possibly illegal patronage type networks emerged in the policy narratives.

Over the course of the research project period, evidence of the influence of a phenomenon labelled State Capture which had been weak at the beginning of the research project was considerably strengthened in a number of official enquiries. 'State Capture' was connected to a faction in the ANC centred on the South African President and president of the ANC (South African Public Protector 2016), (Bhorat et al. 2017),(Eberhard & Godinho 2017), (Baker 2020). In defiance of official government policy and flouting legal contracts, this network implemented its own often-covert policies[15]. While the 'grand corruption' is a serious problem in its own right, the relevance to climate change emissions mitigation policy is that, in general, rent-seeking and corrupt procurement contracts in the incumbent coal-fired electricity generation system have been a mainstay of the state-capture beneficiaries, hence they have also been a core of the resistance to implementation of energy transition policies and climate change emissions mitigation policy.

The State Capture faction was narrowly defeated in the ANC elective conference in December 2017. The large-scale renewable energy electricity programme that had stalled for three years was partially resuscitated a few months later.

When Policy Community-type networks have dominated, public knowledge of policies has usually emerged only as the policies get implemented and the policies have often been largely for the benefit of the Policy Community members and to the detriment of broader society and environmental protection. On the other hand, processes where actors in Issue Network-type networks predominate have usually been associated with politics and policies with explicit public welfare and environmental protection orientations, openly communicated and promulgated in official policy and legislation.

### 3.1.2. Findings from the analysis

The main findings of the South African case study are that, on the one hand, a correlation was observed between stronger involvement and effective influence of a larger number and diversity of actors in Issue Network-type networks and progress in transparent public policies explicitly or officially connected[16] to general welfare.

[15] Note that our definition of 'policy' is not limited to official promulgated government policy but also includes the kinds of policies developed in parallel to such policies recognizing a rich history of such parallel policies ultimately becoming the *de facto* policy and then evolving to official state policy.

[16] We use this rather long phrasing to avoid taking a position that these policies were *in fact* supportive of public welfare. This is deliberate. An example would be – There IS still a substantial public debate in South Africa that renewable energy *in fact* has greater overall public welfare benefits than coal-fired power. We avoid taking a position on this so that we can focus on the types of networks involved in energy policies that advocate renewable energy and the types that advocate coal, thus keeping our focus on the object of our study namely ***types of relationships*** and the types of networks they are involved in and policy outcomes, not the content of the policies.

On the other hand, a correlation was observed between stronger involvement and influence of a limited number and selected actors and exclusionary Policy Community-type networks and non-transparent development of policies beneficial to those actors and detrimental to general welfare, or the resistance to implementation of public policies explicitly or officially connected to general welfare.

The number of narratives does not allow for a general causal relationship to be established between Issue Network-type processes and progress in public welfare-type policies or between Policy Community-type policies and lack of progress in these. However, the rich narratives and analysis suggest that domestic and international governance that supports transparent policy processes and where a large number and diversity of actors are enabled to engage so that Issue Network-type networks predominate could substantially increase chances of success for policies connected to general welfare. These would include climate change emissions mitigation policies. Such governance arrangements would also benefit from familiarity with the details of the narratives to cater to very specific local conditions.

While there is an essential difference between legal and illegal activities, overlaps are notable between the kinds of relationships between political actors in legal Policy Community-type networks and policies detrimental to general welfare and/or the frustration of implementation of policies connected with public welfare and the kinds of relationships between actors in state capture processes and their detrimental impacts to general welfare.

This is not just peculiar to South Africa or a recent phenomenon. In their 2001 survey of nearly 4,000 firms in 22 transition countries, Hellman and Kaufman conclude that the efforts of actors to influence policy is a *"normal and indeed healthy process. …What distinguishes such interactions in the capture economy is exclusion. Some firms enjoy exclusive privileges to influence decisions of the state while others are systematically excluded enabling state officials to make choices that concentrate benefits on those with access at a high cost to those who are excluded"* (Hellman & Kaufmann 2001:3). Such exclusion is also a hallmark of legal Policy Community-type networks and the South African energy policy narratives have also found associated *"concentration of benefits"* on Policy Community-type political actors "*at a high cost to those who are excluded."*

While State Capture poses risks possibly more serious than climate change to South Africa in the short term, the relevance to the specific concerns of the PNA analysis and climate governance is the overlap between key proposed remedies for state capture and the proposed support to increase chances of success in climate change emissions mitigation policies. They are quite similar, namely transparent political processes that are also deliberately non-exclusive and enable (effective) participation of a large number and diversity of political actors (Hellman & Kaufmann 2001:3).

From an overall governance point of view, the analysis would suggest that a predominating influence of political actors in exclusive networks ranging from Policy Community-type networks, through patronage networks to state capture networks would be incompatible with, or at least present severe problems to a successful transition to low carbon energy systems in countries with large fossil resources. This is exacerbated by the challenging timeframe. While supporting transparent processes and enabling effective participation of a diversity of political actors so that Issue Network-type networks can predominate might not be sufficient to assure successes in general welfare-oriented policies, such as climate change emissions policy, it is suggested that this would greatly enhance the chances of success

for these policies. Such support is well within the ambit of international governance, especially the broad functions identified in COP21 RIPPLES WP4.1

### 3.2. SUMMARY: Brazil Case study - Competing coalitions in Brazil's biofuel related climate policy

This paper analyses the role of Brazil's biofuel transition for current climate policy and the implementation of associated climate action communicated in the (I)NDC. The author investigates these dynamics from the perspective of actors operating in policy networks in the ethanol policy processes as one of Brazil's central climate actions in three different phases over the past 15 years between 2003-2018. The three phases are marked by the respective presidencies of Worker's Party leaders Lula da Silva and Dilma Roussef, the Acting President Michel Temer of the Brazilian Democratic Movement (MDB) leading towards the election of the current president Jair Bolsonaro of the Social Liberal Party (PSL). The analysis finds strong open networks underpinned with a commitment to climate diplomacy in the period of the Lula administration, which slowly faded with the discovery of the pre-salt oil reserves. The presidency of Dilma Roussef broke over the tensions between keeping the legacy of Lula's ethanol diplomacy and open environmental policy on the one hand, and the growth of patronage and private interest in public officials in the prospects of Presalt on the other hand. Petrobrás, a semi-state-owned oil company, formed the centre of the growing dominance of patronage networks which led to Dilma's impeachment and vast public protests against corruption in the political establishment. The rise of the far-right-wing PSL and the presidency of Jair Bolsonaro completed the swing towards the dominance of closed patronage networks. Bolsonaro has dismantled Brazil's regional soft power legacy and climate leadership in favour of traditional agribusiness interests, especially through actively putting forest protection measures to a halt.

### 3.3. SUMMARY: China Case Study - Coal in Transition

The analysis provides a storyline to understand the changing role of coal in China's climate and environment policy. The paper aims to explain two sets of questions: firstly, why coal is phasing out from China's energy system and what could be the future of such a transformation; secondly, what is the impact of this coal phase-out, and how the Chinese government is trying to manage this impact.
The analysis finds that the phase-out of coal in China is mainly driven by the air quality target which needs to reduce coal consumption as a major resource of particulate matter. The changing concept of energy security moves the barriers of coal phase-out because the new concept of energy security focuses on diversification and replaced the old concept which mainly relied on domestic energy resources. One key characteristic of China in this process is the state ownership of coal companies which makes the transition easier to happen because of the strong control of government of the industry. The main process of the coal phase-out happened during 2016 to 2018 in China. Although 440 million tons of coal capacity have been phased out, there are still more than 4 billion tons of coal production capacity that need to be reduced to achieve the Paris Agreement goals. This challenge will be more difficult and is unprecedented.

# 4. Observations and Conclusions

## 4.1. Observations on the empirical country case study narratives

The predominance in influence over policy of political actors in networks tending towards different types of Policy Network types (on a spectrum from Policy Community-type networks to Issue Network-type networks) shifts from time to time. Although the causes of the shifts are not identified in this research, these shifts are observed to be associated with increased influence of different political parties, groupings or factions within political parties, activities of international or domestic state, business of civil society actors, overarching political systems and institutions. These institutions include domestic constitutional and legal systems; international agreements and treaties and international trade, aid and investment. These shifts are associated with a complex array of historical local, national, regional and international factors.

The purpose of the narratives was not to explore what causes the shifts but instead to study the effects of the predominance of actors in policy network types on policy outcomes, specifically energy policy transitions. In terms of these effects, the following were observed in the cases considered[17].

On the one hand, greater influence of actors in Policy Community-type networks, especially bolstered by patronage, corruption or state capture (grand corruption), was usually[18] associated with two main effects in policy. The first was the development of policies that clearly concentrate benefits on those actors in these exclusionary-type networks at the cost to those who are excluded. The classic example is the apartheid state where a closed community developed energy policy, behind closed doors, for the benefit of a small minority at huge social and economic cost to most of the country's population. The second kind of effect was frustration of implementation of official policies that impinged on the benefits or interests of these actors.

On the other hand, greater influence of actors in Issue Network-type networks was often[19] associated with policies that were orientated towards improved general welfare, notably including improved access to energy services and climate change emissions mitigation policies.

In both South Africa and Brazil there have been swings in the predominance of the influences of actors operating according to Policy Community-type and Issue Network-type networks. Currently Brazil is in a phase where actors in Issue Network-type networks are largely disempowered, especially in climate policy. In South Africa after a swing to disempowerment of actors in Issue Network-type networks around 2015, which intensified to the degree that the democratic state was threatened by being

[17] It is important to bear in mind the point made in the conceptual framework that this research has only analysed a small number of cases, so this is limited to an observed pattern in these cases and is not suggested as a general rule or theory.

[18] Ditto

[19] But problems were also experienced because usually these actors were seeking greater public welfare within a political economy of concentrated incumbent political and economic power within some of the most unequal societies in the world.

overwhelmed by state capture[20] a phase has recently (2018) been entered where state capture has been arrested. But the balance of political forces is in a state of critical uncertainty. While this is a multi-facetted problem, the coal-based electricity power system is possibly the single most influential political economy factor in the current uneasy balance (Swilling 2019).

### 4.2. General conclusions based on patterns in empirical narratives

The first notable pattern in the case studies suggests that firstly, predominance of the influence of actors in processes with Issue Network-type networks is often associated with progress in formulating and implementing policies related to energy sector transitions and climate change emissions mitigation and, secondly, that predominance of actors in processes with Policy Community-type network-type networks stand in contrast and operate for the exclusive benefit of their members at the cost of general welfare and are vulnerable to infiltration of patronage and corruption which intensifies these features. This can delay, frustrate or even derail implementation of policies for transitions relevant to climate policy. This presents a substantial risk to global climate protection. The dominance of the influence of actors in these kinds of networks has been an important factor in the general economic history of Brazil and South Africa and has been integral to political economic structures that reach far beyond climate policy.

The second notable pattern is that democratic constitutions and political orders do not guarantee that a sufficient number or diversity of actors will be enabled to have predominant influence in processes with Issue Network-type networks. Actors employing the types of exclusionary relationships that typify Policy Community-type networks set up alternative, often covert processes to the official transparent democratic processes. These can be legitimate and legal but can evolve so as to undermine democratic processes that have explicit orientations towards greater welfare. The transparent processes with actors engaging in Issue Network-type networks can become increasingly less influential while parallel processes with actors operating according to relationship modes of Policy Community-type networks become increasingly effective. The result is a shift to policy outcomes benefitting the narrow interests of these actors to the cost of general welfare.

### 4.3. This report in context of COP21 RIPPLES work on international governance

Supporting actors to engage in processes typified by Issue Network-type networks has the potential to be an effective mechanism for strengthening climate policy at the national level.

To make international governance of GHG mitigation policy more effective in supporting national policy, specific features of networks and the kinds of relationships between actors in the networks need to be taken into account. These characteristics include the inclusiveness of membership, transparency in activities, decision-making modes, interests of members in the network, nature of resource exchanges between members, power relations, ascendancy or decline, and their relative dominance. Countries differ widely and effective international governance would need, for example, to familiarize itself with

[20] Including a complete reverse of the previously acclaimed renewable energy programme of which climate change emissions mitigation policy had been a core driver.

nuanced details of, for example, the empirical narratives presented in the case studies to design effective support in these complex political contexts.

Research projects have been important in supporting actors operating in Issue Network-type networks, notably in the COP21 RIPPLES WP4 work, as they contribute to building knowledge and capacity of these actors. Continuing and expanding support of actors engaging in transparent processes where Issue Network-type networks predominate can increase the chances of success of policies with explicit orientation towards public welfare objectives, including climate change emissions mitigation policies. This support could be part of the international governance functions presented in COP21 RIPPLES WP4.1 *Key concepts, core challenges and governance functions of international climate governance.*

Stronger signals in the Guidance and Signal function and substantial international support and engagement in assisting developing countries with "obligations of conduct" and transparency measures in the PA would provide important support for actors in Issue Network-type networks that promote the public-welfare-type policies typical of climate change emissions mitigation.

This can be carried out using the framework of the international governance functions analysed in WP4.1 and WP4.2. and by taking up the challenge in the WP4.3 report conclusion that "the EU in general and the European Commission in particular to engage more proactively in the international realm" (Hermwille et al. 2019:13). By doing so, international actors can be supported to target their collaboration and enable national level governance actors to be more effective, especially actors operating in Issue Network-type networks that have been identified as crucial in supporting implementation of policies that promote public welfare in general and climate action specifically.

Our analysis also shows that the international community has already had an impact on the NDCs. This was notably achieved through the 'guidance and signal' function identified in COP21 RIPPLES WP4 - *"Key concepts, core challenges and governance functions of international climate governance"*. Hosting international climate and sustainability events in the case study countries has had substantial impacts that created political momentum for climate action and environmental legislation both in South Africa and Brazil.

It is out of the scope of this paper, but it is appropriate to mention that climate change has become a core issue in national politics of many countries. Deepening the understanding of political aspects of mitigation policy in an era where rapid fundamental transformations in energy systems will be central to developing policies with credible prospects of achieving those transformations. It has become apparent that the 'bottom-up' features of the PA require a deep understanding of the nuances of national politics at country level, not just in the case studies referred to in this report but possibly also in many other countries, not just emerging economies. There are number of countries that are experiencing similar challenges with Policy Community-type networks' influence on mitigation policy. Thus improved understanding of these resulting from the case studies referred to in this report, including development and application of the conceptual framework, would be relevant to studies of these other countries

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APPENDICES

## South Africa Case study
## The politics of energy transitions policy in South Africa: Implications for governance of emissions mitigation policy

## Brazil Case study
## Competing coalitions in Brazil's biofuel related climate policy

## China Case Study
## Coal in Transition

## Case Study
## Political Implementation Risk in South African and Brazilian Climate Policy


Horizon 2020 Societal challenge 5: Climate action, environment, resource efficiency and raw materials

# COP21 RIPPLES

## COP21: Results and Implications for Pathways and Policies for Low Emissions European Societies

# The politics of energy transitions policy in South Africa

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## Abstract

Transitions in the South African energy system will be central to South African climate change policy being consistent with Paris Agreement (PA) mitigation policy. Politics plays a substantial role in energy transitions. This paper uses Policy Network Analysis (PNA) to analyse the politics of six successive and sometimes overlapping phases of South African energy policy transitions to explore the potential association between actors operating in types of policy networks and policy outcomes. Empirical narratives of the history of these policy transitions based on existing literature are built and PNA applied to these narratives. These policies are relevant to the political context of transitions in South Africa from a coal-based electricity system to a low-emissions one, a central concern for climate change emissions mitigation policy in South Africa.

In each phase differing forms and configurations of these networks have acted to promote or block transitions. Using evidence and analysis contained in a relatively new and limited peer-reviewed literature on the subject for South Africa, augmented by official documents and grey literature, an emphasis is placed on the current blocked transition and the contest in the state between open inclusive networks and transparent, inclusive policy-programmatic policy, and closed networks and patronage-network based policy.

Over the democratic transition at the end of apartheid in 1994, energy politics opened up. The exclusive politics of an industrial policy elite that had been associated with gross economic exclusion of the majority of South Africans, was challenged by more inclusive politics that yielded ambitious goals of economic inclusion and redress and measures to restructure the electricity generation monopoly.

There has been a resurgence of an exclusive industrial policy elite, with new members linked with patronage politics and alleged corruption and state capture. Closed networks sometime dominate core policy. Nevertheless, a range of new actors has become influential in invigorated inclusive electricity sector politics and small but significant intrusions have been achieved in the electricity generation monopoly. There is a core conflict involving on one side, exclusive politics, appropriation of economic rents by an elite, patronage politics and undermining of new democratic institutions, and on the other side, a public welfare-oriented policy programme and inclusive politics and institutions. Key governance and financial aspects of the electricity generation sub-sector have become destabilized, and are playing central role in national politics. It appears this will be an important dynamic for some time.

Contents

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# 1 Introduction

The context of this research is the Terms of Reference (TOR) of the COP21 RIPPLES study Work Package 4 (WP4) - "Linking the international climate regime to the political economy barriers of raising ambition." The research purpose is understood as being to inform work on international governance of climate change mitigation by providing relevant analysis of political economy features of South African energy system transitions.

Fundamental transformations of energy systems are required to avoid catastrophic climate change. Such transformations are the subject of both international, national and subnational governance systems. Such governance systems span international, national and sub-national levels and are themselves elements of complex socio-technical systems, which also extend within and over these levels. The Paris Agreement builds on and establishes new aspects of international and national governance regimes which aim to support energy system transformations (Oberthür & Lukas Hermwille, Gauri Khandekar, Wolfgang Obergassel, Tim Rayner, Tomas Wyns, Florian Mersmann, Damon Jones, Bianka Kretschmer 2017). International level governance is important, but central features of transitions occur at a national level and understanding these is thus crucial for international governance.

South Africa formally committed to limiting its GHG emissions in 2008 and followed this up in 2011 by publishing a formal, official policy in the *South African Climate Change Response White Paper* (CCRWP) specifying a quantitative benchmark national emissions trajectory and related policies (DEA, 2011). For South Africa to achieve its UNFCCC climate change commitments will require a fundamental transition in its energy system. The techno-economic feasibility of such a transition for some major developing country emitters including South Africa was demonstrated in the Deep Decarbonisation Pathways Project (DDPP) (Altieri et al., 2015), (Waisman, Segafredo, Bataille, Chris, & Williams, 2015), a precursor to the COP21 RIPPLES project.

Since then, South Africa acceded to the Paris Agreement and submitted its Nationally Determined Contribution with a mitigation target that aligns with the CCRWP benchmark trajectory. Transition pathways for the South African economy consistent with the Paris Agreement have been modeled and described in detail in a number of studies (Burton et al. 2018); (McCall et al. 2019); (Huxham et al. 2019) and also in other components of the H2020 COP21 RIPPLES project, specifically WP2.1 – "Scenario database of existing or updated national decarbonization scenarios for NDC and 2°C/1.5°C." The main subject of these emissions pathway studies and scenarios is the technology and economics involved in these pathways explored through analysis and modeling of the national energy system and national economy.

Despite the work done on techno-economic feasibility and acknowledgment of the seriousness of the climate change crisis, progress in implementation of the South African CCRWP has been much slower than envisaged in the CCRWP, and the rate and modes of progress indicate severe challenges with implementation of the policies specified in the CCRWP document (Trollip & Boulle, 2017).

Energy emissions in 2015 were 429 907 tonnes $CO_2e$ which is 79.5% of the total gross emissions for South Africa (Department of Environmental Affairs (DEA) 2019:x). This is the latest year for which official statistics are available.

It is acknowledged that globally "current energy systems are simply unsustainable on all accounts of social, economic, and environmental criteria" (Grubler 2012:202). With some 80% of South African emissions attributed to energy, the role of energy suppliers and users is central in South African mitigation policy. This is a core theme of this paper. Specifically the paper studies the role of the incumbent "complex" of large energy producers and energy intensive industries in the energy transition. Baker, Newell and Philips (2014:813) in their groundbreaking paper on *The Political Economy of Energy Transitions* in South Africa conclude with three themes: [1] *"the power of incumbents organised around deeply entwined and overlapping networks of economic and political power enshrined within the Minerals-Energy Complex";* [2]*" …historical trajectories and lock-in,"* and [3]*"…how international donors and development banks and global carbon and energy finance have impacted upon the balance of social and political forces shaping South Africa's energy future."* An additional final point relates to *"The 'nature' of the country's economic base and the close ties between political and economic elites* [that] *narrows opportunities for change."*

This paper will be picking up on these themes with a specific and narrower focus on the politics of energy transitions, specifically implementation of policy in the electricity sector, building on a main finding from Baker, Burton, Godinho and Trollip's (2015) paper, namely that *"Decarbonisation goes far beyond what is technologically or even economically feasible"* and that *"political factors"* are a key consideration. Understanding these political factors is essential to designing and supporting governance that addresses the challenges that the close ties between political elites and the elites that rely on economic and financial resources connected to GHG emissions from the electricity sector.

The paper proceeds as follows. First a research framework is presented within which a narrowed and refined objective of the research and research question are presented. This is a substantial component in the paper in line with the project proposal which states that: "given the recent development of climate policy in developing countries, a key aim will be to develop a structured research framework grounded in relevant academic disciplines…" (IDDRI 2016). Secondly, empirically based narratives of particular South African energy policy transitions are presented and the interpretation of Policy Network Analysis (PNA) developed in the research framework is applied to them. Lastly, conclusions are drawn. This includes a summary of the analysis in PNA terms and remarks on the results within the context of international

governance, especially the context of the COP21 RIPPLES overall WP4[1] - "Linking the international climate regime to the political economy barriers of raising ambition."

# 2 Conceptual framework

## 2.1 International literature on sustainability transitions

There is a burgeoning sustainability transitions literature. From the beginning of references to sustainability transitions from around the mid 1980's until the mid 2000's there were typically a handful of articles in the peer reviewed literature annually but this has been increasing rapidly at a rate that could be called explosive, producing something of a deluge of articles, see Figure 1.

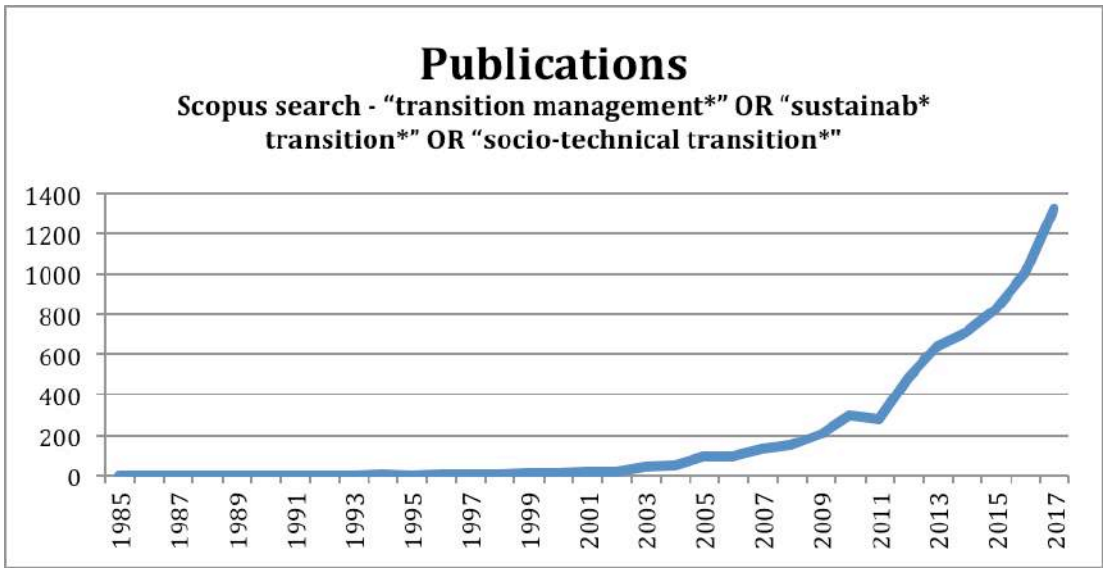


**Figure 1 – Publications related to sustainability transitions in the peer-reviewed literature.**
The author repeated Fischer & Newig's Scopus search on "transition management*" OR "sustainab* transition*" OR "socio-technical transition*" (Fischer & Newig 2016).

[1] The results of this paper have been incorporated into the COP21 RIPPLES WP4.4 formal deliverable, namely project report D4.4 – *"Overcoming political economy constraints in major emerging economies and the role of international governance."*

This is evidenced in an increasingly large number of books[2] and articles conducting reviews and analyses involving foundational works (e.g. Grin 2010)[3], collections of articles (e.g. Brauch et al. 2016)[4], frameworks for analysis (Geels 2017)[5], meta-theoretical frameworks (Cherp et al. 2018); typologies (e.g. Grin, 2010 ), meta-analyses (e.g. Arranz 2017), governance methods (e.g. Burke &Stephens 2017), (e.g. Verbong and Loorbach 2012; (Rotmans et al. 2009) typologies of actors (Fischer & Newig 2016) and proposals for explanatory transitions theory (Svennson and Nikoleris) and "bridging analytical approaches" (Geels, 2016). These studies reference and argue for the relevance and utility of an increasing number of academic disciplines, concepts, trends (e.g. Araujo 2014; Sovacool 2016), theories (e.g. Schumpeter 1948), ontologies (e.g. Geels 2010) areas of study (Sovacool 2014; Meadowcroft 2011) and frameworks (e.g. Moe 2007; Geels 2002).

Despite this large body of research, (Cherp et al. 2018:175) find that owing to the complexity of transitions, a single theory of transition is not currently possible, and may never be. (Geels et al. 2016:576) agree, and refine this line of thought, finding that "full integration of economic modeling and socio-technical transitions approaches is not feasible, because of foundational differences in philosophies of science and ontological assumptions."

One potentially relevant approach is provided by Espen Moe's (2009, 2011) framework which had been applied to a number of transitions and found that for these transitions: "states must prevent vested interests from blocking structural change" (Moe, 2010:1730). Some of the transitions Moe studied involved vested interests blocking industry transitions central to countries' economic prosperity with the result that national economies had declined when vested interests prevailed, while in other transitions the state had actively taken the vested interests on and overcome them, the structural change had gone ahead, and the national economy prospered. This appears most relevant to South African energy politics and its electricity restructuring. Moe's framework uses a combination of established theories from Joseph Schumpeter (Schumpeter 1947) and Mancur Olson (Olson 1982). Application of this framework to South African challenges in implementing energy policy transitions could be fruitful. (Baker 2016) in her study of South African transitions refers to Moe's (2009, 2010) conclusions about the state's power and vested interests but does not conduct an analysis using his framework.

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[2] Some other key ones to consider for this list Lachman, 2013 (A survey and review of approaches to study transitions); Geels, 2007 (Typology of sociotechnical transition pathways)

[3] A 418pp book titled 'Transitions to sustainable development: new directions in the study of long term transformative change'.

[4] This 1013pp book, for example is a compilation of 42 articles, most of them directly concerned with sustainability transitions, an indication of the 'vast' literature that has been developing.

[5] Frank Geels' framework is possibly one of the moist cited frameworks used for transition analyses, but still lacks explanatory credibility.

For the purposes of the this study, namely gaining insights into socio-political dimensions of transitions which are relevant to international climate change governance, in the face of the large number of most-often inconclusive attempts to find causal links in transitions in the transitions literature, a key challenge is to follow a research path that does not become entangled in what is becoming an often confused and confusing disarray of increasing complexity.

## 2.2 South African literature

There have been a number of socio-technical transitions and political economy analyses (Baker and Burton 2018); (Baker 2017; 2015); (Baker, Newell & Philips 2014). Political processes since 2006 have provided important additional evidence. Baker (2012) mentions the relevance of Moe's (2009, 2010) framework, especially "energy giants influencing politics"(2013:138), the capability of the state in "dealing with these vested interests" (2013:140). Baker et al. (2014) provide a rich empirical account but little by way of political science theory-based explanation. Froestad et al. (2017) provide a detailed empirical narrative. Their contributions to theorising include applying concepts of constitutive regulation (Shearing, 1993) and low-level policing (Brodeur, 1983) but do not directly address primary issues of moral hazard, rent-seeking, clientelism and RET[6]-patronage networks.

There have been some applications of specific social-science theories such as discourse coalitions (Rennkamp et al. 2017); (Rennkamp & Bhuyan 2017) to research exploring competing networks in South African energy politics. These are useful for identifying coalitions and analysing their interests and relationships. This is crucial information and more similar work would be beneficial.

## 2.3 South African empirical evidence on actual mitigation achieved is limited

Empirical evidence related to the politics of implementing mitigation policy in South Africa is limited. There is a growing body of empirical material comprising policy statements, policy documents, policy frameworks and even legislation and regulations, and commentary on these policies and instruments. But empirical evidence on actions involved in implementing these climate policies, as mitigation measures[7], and the impact of these mitigation measures on actually influencing behaviour that

[6] 'RET' refers to radical economic transformation, a term much used in South African political discourse and which we define in more detail later

[7] **Working definitions of *mitigation policy* and *mitigation measure*.** There are no agreed universal definitions for the terms 'mitigation policy' and 'policy measure' but clarity and distingushing them is critical for our analysis. So we adopt as working definitions for the purposes of this report, within the context of climate change mitigation, the definitions of 'measure' and 'policy' found in the IPCC literature as follows (IPCC, 2016a). '***Mitigation measure***': "In climate policy, measures are technologies, processes, and practices that contribute to mitigation, for example renewable energy technologies, waste minimization processes and public transport commuting practices. WGIII" (IPCC, 2016a). ***'Mitigation policy'***: "Policies are a course of action taken and/or mandated by a government, e.g. to enhance mitigation. Examples of policies aimed at

substantially mitigates emissions, is sparse. This could be because there has been little implementation of mitigation measures, or that impacts of these measures have been large inconsequential to date, or that there has been substantial impact but little evidence linking the policies to these impacts[8]. The author has been involved for the past twenty-five years in energy policy development and subsequent attempts at implementing the policy and then with mitigation policy development and subsequent attempts at implementation of this policy. During his involvement a large overlap in patterns of implementation has been observed which motivates much of the research in this paper. This pattern involves announcements of ambitious policies, together with official policy documents at the highest levels, followed by severe difficulties in implementation. This is a fundamental focus of the case study: exploring the political dimensions of policy in the absence of evidence of implementation, or where evidence can be found of difficulties in implementation.

## 2.4 The research framework developed for the study

### 2.4.1 The politics of implementation of transitions

Energy systems need to undergo fundamental transitions to avert risks of catastrophic climate change (Pachauri & Meyer, 2014: 55, 81). Pathways for these transitions have been described in techno-economic terms. The basic techno-economics and sectoral transformations are well described and understood[9] and are presented as results from Task 2.1 and WP3 as inputs to Work package (WP) 4 in COP21 RIPPLES. Deliverable WP4.1, *"Key concepts, core challenges and governance functions of international climate governance"* speaks of "transition in the transformative sense" of fundamental transformations of economies including deep change of sectors including energy. But, energy systems are embedded in social systems and many complex social aspects of energy transition pathways are poorly understood. Since the advent of systematic studies of policy implementation more than forty years ago there has been acknowledgment of the difficulties involved in the complex processes of altering social behaviour (Sabatier & Mazmanian 1979:481). This social behaviour includes the political aspects of governance.

Policies to 'implement' these pathways often don't take account of many of these complexities and are specified in over-simplistic techno-economic terms where policy instruments are often limited to state-procurement, pricing of energy, top-down regulations or unspecified infrastructure and innovation

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mitigation are support mechanisms for renewable energy, carbon or energy taxes, and fuel efficiency standards for automobiles, WGIII" (IPCC, 2016a).

[8] So far, the only substantial evidence identified of direct impact of GHG emissions policy on GHG emissions has been the application of the South African Copenhagen commitment to the IRP2010-2030, which is detailed later in the paper.

[9] This was already the case from the results of the Deep Decarbonization Pathways Project

policies (Bruckner et al. 2014:564). The challenges related to implementation have become increasingly evident in the failure to implement GHG mitigation policies (UNEP 2017), (Adger et al. 2010:547).

Some aspects of the complexities of the interactions between politics, economics, and technology and society have begun to be addressed using concepts including creative destruction, technological paradigms, path dependence, lock-in, socio-technical systems, technology innovation systems, policy networks, political economy studies and a variety of areas of political science. The study of transitions has burgeoned over the past decade or so. Articles on the subject of sustainability transitions have increased from less than five each year in the peer-reviewed literature until 2004 to over 314 a year currently (see figure 1 above). However, despite this increased effort there appears to be near agreement that "'systematic understanding of national energy transition remains elusive' (Cherp et al. 2018). (Cherp et al. 2017:175). Complex system innovations and politics are core issues (Bergek et al. 2008), (Meadowcroft 2011).

The very broad range of study areas and issues involved in transitions implies that for practical reasons it was necessary to narrow the focus of COP21 RIPPLES WP4.4 further from "analysis of the policy and domestic political economy issues related to implementation …"

(Meadowcroft, 2011:73) argues that more needs to be done to understand the politics of sustainability transitions when he states that:

*"So far, sustainability researchers have focused largely on policy: what it is and what it could/should be. … there must be thousands of academic articles on the design of climate policies and instruments. However, much less attention is devoted to the political circumstances that make the adoption of such policies likely. But behind policy there is always politics, and getting the politics right appears to be a prerequisite to getting the policies right."*

…and when he explains that:

*"…from the outset, sustainable development was understood as a political project; because the operation of social institutions does not spontaneously generate a sustainable development trajectory. … Most importantly, intervention disrupts established entitlements*[10] *"* (Meadowcroft 2011:72).

Thus the COP21 RIPPLES WP4.4 analysis narrows its focus further to the **politics of implementation of transitions**.

[10] Emphasis added – this observation confirms much of what has been observed in initial research on T4.4 and informs much of the design of the T4.4 research.

## 2.5 Policy Network Analysis (PNA)

The term 'politics' can be widely interpreted, even within the narrowed context described above. With regard to designing the research focus on politics for WP4.4, we adopt the notion from the Oxford Handbook of Political Networks (Victor, Alexander H. Montgomery, et al. 2017) which states that: "Politics is about relationships". The research framework thus guides the study in the direction of exploring how particularly relevant/interesting relationships between actors are involved in the implementation of policies related to transitions in energy systems in the case study countries. Accordingly, the basic objects of the study are the relationships between political, economic and institutional actors involved in carrying out, promoting and/or resisting transitions.

Rhodes' Policy Network[11] analysis (PNA) is the primary conceptual framework chosen to guide the country case study analysis. It has been used extensively and has an associated large literature (Raab & Kenis 2007:187); (Rhodes 2017). It is situated in the relational paradigm, one of the major social science innovations in past decades (Victor, 2017), (Rhodes 2017a:37), (Raab & Kenis 2007:189). There is a vast literature on network analysis in the social sciences in general. The relational paradigm is fundamentally different from the methodological individualism paradigm which was dominant in public policy analysis for the second half of last century and which informs much of the techno-economic pathway analysis. Methodological individualism underpins economistic thinking. Relational thinking does not supplant methodological individualism but has become an important complement with explanatory value, particularly in the political dimension of policy analysis.

Rhodes' PNA focuses on how political actors interact in a typology of networks. The type of these networks can be placed on a spectrum according to key features. Towards one end of the spectrum, **Issue Network**[12]**-type** networks are more open, transparent and inclusive and are empirically associated with development and implementation of policies involving transitions that promote greater public welfare. They "…constantly communicate criticisms of policy and generate ideas for new policy initiatives'' Heclo, 1978, cited in Rhodes, 2006: 428). Towards the other end, **Policy Community-type networks** are more closed, opaque and exclusive.

[11] We capitalize the three terms we use of for three key concepts, namely Policy Network, Policy Community and Issue Network

[12] These are specific definitions that have been used a large literature. See (Rhodes 2006) – Policy Network analysis has been developed since (at least) the late 1970's when Heclo (1978) coined the term Issue Networks in this context. There is a large theoretical literature which much fruitful application. There has been little usage so far in the context of the emerging economies studied in this research (for e.g. Marquard, 2006, Bake, 2014) so the current research is still aimed at building foundations.

A key characteristic is that Policy Community-type networks deliberately exclude many political actors (Rhodes, 2006:427). They are arranged specifically to act in the interests of their members[13]. This creates concerns of negative public welfare effects. "The basic interaction in Policy Community-type networks is one involving bargaining between members with resources" (Rhodes, 2006:428). They are empirically often associated with frustrating more transparently and inclusively developed policies explicitly orientated to achieve specified public welfare goals. Additionally, the exclusive, closed features of Policy Community-type networks are facilitative for patronage relationships and abuses of power that further undermine policies promoting public welfare. They are thus more prone to be associated with abuse of power, corruption and general maladministration of policies seeking to promote constitutionality, rule of law and public welfare. Given the public-welfare nature of mitigation policies and that they are directed at production of public goods, and given that this might impact negatively on status quo/private goods, a study of political actors' activities with relationships tending to Policy Community-type relationships is relevant to understanding the politics of mitigation policy.

### 2.5.1 A very detailed note on Network analysis - the relational paradigm vs. the methodological individualism paradigm for political analysis

The overarching objectives of the COP21 RIPPLES WP4.4 analyses are to identify and develop an understanding of the relevant features of national policy processes to inform international governance of emissions mitigation policies. International governance in COP21 RIPPLES WP4 "*entails the setting of rules and standards and the provision of support at the international level. It can be pursued by various actors, including state governments, (associations of) non-state actors (both business/firms and civil society actors), local authorities (cities, municipalities and regions) and others"* (Oberthür et al. 2017:11).

The analysis recognises the importance of networks of actors, state, non-state, institutional, informal, governmental (at all levels and inter- and intra governmental), non-governmental and civil-society. The focus of PNA is explicitly not on the dominant economistic paradigm, which relies on theories involving why actors act as they do because of their attributes (such as utility maximising individual actors or collectives) but on analysis of relationships between actors and how features of these relationships impact on social outcomes and hence policy outcomes. Hence, network analysis focuses on attributes of patterns of social relations between actors, not attributes of the actors themselves.

PNA is situated in a relational paradigm. But it exists in a policy-analysis world historically dominated by economistic thinking situated in a methodological individualism paradigm.

The methodological individualism paradigm was the dominant paradigm in political science in the second half of the 20th century. It is *"largely borrowed from economics"* (Victor et al. 2017:24) and remains highly influential and possibly still dominant in public policy analysis today. This became evident in a number of comments in reviews of drafts of this report. In many cases it appeared that the comments

[13] See also in (Rhodes, 2006).

could be attributed either to applying the default methodological individualism thinking or to lack of familiarity or practice with relational thinking. It was impractical or inappropriate to address each comment at its point in the text so a more general introduction to specific relevant features of relational thinking applied to PNA is provided in this introduction.

A typical question in reviews, probably stimulated by default methodological individualism thinking, took the form of enquiring how the motivation, or the interest of an actor was used in the analysis even though pains had been taken to specify the object of study being the relationship between actors (relational thinking) not the attributes of the actor, their motivation, interests etc., (methodological individualism thinking). Thus the defining features of relational thinking are explicitly emphasised and elaborated here to assist with avoiding economistic thinking as the default: **Network analysis focuses on patterns of social relations, not attributes of actors.**

The academic discipline Policy Network analysis (PNA) is relatively new. Figure 1 shows that it began taking off in the 1980s and only really led to substantial amounts of research publications by the first decade of the 21st century.

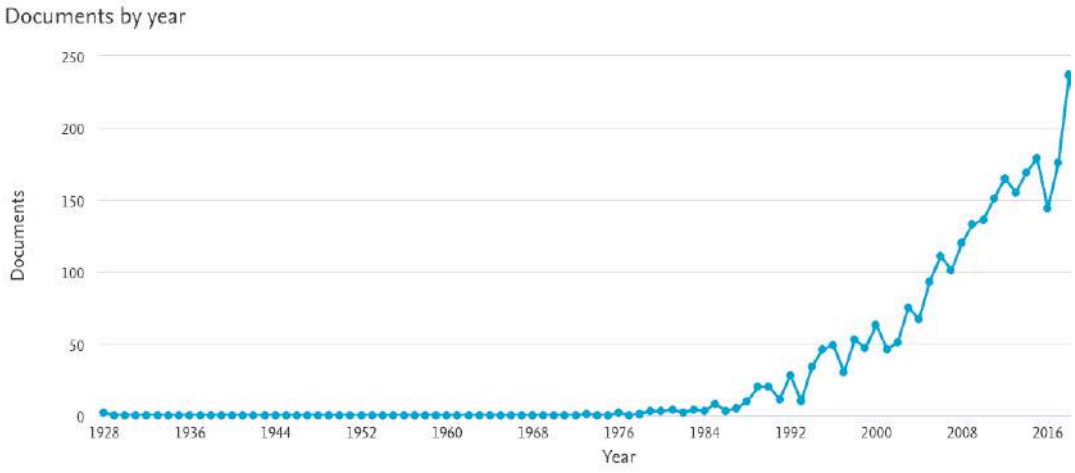


**Figure 2 – Publications related to Policy Network analysis (PNA) in the peer-reviewed literature.**
Scopus Search TITLE-ABS-KEY ( "policy community" ) OR TITLE-ABS-KEY ( "policy network" ) =2970 documents

A shift to relational thinking involves a fundamental change from attempts to explain political phenomena using concepts about the attributes of actors, to an approach involving concepts used to analyse the attributes of relationships between actors. When conducting PNA, care needs to be taken to

avoid slipping into well-worn tracks of explanation, ingrained by many decades of the dominance of methodological individualism that seek to use attributes of actors[14] to explain social outcomes.

The country case study research does not intend to argue for greater explanatory power of the relational paradigm. However, it does explicitly choose the relational paradigm as the underpinning of its theoretical framework. This is firstly because the analysis aligns with the view that *"politics is about relationships"* and secondly because many important aspects of relationships using theories based in the methodological individualism paradigm can only provide incomplete and insufficient explanations (Victor et al. 2017:2).

Given the ongoing influence of economistic and methodological individualism analyses in public policy analysis, attempts to understand network analysis from inside these paradigms is antithetical to our aims in our choice of network analysis. We adopt the views of (Emirbayer & Goodwin 1994:1414) when they say that: "*The point of departure for network analysis is what we shall call the anti-categorical imperative. This imperative rejects all attempts to explain human behaviour or social processes solely in terms of the categorical attributes of actors, whether individual or collective. Network analysis, as Barry Wellman puts it, rejects explanations of social behaviour as the result of individuals' common possession of attributes and norms rather than as the result of their involvement in structured social relations" (Wellman 1983, p. 165)".*

### 2.5.2 Rhodes Policy Network definitions

In the extensive literature related to Policy Network analysis[15] different researchers use different terms for the same (or very similar) concepts. For example Miller and Demir, in their book chapter titled *"Policy Community-type networks"* use the term 'policy community' in the same way as Rhodes[16] uses the term 'policy network' in his book chapter titled *"Policy Networks - The Historical Moment Introduction: The ubiquity of Networks"* (Miller & Demir 2006); (Rhodes 2017b).

Rhodes, in a memoir on the development of policy network analysis remembers that: "*…we argued over definitions and typologies. The issues that divided us seemed important at the time. They were not." [emphasis added]* (Rhodes 2017b:35). Regarding efforts to over-specify exact kinds and categorisations of network he writes: *"Networks can vary along several dimensions and any combination of these*

[14] These actors can be individual or collective. So, for example, when making the shift from methodological individualism to relational paradigms, vestiges of a methodological individualism mind-set could provoke the imagination of a Policy Community as an actor whereas in the relational paradigm and within Rhodes' scheme, it is intended as a conceptual tool used for analysing relationships.

[15] A Scopus search on titles, abstracts and key words for the terms "policy community" OR "policy network", yielded a count of 2,970 documents.

[16] A pre-eminent exponent of the policy network analysis field for the past 30 years,

*dimensions; for example, membership, integration, resources. Various authors have constructed continua, typologies, and lists of the characteristics of policy networks and Policy Community-type networks (see, for example, Van Waarden 1992). This lepidopteran approach to policy networks—collecting and classifying the several species—has become a dead end"* (Rhodes 2017b:40).

To avoid these kinds of unproductive efforts, and to meet the purposes of the analysis in COP21 RIPPLES WP4.4, we adopt three key terms Rhodes carefully defined in his chapter titled *"Policy Network Analysis"* in the 2006 Oxford Handbook of Public Policy[17], namely Policy Network, Policy Community and Issue Network. See Table 1 - Types of Policy Networks.

> *"**Policy Networks** are sets of formal institutional and informal linkages between governmental and other actors structured around shared if endlessly negotiated beliefs and interests in public policymaking and implementation. These actors are interdependent and policy emerges from the interactions between them"* (Moran et al. 2006:426).
>
> *"[Policy] Networks can vary along a continuum according to the closeness of the relationships in them.*
>
> ***Policy Community-type networks** are at one end of the continuum and involve close relationships;*
>
> ***Issue Networks-type networks** are at the other end and involve loose relationships.*

While the actual terms used for the concepts may vary from researcher to researcher, the research framework of the country case studies establishes the essence of the concepts to be used as a coherent tool for the PNA.

It is important to emphasise that the interpretation of PNA that is used in the analysis in this paper does not view a 'Policy Network' as an actor. 'Policy Network' is a concept, as is 'Policy Community' and 'Issue Network'. Using these concepts actual networks of actors are assessed as to their position on the spectrum. Actors have relationships in a network involved in influencing a specific policy. These relationships relevant to a specific policy process are assessed in terms of how they position the network along the Policy Network spectrum provided by Rhodes. According to this assessment the network would lean more towards either the Policy Community-type or Issue Network-type on the spectrum. A core research interest then is to discern patterns related to, on the one hand, where the network falls on the spectrum and on the other hand, policy outcomes.

[17] When used to denote these specific concepts we capitalize them throughout the text to indicate we are using the chosen terms for the specifically defined meanings.

There are many kinds of actors involved in networks that are relevant to the analysis. The actors can be institutions, organisations of individuals, or individuals. Examples of actors are: a formal organisation such as a government; a state-owned enterprise such as Eskom; an industry association. Also, relevant actors could be formal sub-sets of these such as a government department, or a department inside Eskom. Other kinds of actors could be an informal groupings such as a grouping inside government or Eskom. Individuals acting with mandates from other actors, or advocating their own interests are also kinds of actors in this interpretation of PNA.

There are very many examples[18] of networks. One (common) example would be an official committee mandated to draft a policy in well-specified definitions and domains of public interest in consultation with a diverse set of groupings and individuals. This ind of network would lean towards the Issue Network-type of network. Another, quite different example, would be a stable, informal (possibly covert), exclusive group, made up of individuals inside government and representing advocating their own interests and also of individuals outside government, working in concert. This newtork would lean towards the Policy Community-type of network.

Newtorks are not mutually exclusive. There are overlaps. Actors can be assessed as belonging to networks exhibiting features leaning towards either or both types of Policy Networks, and this changes with time and even the policy issue under analysis. The structures and participation are dynamic. For example, the same actors can be involved in relational processes strengthening a Policy Community-type network while at the same time engaging in a network with relationships largely of the Issue Network-type. There are overlaps and ongoing fluidities in the dominant features, participants and relationships in the networks. Examples of these are presented in the case studies.

Whether these actors or networks work within a legal framework or enjoy more or less legitimacy is not of primary interest in this study. The primary criterion for identifying an actor or network as relevant to the study is whether they appear to have had a significant influence on policy outcomes. This influence is assessed through the qualitative analysis of narratives of policy transitions.

[18] These examples of networks are different from the 'type' of network according to the PNA Policy Network typology.

| Dimension | Policy Community | Issue Network |
|---|---|---|
| Membership:<br>– No. of participants<br>– Type of interest | Very limited number, some groups consciously excluded<br><br>Economic and/or professional interests dominate. | Large<br><br>Encompasses range of affected interests |
| Integration:<br>– Frequency of interaction<br>– Continuity<br>– Consensus | Frequent, high-quality interaction of all groups on all matters related to policy issues high quality<br>Membership, values, and outcomes persistent over time<br>All participants share basic values and accept the legitimacy of the outcome. | Contacts fluctuate in frequency and intensity.<br><br>Access fluctuates significantly.<br>A measure of agreement exists, but conflict is ever present. |
| Resources:<br>– Distribution of resources within network<br>– Distribution of resources within participating organizations | All participants have resources; basic relationship is an exchange relationship.<br>Hierarchical; leaders can deliver members. | Some participants may have resources, but they are limited, and basic relationship is consultative.<br>Varied and variable distribution and capacity to regulate members |
| Power: | There is a balance of power among members. Although one group may dominate, it must be a positive-sum game if community is to persist. | Unequal powers, reflecting unequal resources and unequal access. It is a zero-sum game. |

Table 1 – Types of Policy Networks
*Source: (Rhodes 2017b – cited from Marsh & Rhodes 1992.)*

### 2.5.3 Additional focus on the 'accumulation of distributional coalitions'

In addition to the main analytical framework of Policy Networks as defined by Rhodes, an overarching framework is used to further contextualise the analysis. This overarching theory from Olsen (1982) is that vested interests entrench themselves over time and that: "The accumulation of distributional coalitions increases the complexity of regulation, the role of government, …and changes the direction of social evolution' (Olson 1982:74). A core interest in our exploration of low carbon transitions is Moe's conclusion, using Olson and Schumpeter, that: "Only states that are able to prevent vested interests

from becoming powerful enough to block structural change can have hopes of achieving long-term industrial and economic success" (Moe 2009: 203).

### 2.5.4 Theories of Patronage

The policy-network analysis is sharpened by concepts of political relationships driven by rent-seeking and patronage (Kitschelt & Wilkinson 2007), which is bolstered by the statement in the introduction to the Oxford Handbook of Comparative Politics that one of the six "crucial questions" addressed by comparative politics is: "Why do some parties run on policy programs, others on patronage?" (Boix & Stokes 2007). Initial research on the politics of transitions in South Africa has resulted in the observation of a conflict between, on the one side, public-welfare 'policy-programs', developed in open democratic policy processes involving Issue Network-type networks that inform and drive transitions and on the other side, relationships, often involving patronage, between vested interests, closed (covert) policy process and exclusive Policy Community-type networks. This initial research has led to the case study narrowing its focus further because of the special relevance of these phenomena identified in implementation of energy policies in South Africa that are relevant to emissions mitigation.

### 2.5.5 South African-specific concepts

Since the end of apartheid the emergence of some key new terms with unique meanings in the South African context in public political discourse has been an important feature of South African politics and energy politics. We need to clarify our use and definitions of three terms for our analysis.

The first term is "black economic empowerment" (BEE), which is born of legislation aimed at enhancing the economic participation of black people[19] in the South African economy through various policies and legislation.

The two other terms refer to factions, transparent and covert (or even clandestine or illegal) policy processes, and ideas about political and economic inclusion and exclusion. The terms are "state capture" and "radical economic transformation" (RET). These terms have only recently become common in South African political discourse but have now become so prevalent and important that our analysis could not easily proceed without them (Bracking 2018), (Desai 2018), (Swilling 2019a).

There are no clear dividing lines between or agreed definitions of these terms or the groupings that use them. One way to clarify their meaning would be to assess the different ways various groupings view the same processes, especially those involving how the state and its agencies privilege or support different

[19] Even with the end of apartheid racial classification of South African residents and racial terminology such as Black Economic Empowerment has been officially (and necessarily – author) retained by government, mainly for the purposes of managing redress of apartheid wrongs, including economic exclusion, required by the South African constitution. The terminology is fraught and this paper does not attempt to resolve the complex issues here. It does need mention though because of its extensive appearance in official policy.

grouping of economic actors. For example, the RET-patronage grouping would see a number of state procurement transactions as legitimate and necessary for the radical economic transformation of the economy, while the other alleges that the same transactions are illegal and a central component of 'state capture'. The term "state capture" was first publicized by the Public Protector in her investigation into corruption at Eskom, the title of the report ('the state of capture') being shortened to state capture (Public Protector, 2016). State capture theories rely on allegations that an (ex-President) "Zuma-centred power elite has captured key state institutions to repurpose them in ways that subvert the constitutional and legal framework established after 1994" (Bhorat et al. 2017:4). For the purposes of this study we distinguish the groupings by using the labels "RET-patronage network" for one grouping and identifying the other grouping as operating according to "transparent policy programmes" inspired by Boix and Stokes' observation quoted above about a fundamental difference in motivation of political parties (or groupings). A crucial element of our analysis is the extension of the concept of exclusive, but legally operating actors in Policy Community type networks to the "RET-patronage networks", who are differentiated by allegations of clandestine or corrupt activities being their primary modus operandi.

Beresford (2015), Butler & Southall (2015), Lodge (2014), (Bracking 2018), (Desai 2018), (Warf et al. 2018) and Hyslop (2005) provide useful definitions related to patronage politics and corruption in South Africa more broadly. The authors do not analyse energy politics explicitly although Lodge points to a number of striking similarities between Russia and South Africa in the role of political patronage, tendering, minerals rights and relationships between business and state (Lodge, 2014:19).

### 2.5.6 Steyn's specific kind of Policy Network with strong Policy Community-type features within Eskom

Steyn (2001) has provided a detailed analysis of an additional relationship of another kind of political exclusion and economic benefits. This involves an element of the industrial policy elite, namely a technocratic elite inside Eskom comprising its executive management, and key technical experts. This element has used its exclusive political positioning to appropriate and allocate economic rents. It has established and maintained a substantial information and expertise asymmetry which it uses to thwart accounting to governance structures outside of Eskom, or even within Eskom to the Eskom Board (Trollip et al. 2014). Government, as Eskom's sole shareholder, has been involved in a continual struggle with this technocratic elite. This also happened under apartheid when government recognized the non-accountability of this corps and its threat to the MEC political-economic project, and reined it in via a commission of enquiry (the 1987 de Villiers Commission) (Steyn, 2001). Steyn's identification of the special interests of this group is important because it assists with explaining Eskom's ongoing ability to resist policy implementation. The link between this internal elite with external interests has been analysed within the conceptual framework of the South African Minerals Energy Complex (Fine and Rustomjee 1996). In essence, the Eskom internal elite is involved in ongoing awarding contracts to external parties to supply Eskom with capital plant, services and primary energy and they also negotiate electricity supply agreements with their large energy intensive customers. As such they are located in a position of extra-ordinary power within a network of cash-flows and flows of commodities (coal and electricity) with huge impacts on the South African economy. Information asymmetry and moral hazard (a substantial differential in material interests between the Eskom technocratic elite and other

stakeholders (Steyn 2006:50-52) play key roles in the relationships between this technocratic elite and these stakeholders.

### 2.5.7 State Capture – a term (and concept) rising to dominate national political discourse over the period of the project

There has been an increasingly central feature in the national political discourse, emerging since December 2016, about the influence and impacts of what has been dubbed "State Capture[20]". This involves a 're-purposing of state institutions' and 'state capture' (Public Protector 2016; Bhorat et al 2017; Burton and Steenkamp 2017; Eberhard and Godinho 2017b), (Baker Lucy & Jesse Burton Hilton Trollip 2020). The governance problems have been associated with evidence of the rise, as a major national political power, of a new political network (Bhorat et al 2017, Public Protector 2016; (Swilling 2019a). Covert networks, by their nature, are difficult to research. There have been no successful prosecutions related to state capture but an indication of the extent of the network would be the list of forty-five people and twenty-seven companies named and recommended for criminal investigations in the draft report on the Parliamentary Inquiry into Eskom (Parliament of South Africa 2017:176).

This political network has been widely reported, in a number of official reports and the testimony under oath of very senior officials, to be involved in rent seeking, corruption and patronage involving the coal value chain in general, and Eskom procurement in particular (Eberhard and Godinho 2017); (Parliament of South Africa 2017); Zondo Commission 2019).

A central challenge in analysing this subject is to obtain evidence. Despite an almost overwhelming volume of allegations and accusations of criminal corruption, there has yet to be a criminal conviction: hence identification of networks can be difficult. The absence of criminal convictions has been ascribed to the "capture" of the state investigating and prosecuting agencies described in Pauw (2017) and Hoffman (2019). Nevertheless, owing to its centrality in energy politics, the concept is core in our analysis.

'Hard evidence' of the actions of this network was only beginning to emerge at the start of the COP21 RIPPLES project in January 2017, and initial focussing of the case study on the importance and relevance of this network in the politics of implementing GHG mitigation policy was of necessity somewhat tentative. At that stage, initial unpublished analysis indicated a strong reliance of this network on economic rents in the coal value chain. Meanwhile, what we will later in this paper call the RET-Patronage network (below) was ascendant, with then president Zuma as its alleged kingpin and his (alleged) cronies appointed as Energy Minister and CEO and CFO of Eskom. Evidence was mounting of tender irregularities and alleged illegal deals in capital plant supply and coal contracts. But the power

[20] Similar to the Policy Network terms, we capitalize this in the paper when it refers to the specific South African version that has dominated the public political discourse since the end of 2016 with the publication of the Public Protector's report State of Capture (South African Public Protector 2016).

and influence of key RET-patronage network members had managed to suppress evidence, or at least undermine attempts to surface this evidence. The National Prosecuting Authority had been (allegedly) 'captured'. Despite mounting evidence in the press, and attempts at private legal action, official prosecutions have been stifled (Hoffman 2019; Swilling 2019) and thus evidence relying on official confirmation through, for example, criminal convictions was not available or strongly contested by powerful actors.

In pursuing the central interests of this case study there was sometimes a discomfort that possibly the lines between investigative journalism and the analysis of the politics of implementation were being blurred. As Meadowcroft pointed out earlier, academic policy analysis in the field of sustainability research has been much more comfortable in either the less controversial fields of techno-economic analysis (even this is riven with conflict in the public domain in both energy and climate policy) or in the formulation of potential policies and measurements, than in the hurly-burly of the politics of their implementation.

However, by now, in conducting the COP21 RIPPLES WP4.4 analysis, it has become clear that in South Africa implementation of emissions mitigation policy is deeply entangled with central interests of national politics.

Since the beginning of the research project the identification of patronage relationships has been made more easy by a wave of investigations into patronage and corruption in South Africa, but more difficult because of the bounded time resources of the project, by the sheer volume of new evidence, much collected in hundreds of thousands of pages of records of hundreds of days of testimony under oath in the *Eskom Parliamentary Enquiry*, *Nugent Judicial Commission of Inquiry into ax administration and governance by the South African Revenue Service (*which have both reported) and the ongoing *Zondo Judicial Commission of Inquiry into State Capture.*

The many revelations in the above inquiries and a deluge of front-page newspaper reports, books and analyses have steadily unveiled a pervasive influence of the RET-patronage network on energy policy transitions. The role of economic rents in funding these networks in the coal-electricity value chain, the huge size of these rents in the national economy and the implications for decarbonising electricity generation required in the PA consistent pathways, indicates a major focus of the analysis of the politics of implementation of transitions. The current case study is just part of furthering this kind of research which is largely embryonic, notably the explicit focus on using well-founded political science-based conceptual frameworks. The increase in the severe problems emerging with attempts to implement transitions in South Africa was underlined in a report from the World Economic Forum that placed South Africa at position 113 among 114 countries in its 2019 Energy Transition Index (World Energy Forum 2019).

RET-patronage, as it has emerged in South Africa, is a kind of illegal, or marginally-legal clientelism fuelled by huge economic rents that are extracted from the ZAR 50 billion (~US$ 3billion) spent annually

on coal by the state-owned electricity generation monopoly Eskom, via secret procurement contracts, from its ZAR 1 trillion (~ US$6billion) capital expenditure programme and from contracts for provisions of outsourced services (Desai 2018); (Bracking 2018).

### 2.5.8 The analysis in the paper focuses on nuances of PNA, not on corruption or the economics of rent seeking, even though these are highly relevant

In a country with a history of an economy based on concentrated minerals-extraction with new, weak energy regulatory institutions, a new democracy (after many decades of authoritarian rule) and amongst the highest levels of inequality in the world, it is probably to be expected that economic rents will play a major role in energy politics. Uslaner (2008) *"…argues that high inequality leads to low trust and high corruption, and then to more inequality – an inequality trap – and identifies direct linkages between inequality and trust in surveys of the mass public and elites in transition countries."* Heterodox economists such as Khan (2010; 2000) and Kelsall (2012) have studied the concepts of rents and rent seeking and corruption in similar settings and provide useful insights on the links between political networks, institutions and economic rents. One of Khan's central findings in studying growth trajectories, where countries have experienced sustained growth, is that corruption has not necessarily led to poorer economic performance. Khan has presented a typology of corruption where he has presented compelling empirical data that indicates that corrupt practices are associated with positive economic development outcomes in some key national economic success stories and that in some cases, given specific socio-economic and political conditions, certain types of corruption are associated with maintaining social stability and achieving progressive distributional outcomes (Khan 2004:10).

South Africa experiences one of the highest measures of inequality in the world and is also a new and developing democracy. Given Uslaner and Khan's analysis and findings the South African country case study explicitly does not aim to follow a main line of investigation that simply attempts to associate challenges with policy implementation with corruption, which would lead to a conclusion for "improved governance" (or central concern) that rooting out corruption is a feasible "solution to the problem". While there may or may not be elements of validity in this, such a finding would not serve a primary purpose of the case study analysis which is to deepen understanding of South African political economy to inform international climate governance, with the ultimate aim of improving this governance in practicable ways. It is not the position of the case study to condone corruption, or otherwise, but to understand politics relevant to emissions mitigation governance within the constraints of climate policy and the realities of the socio-economic and political context. So, while it may be admirable and necessary to root out corruption this study seeks more nuanced understandings for supporting improvements even over periods where substantial levels of corruption might be present.

Khan has compellingly argued against the kind of conclusion that limiting improved governance to conventional 'good governance' based on developing 'market enhancing governance' is sufficient, or even a priority in many developing country contexts (Khan 2004). Instead he argues that a number of other governance capacities are also relevant and these policies to improve governance need to consider the specific complexities of the societies and political economies being studied and the explicit purposes

of the governance (Khan 2006). Improving governance would then involve supporting a range of governance capacities and prioritising those related to specific desired governance outcomes.

Accordingly, the case study explores the general idea that the trajectory of policies is associated with different kinds of networks. This idea was stimulated by a highly detailed study of energy policy (Marquard, 2006) over the apartheid transition that demonstrates the utility of network analysis in the South African case. This initial analysis was bolstered by a number of subsequent studies that cite Marquard's work, especially (Baker 2013), (Baker et al. 2014), (Baker et al. 2015), (Baker 2016) and (Froestad et al. 2018).

The analysis investigates the main features of relationships between actors involved in energy policy transitions that are relevant to the political context of emissions mitigation policy. Qualitative assessments are made as to whether these relationships accord more with Issue Network – type Policy Networks or Policy Community-type Policy Networks on Rhode's Policy Network continuum. Other aspects of the relationships are also assessed qualitatively, for example whether the exhibit client-patron or corrupt features. These assessments are problematic because of the often secretive or covert nature inherent in such relationships. Despite this difficulty, because of the importance of these features an attempt is made to identify them. Qualitative assessments are also made on whether the energy policy transition leans more towards progress in general welfare or towards benefitting narrower interests.

### 2.6 Objective of the study – aims for use of Policy Network analysis (PNA)

The COP21 RIPPLES WP4.4 project does not have sufficient scope to aim to analyse enough cases to yield conclusive causal explanations in the political dimension linking actors activities in types of networks in a deterministic way to policy outcomes. It cannot offer answers to questions such as: *What governance measures can be instituted, internationally, or at the national level, to assure success in mitigation policy implementation?* It cannot even answer the question, for the political dimension: *What governance measures are bound to fail?*

The success of the methodological individualism paradigm and the huge advances made in political science – based policy analysis in the 20$^{th}$ century, and its positivistic underpinnings were based on the contribution economistic thinking could and did make in answering some similar questions possible (Victor 2017:2). However, this initial study does not aim for such results.

The aim is not to apply PNA as an explanatory theory but rather as an analytical framework. Thus the uses of Policy Network concepts: *"…guide the empirical perceptions in research on policy making and direct the researchers' perception and attention…"* (Raab & Kenis 2007:189). Policy Networks, Policy Communities and Issue Networks are therefore the three concepts that are primarily used to guide the analysis.

Networks are not necessarily mutually exclusive. There are overlaps. Actors can be assessed as belonging to networks exhibiting features leaning towards either or both types of Policy Networks and this changes with time and even the policy issue under analysis. The structures and participation are dynamic. For example, the same actors can be involved in relational processes strengthening a Policy Community-type network while at the same time engaging in a network with relationships largely of the Issue Network-type. There are overlaps and ongoing fluidities in the dominant features, participants and of the relationships in the networks. Examples of these are presented in the case studies.

***The ultimate aim is not to study the relationships but to explore whether networks typified by differing types of relationships are associated with differing policy outcomes.*** The studies collate empirical data on narratives of policy processes with a focus on data relevant to PNA, ***especially data on the relationships between actors and policy outcomes***. Narratives are built. The empirical data is drawn from the academic literature, government policy documents and grey literature (reports, consultant studies, …). Then the narratives are analysed in PNA terms.

For a number of particular policy process narratives, qualitative analysis is used to characterise the Policy Networks that are involved as having features more towards the Policy Community-type or more towards the Issue Network-type on the Policy Network continuum. The analysis also examines features of the associated outcomes of these policy processes. The approach recognises that the institutional context is important but the chosen analytical framework does not emphasise this. Similarly, the approach recognises the explanatory value of analysing actors' attributes and their effects on outcomes but does not emphasise this either. PNA is complimentary to economistic type analysis, not an alternative.

This is initial research and has not been designed (or resourced) to cover sufficient policy processes, across a wide enough set of conditions, to aim to come to generalisable conclusions. The aim is to discern patterns that could be relevant to inform governance. The analysis does not aim to reach conclusions on causality between the attributes of relationships and policy outcomes. This is in line, in general, with more modest aims of governance research given limited successes in positivist approaches attempting to apply generalizable rules to understanding policy outcomes. This approach is more in line with an *"enlightenment function of policy analysis instead of neopositivist, technocratic approaches"* (Fischer et al. 2007:xxii).

This notion of the enlightenment function of policy analysis aligns with Thatcher and Braunstein's (2015) conception of the application of Policy Network concepts in that… *"Neither Policy Community[-type] networks nor Issue Networks[-type] offered a free-standing, developed model of policy making (Thatcher, 1998). Rather, they represented enriching metaphors and useful concepts that were empirically applicable, and provided counterbalances to previous well-established views of policy making. They encouraged disaggregated analysis and drew attention to the effects of the fragmentation of government into subsystems, the interdependence of government and interest groups, and increased specialization in policy making"* (Thatcher & Braunstein 2015).

The initial research also aims to provide a foundation for follow-up research that might access sufficient examples of policy processes across a variety of circumstances to build more generalizable conclusions and to begin to offer causal explanations. The design has preferred to make more tentative conclusions than to be over-ambitious, bearing in mind a history of policy failure based on often on under-estimations of the complexities of policy processes starting with (Pressman & Wildavsky 1984) through to (Howlett et al. 2015), (McConnell 2015), (Trollip & Boulle 2017) and evidenced by the large gap between what is required of global mitigation policy and performance of that policy to date (UNEP 2017). It is recognised that advances are needed in policy analysis to address these issues and that relational thinking provides an important area of development.

In any case, the field of network analysis generally is in the initial phase of development and at this stage, even with sufficient resources, aiming at a definitive research result of causal explanations would be over ambitious. As stated by Victor (2017:3):

> *"In short, we are at a critical moment in the development of a new approach to the study of politics – a moment when new generations of interdisciplinary scholars and graduate students are being exposed to network methods and the new ways of studying politics that they offer."*

### 2.6.1 Research question

In summary, the aim is to use policy network analysis, as described in Rhodes' 2006 paper titled Policy Network Analysis to build policy narratives of relevant policy histories. These include data on actors and identify patterns in relationships between actors related to differing types of Policy Networks and to differing policy outcomes. The core research question to be explored is:

> What interesting features are there in policy processes outcomes where there is a prevalence of relationships that lean more to the Issue Network-type kind of Policy Network than the Policy Community-type of network? Conversely, the same question phrased differently could be: "What are the features of policy process outcomes where there is a prevalence of relationships that lean more towards the Policy Community-type of Policy Network than towards the Issue Network-type"

# 3 Subject of the case study – transitions in South African energy policy

From a political perspective, there is a large overlap in the interests and actors that are involved in energy policy and GHG emissions mitigation policy, especially in terms of the 'targets' of the policy, namely: energy supply industries and energy users. There are large overlaps in the political context of

transitions required to achieve GHG mitigation goals and the transitions that have been attempted in policy in the electricity sector. Transition pathways place the electricity sector at the centre of energy sector transformations.

In 1995, Eskom generated 95% of South African electricity, 88% of this from coal and was strongly integrated with the coal sector (Trollip 1995:4-45). Thus, Eskom has been central to balancing the interests of the state and business in a minerals extraction and energy-intensive economy for almost one hundred years (Froestad et al. 2018). South Africa's relative isolation under apartheid meant that until the mid-1990s the country avoided the global trend of electricity sector liberalization pushed by the World Bank and other multi-lateral and bilateral donors as part of structural adjustment programmes during the 1980s and 1990s (Gratwick and Eberhard 2008). Since then, Eskom has retained its monopoly despite various failed attempts to liberalize it over the years (Eberhard 2004), (Marquard 2006; Baker 2016), (Baker, Burton and Trollip 2019).

Ever since the announcement of official policy to break up Eskom's monopoly in electricity generation and transmission (Department of Minerals and Energy (DMEA) 1998), factions within Eskom and connected interests have (successfully[21]) resisted the introduction of independent power producers (IPPs) and the creation of an Independent System and Market Operator for the transmission system that would facilitate IPPs and undermine Eskom's monopoly position in electricity generation (Baker et al 2015; Baker and Burton 2018). The history of this resistance to policy transition provides crucial information and analysis to inform the analysis of the political context of policies involving transitions in the South African energy-intensive economy and related processes involved in promoting or resisting these policies (Marquard 2006; Baker 2016; Froestad et al 2017). It is important to note that the analysis in this paper seeks to focuses on the political aspects of this resistance to an official policy that had been developed in an extensive and open process, and re-enforced by multiple formal executive decisions, not the economic merit of the policy. We say 'seeks' because of the dominance of economic analyses and the paradigm these are located in and hence the need for a conscious effort to shift the focus of the analysis, as detailed in the conceptual framework.

The struggle to restructure the electricity generation market and remove Eskom from its monopoly control has been further complicated since 2008 by severe internal operational problems in the Eskom generation division evidenced by load-shedding and Eskom now (in 2019) faces a financial crisis and a management crisis (National Treasury South Africa 2019; ) It has had 11 CEOs in ten years. Since around 2015, these problems have played a major role in an escalating financial crisis catalysed by runaway costs of new generation projects, operating expenses and primary energy. This has had notable effects on the relationships between key governance actors and the balance of power between them. That is

[21] The renewable energy independent power producer procurement programme (REI4P) is an important (partial) exception which is an important element of this case study. A central feature in the case study is identifying political elements of this exception.

what we now mode on to, the core of this paper, the PNA of the relationship between these actors and the associations of kinds of Policy Networks with energy policy transitions.

# 4 Policy Network analysis (PNA) of South African energy policy transitions

This section presents empirically based narratives of particular energy policy transitions and applies the PNA conceptual framework to them. It starts by establishing relevant background information to identify and locate key Policy Networks that were established at the core of the South African political economy over the 20th century. It then looks at processes involving Policy Networks and others that have attempted with various degrees of success to implement policy transitions in what could be called the centre-of-the-centre of the South African energy system: the coal-fired electricity generation plants and the coal mines that feed them

### 4.1.1 1886-1994: Establishment of the modern South African energy system[22] – the coming of electricity, establishment of Eskom and the MEC and the establishment of a policy network dubbed the 'industrial policy elite' with strong Policy Community-type features

The initial history of the energy sector in South Africa in terms of the key themes of policy networks and the orientation of politics towards economic exclusion, is especially relevant to a general understanding of energy politics in South Africa and the subsequent analysis of energy policy transitions in that follow. We thus set the scene with a very brief account of basic features of energy politics in the colonial and apartheid states. These politics were fundamental in establishing South Africa's economy based on minerals extraction and energy intensive industrialisation.

Many of these foundational political relationships and structural economic features persist today, decades after the end of apartheid. Thus an understanding of their basic characteristics is useful for the analysis of subsequent developments in these relationships.

The colonial social order of the late nineteenth and early twentieth century, combined with South African minerals resources, particularly diamonds, gold and coal to start with, provided the impetus for the establishment of an extractive industrial economy (Christie 1985) and extractive institutions (Acemoglu 2012).

After the discovery of diamonds and gold in the late 1880s, the colonial government intensified the exclusion of the indigenous black African majority from political institutions. In the industrialising economy, the colonial government, working together with foreign owned and managed diamond and gold mining operations relied on repressing the indigenous population to source cheap labour while simultaneously using coal-based electricity to increase productivity through mechanization. This was

[22] See section on defining transition earlier - >100 years might appear an extended period, especially in terms of the transition periods required to reduce risks of catastrophic climate change, but looking back on past transitions 100 years is not particularly long, and fits in with the definitions of energy transition.

deliberately done in a manner of “de-skilling African power and lowering wages” (Christie 1985). The exclusion of Africans from formal political structures was thus associated with their exclusion from participating in the minerals and energy industrial economy except as providers of cheap unskilled labour.

From 1948, under apartheid logic, political and economic exclusion of black South Africans were made explicit and encoded in (even more extreme) racist legislation. The majority of the population was legislated as being "temporarily" in South Africa, denied property rights, excluded from the formal economy and lived in grossly under-serviced housing conditions, maintaining the low cost of labour, and general low costs to the state, and a rapidly growing extractive economy based on gold, coal and cheap electricity.

By 1979, South Africa was the world’s largest gold producer. Large scale, deep-level gold mining was made possible by a combination of cheap labour and cheap electricity fuelling mechanized mines. Eskom provided the electricity to the privately owned mines. The low cost of labour combined with the transfer of investment risk to the state, yielded electricity prices half those of the West German coal-fired fleet (Christie 1985, Steyn 2001).

The Industrial Development Corporation (IDC), a national development finance bank, established in 1940 was a core actor and provided funds to build ‘infrastructure industries’ as parastatals to run without the usual investor-driven requirement for a market based rate of return, and which would thereby be able to make the necessary high-risk, low-return investments needed to drive the industrialization process (Marquard 2006: 151). Eskom, the Iron and Steel Corporation (Iscor) and South African Railways and Harbours were key state-owned players while according to a formed long-time Eskom head “the mining industry and other industries did a lot through their pressure to ensure that we performed” (Marquard 2006: 136). “Key policy developments have usually been negotiated through these informal networks, rather than through formal policy structures.” These are all hallmarks of a Policy Community–type Policy Network.

#### 4.1.2 1994-2000: The end of apartheid – transition to an energy policy centered on inclusion

Increasingly intensifying opposition to apartheid, especially from the 1960s onwards, led to widespread civil insurrection. Driven mainly by the problems of an increasingly ungovernable population and associated economic stagnation, the apartheid regime negotiated a political transition with the liberation movements. There were democratic elections in 1994 and a democratic constitution and political structures were set up.

The 1990s was a decade of large-scale multi-stakeholder open political processes including energy policy processes. The previous exclusive, informal ‘behind closed doors’ Policy Network (‘industrial policy elite’)

was, on the surface at least, replaced by policy processes where Policy Networks with Issue Network features flourished.[23]

The new government's democratic institutions pursued the formulation of programmatic policies with explicit objectives centred on public welfare and environmental protection. A notable example of this was the highly participative multi-year[24] policy process that produced a new energy policy in the form of the 1998 White Paper on Energy Policy (DMEA, 1998). The Energy White Paper provides details on the policy process. Transparency, inclusiveness and accountability, are core principles. The policy document states that: 'the process has ...attempted to make government approach more transparent; to build public confidence; to clarify organizational roles; to communicate policy effectively; and to integrate policy processes' (DME,1998:5)

Two types of policies can be identified in the Energy White Paper policy document. The first type are policy goals: political policy goals including democratic transparency, inclusiveness and accountability in governance, and economic policy goals of economic inclusion and economic redress[25]. The second type of policies are specific policy[26] measures to achieve these goals. These included a national household electrification programme, deregulating the liquid fuels sector, restructuring the electricity sector, and BEE participation through ownership in the supply sectors, specifically electricity generation. Parallel policy processes dealt with BEE ownership of upstream energy assets such as coalmines.

The redress goal addressed two main problem areas, exclusion of black households from connection to the electricity grid and exclusion of black people and business from being involved in electricity supply. Measures to achieve these were, for the former, a national electrification programme that went ahead successfully (Bekker et al. 2008). Electrification connections were an acclaimed success. The latter problem area involved exclusion as employees and also exclusion as owners. To address the first problem, black participation as employees in formal organisations (private and state) was rapidly increased directly through government employment and labour policy and legislation.

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[23] We recount in the next section how the emergence of an open issue network does not mean that the closed, behind-the-scenes policy community stops operating or having an influence.

[24] See the appendix of the Energy Policy White Paper for details of the extensive, transparent, participatory policy development process and the wide range of stakeholders involved in the DMEA, 1998:107-110).

[25] Redress involved going beyond inclusion, which required including those previously systematically excluded from mainstream society and the economy, to measures to make up for the effects of that exclusion.

[26] See previous definitions of 'policy' and 'policy measure'

As well as direct government employees in the administration, state owned entities (SOEs) were an important vehicle for redress through employment of black South Africans[27]. Eskom had been proactive in this area where during apartheid SOEs had excluded black South Africans from supervisory and more senior posts. According to the Official Eskom on-line history[28]: "An Equal Opportunity Committee was established in 1986 to 'investigate and remove discrimination' (Eskom publication: "Five Years On"). ESCOM committed itself to the education and training of black entrants to the workforce and accepted the challenge of substantially increasing the number of black managers. By the end of 1999, almost half of all managerial, supervisory, and professional staff were black, coloured, or Indian." In 1997 the first ever black chairman of the board was appointed followed by the first black Chief Executive Officer (CEO) in 2001.

For business ownership, very specific measures to achieve inclusion and redress in electricity generation were stated in the 1998 Energy Policy White Paper, namely: *"For future restructuring, government intends to separate the power stations into a number of companies. Such a step will assist the introduction of competition into electricity generation. This will also create the opportunity for private sector and Black Economic Empowerment investment opportunities in the generation sector"* (DMEA, 1998).

However, on the business ownership side, there was little policy analysis to address the linkages between the policy goals of black ownership of power stations and the policy measures that were expected to achieve these goals, nor of the complexities of implementing the measures.

As well as an absence of political analysis, another notable aspect of the electricity re-structuring policy was the absence of supportive economic analysis to explicitly link the design of the policy measures of restructuring and deregulation[29] to the policy goals of economic inclusion and redress, essential issues in a context of gross inequality.

In fact, it would appear that insertion of these measures into the policy was the result of the operation of "policy entrepreneurs" taking advantage of a "policy window" as per Kingdon's (1984) highly cited multiple streams approach. Marquard (2006:187) provides evidence that the restructuring policy only entered the 1995-1998 Energy Policy White Paper process at the last stage, and it was proposed to achieve economic efficiency goals, not the overall economic inclusion and redress goals which provided

[27] See previous note on this study's adoption of ongoing racial classifications as per official South African government policy and law.

[28] http://www.eskom.co.za/sites/heritage/Documents/ENERGY/Decades.pdf (accessed 28 January 2020)

[29] We limit ourselves to electricity sector re-structuring. Liquid fuels deregulation has disappeared without a trace of political action left, hence is not an actively pursued public concern for current South African energy politics, but an interesting subject for further analysis. Limited political analysis of the sector exists, with Lott (2017) and Burton, Lott, & Rennkamp (in press) examining aspects of liquid fuels sector regulation and rent.

the political context for specific policy measures. Marquard (2006:187) reports that "the electricity section was formulated by [Department of Minerals and Energy] electricity section officials and a small group from the EDRC[30], without Eskom's participation, and the second [point of political entry] was in a series of high-level ministerial workshops in 2000 where the same group made a case for restructuring on the basis of Eskom's investment history." Policy-insider Eberhard wrote that "..there has never been a single, powerful champion for reform, neither in government, nor amongst the stakeholders.." (cited in Marquard, 2006:187). It would appear that despite the extensive and inclusive policy development processes, key aspects of the actual policy as it emerged in the official final policy document was not the product of these processes.

This insertion of fundamental policy at the last stage of the process indicated another problem. (Clark 2000). Also evident when the 1998 policy was published, was the glaringly obvious contradiction between the explicitly stated measures of liberalisation and privatisation of the electricity sector, and the constant, unwavering and in-principle opposition of organised labour to such measures. Accordingly, with hindsight, if key stakeholders Eskom and organised labour had been side-lined in the last stages of the policy development process, it could be seen as almost inevitable now that much of the 1998 energy policy was politically un-implementable. Our analysis here does not question the validity or otherwise of the economic rationale for the re-structuring policy measure. What it does is to provide a political analysis of what happened when government, through exclusion of key stakeholders at a crucial point in the policy process, adopted policies that were politically problematic, leaving political problems of implementation to be dealt with later.

In short, following on decades of radical political exclusion by the apartheid state, the new democratic institutions of the South African parliament had instituted fundamental changes in policy formulation processes, deliberately resourcing and involving a wide variety of political actors. However, in the final stages of the policy drafting, it appears as if there was a somewhat bad faith exclusion of key stakeholders. No matter the merits of the economic rationale that might have been put forward by some of the policy entrepreneurs involved with this, from a political point of view, and with knowledge of what happened next, this exclusion can now be seen as probably contributing to severe problems with implementation.

What might the lessons be for current efforts at mitigation policy formulation, implementation and governance? With hindsight, it is worthwhile to consider what the utility might have been of conducting a politically focussed policy analysis at the time, and imagining if this analysis were effectively deployed, whether both the policy decisions and implementation might have turned out differently. For example, it is worth considering what might have happened if some of the foundational political science concepts about implementation known at the time had been taken heed of. One of these is Pressman and Wildavsky's (1984) prescriptions for implementation, including: *"Implementation should not be divorced*

[30] The Energy and Development Research Centre based at the University of Cape Town

*from policy and must not be conceived as a process that takes place after, and independent of, the design of policy; Designers of policy must consider direct means for achieving their ends;"* There is no evidence of such policy analysis of the electricity sector re-structuring policy in the public domain addressing these issues at the time, nor in subsequent analyses, apart from Marquard (2006) and Baker (2013).

Similarly, application of, or even awareness of Sabatier and Mazmanian's seminal work on "…conditions conducive to effective implementation" and their suggested strategies (Sabatier & Mazmanian 1979:481) and other relevant theories and their application, are absent from policy analysis of these energy policies. This kind of analysis was not done at the time, and apart from initial work by Marquard which dealt with processes up to 2006, and mentions of its relevance by Baker (see previously) has still not been done.

Having set the scene with these first two transitions, the rest of this paper will explore the links between these themes, especially the influence, on the one hand, of Policy Networks close to a Policy Community-type, and, on the other, actors involved in Issue Network-type Policy Networks in transparent programmatic, policy processes in subsequent episodes of the (mostly failed) implementation of energy transition policies in South Africa. This is not intended to be overly-critical or negative about the sincere attempts by many to support these transitions but rather to provide a critical analysis by applying basic political science concepts to this history. The purpose is to develop an understanding aimed at supporting current policy formulation and implementation of mitigation policy being pursued in a similar political arena. Although as we will see, there are now considerable additional complications compounding in this arena, many possibly partially caused a result of the failed implementations to date.

#### 4.1.3 2001 - 2005: Politics of resisting transition, politics of the incumbent Policy Network

In the 1990s South Africa had a surplus of electricity generation capacity. But demand was increasing steadily as it had for the past >50 years and the 1998 White Paper stated that demand would likely exceed supply by around 2007 (DMEA, 1998:41). If this increased demand was to be met by conventional large coal fired power stations similar to the rest of Eskom's fleet, a reasonable period from investment decision to commissioning would be five years at minimum, probably longer. Thus prudence required a decision by 2002 at the latest.

Preparation for implementing the restructuring policy started in 2001 with the corporatisation of Eskom. Cabinet also announced in 2001 that Eskom was not permitted to build a new power station. The Minister of Minerals and Energy required Eskom to support efforts to contract, IPPs in time to meet the forecast increases in demand. The policy required that these would be black-owned. When by October 2004 no contracts had been signed, Cabinet reversed its decision and charged Eskom with the urgent task of building Paul stations in time to avoid a supply shortage. Eskom soon gained approval to build

two new power stations totalling 9,600MW. This was part of a 17,000MW[31] Eskom generation expansion programme. Eskom quickly set about construction, starting on the 4,800MW Medupi station in 2005. But this left only two years until demand had been forecast to exceed supply. A serious supply shortage appeared inevitable and when demand exceeded supply as had been forecast and the new power stations had only been under construction for less than two years load shedding ensued in 2007.

Eskom was 100% state-owned and yet it had not implemented major official policies backed up by Cabinet decisions, specifically to contract the IPP's. Even when it was almost certain that a supply shortage would cost the national economy dearly, Eskom had not contracted these IPPs and thereby retained its monopoly. It has not been possible to ascertain whether Eskom deliberately ran into insurmountable problems in contracting these IPP's. What is known is that at that stage Eskom was an admired utility on the world stage and certainly had the technical and financial capacity to contract with IPPs (Newbery & Eberhard 2008). It is also entirely reasonable to surmise that by contracting these IPP's Eskom would be actively participating in undermining its own historic monopoly. And what is also known is that the Eskom CEO had been vocal in his opposition to this and that the South African Labour unions had gone on a national strike against this policy which it viewed as privatization, and hence against which they had an explicit ideological objection (van der Heijden 2013).

Many of the posts in Eskom had been filled with new people, according to the very effective actions of the Equal Opportunities Committee mentioned earlier. Also, many key positions in government, from the upper echelons down, had been populated with labour union leaders from the anti-apartheid struggle days. But as far as Eskom management being able to protect its monopoly and to form alliances to implement its own policies, despite these contradicting official government policy, it was business as usual. By starting its 'transformation' early, in 1987, the new leadership and staff had been well inducted into the Eskom culture of ensuring its survival as a monopoly on its own terms.

Marquard (2006) found that over this period of collapse of the restructuring and IPP policies, the 'industrial policy elite' had reproduced itself and asserted its power within the context of the new democratic state. A further application of the political network theories Marquard used to more recent event might prove fruitful in explaining this collapse of official policy implementation in more detail. The literature of these theories has also been significantly developed since Marquard applied them (Rhodes 2017; Victor et al. 2017).

Eskom had not yet openly defied government[32]. Contracting processes had been initiated but 'difficulties had arisen'. It is hard to imagine that with the necessary will, Eskom could not have overcome these

[31] Total capacity at the time was some 32GW, Eskom moved from a position of being excluded from building new power stations to being authorized, and in fact implored, to increasing capacity by some 50%, quickly.

[32] Open defiance will come in a transition we analyse later, in the context of the ascendancy of the an emboldened RET-patronage network, when Eskom refuses to sign power purchase agreements with IPPs.

difficulties and contracted IPPs over the 1998-2004 period. Substantial damage to the national economy would have been avoided but Eskom would have been 'damaged' – that would have been the end of its monopoly. The process of contracting IPPs required substantial insider knowledge and specific expertise that Eskom also had a monopoly over in South Africa. Steyn's (2001) approach using the theory of moral hazard and conflicts in incentives between principals and agents offers considerable explanatory power to a study of how Eskom resisted the control of its sole owner: the principals being government as owner, the agents being the technocratic/managerial elite inside Eskom. While Steyn has applied this to Eskom over-investment in the past, his approach has not yet been applied to Eskom's later failure to implement the 1998 White Paper policy. This included resisting implementation of instructions from cabinet level to execute actions that were well within Eskom's capabilities had it wanted to comply. This technocratic elite was accustomed to operating outside of public scrutiny within the Policy Community–type Policy Networks of the apartheid MEC so these kinds of exclusive relationships were largely business as usual for them.

Application of the foundational theories of Sabatier, Wildavksy and others who have investigated failures of implementation using these theories, is largely outstanding in analysis of South African energy politics. Analysis using the kinds of insights of such approaches has not yet been done for the now well-documented policy processes of the 1998-2005 collapse of the restructuring and IPP policies. Despite much failure of policy implementation little serious 'post mortem' work has been done on these failed implementations.

There is some other notable work related to energy politics or electricity sector reform in South Africa over this period of collapse of restructuring but which does focus on applying the basic political science concepts chosen for the analysis in this paper. However their analysis or in some cases very rich and detailed empirical narratives are relevant and useful. First and foremost is Baker (2013), which examines the processes in significant detail. Baker provides a detailed narrative. She mentions how 'vested interests' resist change but her focus is on socio-technical transitions, technology change and the concepts of 'regimes' and 'niches' (Geels 2011) not policy networks. Gratwick and Eberhard (2008) provide an almost entirely empirical narrative with little political analysis. Eberhard and Godinho (2017a) (not peer-reviewed but comprehensive) record an initial objective of exploring *"the role of political economy contextualities in driving, constraining or otherwise influencing power sector reform."* After conducting a comprehensive and systematic review of the literature this study finds that *"political economy research in the area is lacking"* and that *"the theory would require development to serve their stated objective."* Baker et al. (2014) use Geel's (2002) multi-level perspective to provide a detailed empirical account of key policy developments from a socio-technical transitions perspective, much of this relevant to both the politics of implementation and transitions. In terms of political theory, the study provides "reflections on how best to theorize the contested politics of transitions." However, the basic

political science concepts of relationships and networks are not applied (Baker et al. 2014:791); (Pickering 2010 – on power sector reform in context of policy proposals for an ISMO[33]).

Baker et al. (2015) provide a non-peer-reviewed but comprehensive political economy-orientated empirical narrative of South African recent electricity sector development within a stated context, "the political economy of decarbonization". While the political science concepts which originated around the 1970s such as Pressman and Wildavsky, Sabatier etc. are mentioned as being relevant, none of these are applied, nor is there extensive examination of the ANC's political processes and how this impacts whether policy is driven by patronage or public policy (Boix & Stokes, 2007).

#### 4.1.4 2007-2015 Politics of a successful transition – active participation of a wide range of interests and transparent legislative driven policy

Following government's experiences of being thwarted in attempts to obtain Eskom cooperation to contract IPPs government established a legislative and regulatory programme to establish capacity to control Eskom by other means than through the Eskom Board. Direct governance using state-ownership had not worked. Accordingly, a new National Energy Regulator Act (40 of 2004) and Electricity Regulation Act (4 of 2006) were passed to establish independent transparent regulatory functions with real teeth. These included a new governance institution, the National Energy Regulator of South Africa (NERSA) with powers to approve Eskom's budget. Also, legislation was passed that empowered the Minister of Energy, in conjunction with NERSA, to decide what power stations would be built, in an open planning process called the Integrated Resource Plan (IRP). Also in terms of the new legislation, if the minister wanted these to be IPPs, Eskom could be compelled to contract to procure the IPP production and to connect the IPPs to the grid. NERSA required Eskom to publish details of its proposed expenditure and subject this to transparent public consultations and subsequent approval (or not) by NERSA. This started addressing the closed-box of Eskom finances that was a significant source of the technocratic-managerial elite's power mentioned by Steyn earlier.

These new powers were used first, when NERSA, in the middle of the load shedding, implemented a cumulative doubling of Eskom's tariff in three years. This brought further widespread negative publicity and criticism. Most importantly, the tacit pact between Eskom and favoured energy-intensive customers in the MEC, that these customers would support the monopoly so long as they enjoyed cheap power, began to be put under pressure – a significant political shift.

This progress in the programmatic policy process was followed by the first big success in electricity restructuring policy implementation since the opening up of the White Paper process. South Africa's first openly developed electricity plan, the Integrated Resource Plan 2010-2030 (IRP 2010) was gazetted in 2011. While the plan's negotiation was delayed and heavily contested, it was a breakthrough for the

[33] Independent Market and System Operator (ISMO) – This was a central element of the re-structuring proposals.

public process that accompanied its development (Baker et al 2015). The delays were linked to the openness of the public processes and the engagement of a variety of interests including academics, public interest NGO's and well-resourced international renewable energy companies. The open processes included high profile international climate negotiations[34] where at COP15 in 2009 South Africa made a conditional 'Copenhagen pledge' to reduce emissions by 42% by 2025. The 2009 pledge can be seen as a flurry of progressive activity around climate mitigation policy and linked energy policy in the 2009-2011 period. The 2009 pledge placed international pressure on South Africa at the COP17 in 2011 in Durban, South Africa (Nhamo 2011).

The IRP was actively consulted through most of 2010 and eventually included much larger allocations to renewable energy than the initial draft. This was motivated by public welfare considerations because it was more much more costly than fossil alternatives and was included to achieve climate change mitigation goals. An emissions constraint, consistent with the Copenhagen pledge which had become enshrined in the Climate Change Response White Paper (CCRWP), was also finalised in the run up to the Durban COP17.

Government followed up on the IRP, published in March 2011, with the announcement six months later of its Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). Announcements about the REIPPPP coincided with the run up to and actual period of the Durban COP17.

Within eighteen months, more than sixty IPP contracts for more than 4,000MW of renewable energy had been contracted by Eskom and by 2015 were built and feeding into the grid.

In another extensive open programmatic policy process, the Independent System and Market Operator (ISMO) Bill, which would extract the transmission system from Eskom, was submitted to parliament. Establishment of the ISMO would enable IPP access to the transmission network and from the late 1990s had been a central plank of re-structuring (Pickering 2010).

These were significant victories for transparent, programmatic government. In the 1990s opened-up, inclusive programmatic policy processes had resulted in policy goals clearly associated with public welfare economic inclusion and redress. Now, once again, transparent inclusive processes had resulted in implementation of policy motivated by public welfare considerations. This was a victory over the closed policy community elites that had been traditionally associated with resisting IPPs. While this does not prove cause-and-effect 'laws' between inclusive politics and inclusive economics, it illustrates an interesting pattern – a link between Issue Network-type networks active in open transparent inclusive policy processes and the successes in formulation and implementation of public welfare orientated policies.

[34] This is important for assessing implications of international governance on South African national policy processes.

While this legislative programme was underway, Eskom's capabilities to organise resistance had been weakened. Eskom was reeling from external pressures linked to load shedding and internal disarray. There were six changes of board chairperson, seven changes of chief executive officer (CEO) and six of chief financial officer over the period 2007-2015[35].

There is no compelling evidence or existing analyses linking this weakness to the success of the programmatic policy processes. But the overlap of this period of Eskom disarray and the first substantial successes in implementation of policies to open its internal governance, establishing public planning of future generation capacity investments, undermining its monopoly and introduction of substantial investments in renewable energy electricity generation cannot be ignored. Important features for consideration are the negative consequences of load shedding and the development of previously unheard-of levels of instability in Eskom internal governance and in its relationships with government[36]. It is likely that these dynamics considerably weakened the relationships within the Policy Community-type network that had predominated in frustrating official government re-structuring policies until this point.

#### 4.1.5 2006-2017 Politics of exclusion revisited – establishment of the radical economic transformation (RET)-patronage network funded by rents extracted from Eskom coal value chain procurement

As mentioned in the conceptual framework, Policy Community and Issue Network-types of Policy Networks are concepts applied to actual (real) relationships within networks of political actors. Thus at the same time as the Issue Network-type of Policy Network relationships are flourishing, some of the actors in those can also be working with other actors, in Policy Community–type relationships to promote competing agendas. In general there is an ongoing struggle. While there was much success in open processes and associated progress in public-welfare and environmental protection kinds of policies over the 2007-2015 period, other actors and agendas were also at play.

While the new transparent IRP public planning process and REIPPPP to implement public-welfare orientated programmatic policies were enjoying their successes, processes undermining these were at play in parallel. A most important one of these was the growth of a patronage network and its involvement with rent-seeking and Eskom procurement: of both capital plant and coal. There was a resurgent exclusive network, reminiscent of the legacy MEC policy community, except, there were elements that exhibited clandestine and alleged illegal activity (Public Protector 2016, Bhorat 2017, Eberhard and Godinho 2017b, State Capture Judicial Commission 2018). By its covert nature, this network is difficult to research. Membership is neither formal and announced.

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[35] Update 2020 - 11 CEOS's in ten years and latest developments.

[36] This was originally written for the latest round of Government announcements to restructure Eskom in the February 2019 presidential State of the National Address (SONA). This latest attempt at pushing through reform also appears to be responding to but also taking advantage of Eskom weakness owing to its financial crisis.

The first evidence of substantial patronage deals emerged in 2006. According to reports in the press, and then in court hearings in the USA the procurement of the Medupi coal plant boilers was linked to political patronage. Eskom contracted with Hitachi Power Africa (HPA) to "build the boiler works for the Medupi and Kusile power stations, the combined contracts worth US$ 5.6 billion." (United States District Court for the District of Columbia, 2015). Chancellor House, an ANC investment company[37], had a 25% stake in HPA at the time, resulting in a dividend, ultimately for the benefit of the ANC. The settlement of an action against Hitachi by the USA Securities and Exchange Commission states that HPA's "books and records did not reflect that the dividend was, in fact, an amount due for payment to a foreign political party in exchange for its political influence in assisting Hitachi land two government contracts" (US Securities Exchange Commission, 2015:2).

This the beginning, leading to a pattern that would be repeated in other Eskom procurement. For example, the Public Protector has alleged[38] that Eskom placed pressure on Glencore by suspending negotiations to renew coal procurement contracts to the extent that Glencore decided to sell its Optimum Mine. Eskom at the same time assisted a RET-patronage beneficiary, Oakbay, to buy the mine by pre-paying for coal to be supplied by the mine. One of the owners of Oakbay was then-President Zuma's son. These deals were allegedly facilitated by Eskom executives and the Minister of Mineral Resources (Public Protector, 2016; Eberhard and Godinho, 2017b).

While the economic impacts of such procurement practices are serious that is not the prime concern of this analysis. The concern is with the political conditions enabling or preventing implementation of policies aimed at public welfare. This concerns on the one hand, the relationship between transparent inclusive Issue Network-type networks and programmatic public welfare-orientated policies and on the other hand, closed exclusive networks and covert policies benefitting members to the detriment of public welfare. There are parallels between the processes involved in the (alleged) Medupi corruption and the operations of legacy MEC exclusive political and industrial policy elites.[39] The most important parallel is that members of an exclusive network, using powers vested in some of them by the state, make arrangements involving public resources among themselves for their own benefit and to the detriment of the public.

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[37] The African National Congress (ANC) established an investment company which took up ownership stakes in a number of private sector companies, both to earn income to fund party activities, but it would seem from the Hitachi Africa/Medupi scandal this company also interfered in government business both at the operational level (according to the SEC settlement) and, according to the analysis in this paper, in government policy. This paper does not go into some possibly profound questions such as: *What influence did the potential for large rents, and the ANC accessing some of these, have on the decision to build Medupi in the first place?*

[38] To date, there have not been any charges or convictions for these transactions in a South African court, despite what has become a compelling amount evidence.

[39] There are important differences between the original MEC policy community and the RET-patronage network. The most important difference is (alleged) illegality and corruption

While the immediate financial losses to the public are serious, the concern of this analysis is the connection between the closed network and implementation of energy policy involving transitions. The RET-patronage network received much funding from economic rents extracted from the coal value chain. These rents could be diminished directly by a transition away from coal,[40] or indirectly through Eskom losing its monopoly because this would reduce the scope for rent extraction.

The first signs of the political ascendancy of the closed policy community and resurgence in success in resisting programmatic policy implementation emerged with the failure of the IRP2013 processes to reach a conclusion[41]. This strengthened with the unexplained withdrawal of the ISMO Bill from parliament in 2014. The next possibly more serious sign was when the REIPPPP bid window 4 was brought to a halt in 2015. Eskom would not sign pending, approved IPP contracts. This time it was not the passive resistance of Eskom's initial 2000-2004 failure to contract IPPs. Eskom brazenly stated that it would not sign the IPP power purchase agreements that had been awarded in state-run auctions. It openly defied policy, and the Minister of Energy. The illegality of these actions was confirmed at a later date (High Court of South Africa 2019).

Up until 2016 there had been much speculation in the press of the activities of this network, and in 2015 statements by National Treasury and in 2016 a report by the public protector began to provide more solid evidence. In the meantime, enough evidence has surfaced in the public domain to describe some key features of these networks relevant to the themes that have emerged in this paper, especially political inclusion and exclusion, programmatic policies vs. patronage politics, and their relationships with economic inclusion and exclusion in general and restructuring and redress through BEE IPP opportunities in particular.

In the terms we have adopted during this period some members of Eskom's technocratic managerial elite had become networked with the emerging RET-patronage political elite, which had members in senior government positions, at presidential and national ministerial level. Economic rents appropriated from Eskom's coal value chain[42] was a central enabler. However, the impacts of patronage procurement

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[40] "Could" is used here because this would not necessarily happen. Modes of investment in renewable energy could be established also with substantial rents. In fact, the high prices for the first round of South African IPPs included an element of rents but these rents are generally accepted as a price to be paid for the R&D development costs and rewards for the risks taken by first-movers in innovative technologies and schemes. However, it is quite conceivable that the control of government over access to the grid could be exploited by IPPs to create ongoing rents, much the same as coal-suppliers to Eskom can.

[41] The Energy Minister had announced that the IRP201 was a living plan and would be updated every two years. However, the IRP2013 was published for public comment but the process stalled and an updated plan not gazetted.

[42] Most of the excessive expenditure connected to poor performance at Eskom is on coal contracts and capital plant.

deals similar to those described above proliferated to the extent that they were linked[43] to a precipitous decline in Eskom performance.

It is important to distinguish between, a focus on the one hand, on conclusive fact-based arguments about the causes for Eskom's performance decline used to support positions adopted by members of these factions and, on the other, a focus on the fact that these arguments are adopted in rhetoric which is a core identifier of the factions, often flying in the face of fact and reason, and that they have consequential political outcomes. The analysis here focuses on the latter. While it is no doubt important to make efforts to ascertain the techno-economic, managerial, governance and legal evidence related to Eskom's declining performance, even an un-attainable perfect knowledge in these spheres would not necessarily provide the political ammunition for any of these factions to become dominant.

Thus our focus on the politics, and its relationships with which kinds of policies are linked to which kinds of networks, instead of techno-economic or managerial accounts trying to "prove" causes for Eskom's decline. The case here of an analysis of attempts by a transparent programmatic Policy Network to implement policy explicitly and transparently linked to public-good, vs. a clandestine network implementing covert policy linked to personal enrichment speaks directly to Meadowcroft's exhortation also quoted in the Research Framework that "much less attention is devoted to the political circumstances that make the adoption of such policies likely. But behind policy there is always politics …getting the politics right appears to be a prerequisite to getting the policies right". How to "get the politics right" is a difficult question, which probably accounts for much of the lack of attention to it. This does not mean that answering it is impossible and it would seem that diligent attempts to assess economic models would have some interest in their feasibility in a real world. Extending the dominant debate on ideal economic models with commensurate questions about governance, which must perforce include political questions, given failures in governance is what Meadowcoft is pointing to and is the primary objective of this paper. Given the complexity of this political question, we have started with un-ambitious first steps.

#### 4.1.6 2017 – 2019? Another swing, back to ascendancy of the transparent programmatic 'constitutionalists, (albeit tenuous)

During the course of the COP21 RIPPLES project a dominant storyline that has emerged over the past two years in South African public political discourse involves two factions in the ANC. While membership is not announced the political statements of members easily identifies them. One supports RET-

[43] The public debate, fed by social media, includes strong statements being made by RET- patronage protagonists that the major cause of Eskom's poor performance was the REIPPPP. While the RET-patronage faction was still dominant, government did little to debunk these claims. However subsequent to the programmatic policy faction gaining ascendancy, formal statements have been made by the president's and the finance minister and Eskom CEO attributing much of the decline to tender and contracting irregularities at Eskom.

patronage. In energy politics it is associated with resisting re-structuring Eskom and opposes IPPs and (sometimes, but not always) the transition from coal to renewable energy. In national politics members have typically been associated with state capture and supporting ex-President Zuma, although while Zuma was President all ANC members supported him in parliamentary non-confidence votes. The other faction supports re-structuring Eskom, IPPs and renewable energy and President Ramaphosa.

The similarities with the early 1990s are that then, an exclusive policy community had been highly instrumental in building an economy that was grossly socially and economically exclusive, had elicited widespread resistance and been associated with economic stagnation. Once again, in the late 2010s an exclusive policy community was arranging core elements of the MEC for its own economic benefits and economically excluding others.

In December 2017 the Ramaphosa faction cast 179 more votes out of 4776 than the RET-patronage faction in the ANC presidential elections. President Zuma, widely believed to be a central figure in the RET-patronage network, was forced to end his term early.

The close connections between these factions and energy policy implementation became apparent almost immediately after President Ramaphosa became president in February 2017. In April 2018, the 27 IPP contracts that had been delayed since mid-2015 were signed by Eskom. One of the largest South African unions attempted a last-minute court interdict to prevent this.

The very narrow margin of 179 votes at the ANC's elective conference at Nasrec (December 2017) indicates that the election could easily have gone the other way. In that case it is most likely that RET-patronage politics would have intensified, and with it the exclusive patronage politics that have been one of our main themes. Given the important role of inclusive and exclusive politics in crucial policies related to public-good policies vs. enrichment of select private interests and the development and implementation of public policy in general, a much deeper understanding of the related dynamics than is available in the existing peer-reviewed literature is strongly indicated.

The democratic transition, ambitious policies of economic inclusion and redress, and policy measures of restructuring), combined with alternating influences of closed Policy Community-type networks and/or patronage networks and open public policy processes, have generated dynamic energy sector politics. While the intensity of the open conflict between networks supporting transparent programmatic policy implementation and the RET-patronage-network is a recent phenomenon, we have shown in this case study that this conflict is deeply rooted in the apartheid energy system and the energy politics initiated in the democratic transition.

The analysis also showed that some essential political problems from the initial phase of policy development and implementation in the late 1990s remain unresolved, including the extent to which political inclusion has been matched by economic inclusion in the economy. Labour still opposes re-structuring Eskom and despite presidential announcements restructuring being imminent in February

2019 once again it has not met stated timetables and there is no hard evidence of restructuring progressing (January 2020). This time re-structuring has been motivated by an Eskom financial crisis that threatens the national fiscus and national economic stability.

The resulting political conflict around Eskom has grown into a potential threat to the overall democratization project. It is also a threat to the successful transition of the South African energy sector to low-carbon in a time of international sector transition.

For many years, commentators on the left argued that the economic injustice of the post-apartheid era was forged through this 1994 democratic settlement (Terreblanche, 2012). The perceived failure of this process to create institutions of economic inclusion (rather than political inclusion) has become a rallying cry for the new patronage/RET faction.

Many of the patterns of relationship and sector structures set up in the colonial and apartheid eras have persisted, although some have been altered by democratic post-apartheid politics of inclusion and politics of transition. While there have been substantial changes owing to new actors, new relationships and new technological and economic factors, core patterns remain remarkably similar. The ongoing intertwinement between energy politics and national politics continues to play as big a role in national politics and the South African economy in 2019 as it did in the twentieth century.

#### 4.1.7 Notes on economics of rents and motivations and opportunities for rent seeking in South African coal system

While the focus is deliberately on relational thinking and PNA a note on rents is appropriate as it is often mentioned as the motivation and enabler for activities of the actors in the RET-patronage faction and in Policy Community-type networks. Politics involved with patronage networks[44] is associated with rent-seeking behaviour, significant opportunities for creating and extracting rents and over time establishment of an intertwinement of patronage networks resourced with resultant rents.

There are more accessible and larger rents which are more easily extracted through wealth transfers in existing extractive industries such as coal mining and tightly-coupled large scale coal-fired electricity generation, where large procurement contracts are opaque, and risks more easily shifted to the state, than through rents in new renewable electricity energy generation where price competition is achieved through transparent bidding processes. This is made especially attractive in BEE-based awards of tenders on non-cost competitive bases in confidential tender processes. The (usual) arrangement of sourcing coal from mines next to a electricity generation station means it is difficult to arrange cost-competition.

[44] Given the requirements for cost reductions, innovation, etc. to transition to renewable energy, it is difficult, or impossible to imagine the quantum of rents that are easily extracted in the coal system being extracted from developing, investing in operating the new renewable energy dominated system. It is a different phase of technology, system and institutional development.

Large single-event procurement for specialised equipment such as the coal mega generation stations such as Medupi and Kusile provide large opportunities for creation and extraction of rents. Eskom has been a central player first in the policy community which is a central political feature of the so called South African minerals-energy complex established over the course of the 20th century, was still at the centre of the policy community that re-established control over the sector after the democratic transition and has allegedly been at the centre of the patronage network (related to much of the reports of 'state-capture') centre of monopoly is most unlikely to implement low carbon generation at any large scale.

It is (much more) difficult to extract large rents in IPP's in the South African REIPPPP programme. RE IPPs have to be cost effective and to be cost effective require a competitive bidding mechanism such as the auction system. Thus, in a system dominated by patronage, in existing coal-system (merely transferring wealth of existing system) it is much easier to extract large rents. The 'cost' of rents is much lower, and potential 'supply' of rents much higher in the existing system.

# 5 Conclusion

## 5.1 Specific summary and conclusions in PNA terms

Using the COP21 RIPPLES WP4.4 research framework presented above which is based on Rhodes' (2006) policy network analysis (PNA) this paper uses PNA to analyse the politics of six successive and sometimes overlapping phases of South African energy policy transitions to explore the potential association between actors operating in types of Policy Networks and policy outcomes. Empirical narratives of the history of these policy transitions based on existing literature are built and PNA applied to these narratives. These policies are relevant to the political context of transitions in South Africa from a coal-based electricity system to a low-emissions one, a central concern for climate change emissions mitigation policy in South Africa.

**The narratives**

Over the colonial and apartheid periods, actors in exclusionary Policy Community-type networks, including a group dubbed the 'industrial policy elite' (Marquard 2006), established themselves in command of the economy in general and the energy sector in particular. They implemented policies to establish the Eskom vertically integrated monopoly (Roberts et al. 2018) at the centre of an extractive 'Minerals Energy Complex' based economy (Fine and Rustomjee 1996) which excluded the majority of the population.

Under a new democratic government, actors in Issue Network-type networks played a crucial role in a transparent policy process in formulating programmatic reform policies with broader social welfare and environmental protection goals. This policy required new power stations to be supplied by independent power producers (IPPs) owned by black South Africans, under a Black Economic Empowerment (BEE)

policy. Efforts were made to implement these policies but the industrial policy elite in a re-constituted Policy Community-type network re-asserted itself. Using their power as incumbents they passively thwarted implementation of the reform policies and no IPPs were built. This led to an electricity supply crisis.

Subsequently, government established the necessary legislation and capacities for a public electricity planning process in which actors in Issue Network-type networks played a crucial role. This yielded a legislatively enforceable electricity plan with >6GW implemented via the renewable energy independent power producer procurement programme (REIPPPP). However, in parallel, actors in Policy Community-type networks also made substantial strides mainly on the back of the power supply crisis, and embarked on a large Eskom-owned coal-fired power station building programme, which had not been the result of a transparent, inclusive planning process. This was a critical set-back for implementation the official policy developed in the initial post-apartheid democratic phase.

In addition to the influence of actors involved in more general and largely legitimate, or at least legal, Policy Community-type networks, evidence of the influence of even more non-transparent and more exclusive and less-legitimate or possibly illegal patronage-type networks emerged in the policy narratives.

Over the course of the research project period evidence of the influence of a phenomenon labeled "State Capture", which had been weak at the beginning of the research project, was considerably strengthened in a number of official enquiries. 'State Capture' was connected to a faction in the ANC centered on the South African President and president of the ANC (South African Public Protector 2016, Bhorat et al. 2017, Eberhard & Godinho 2017, Baker et al. 2020). In defiance of official government policy and the flouting legal contracts, this network implemented its own often covert policies[45]. While the 'grand corruption' is a serious problem in its own right, the relevance to climate change emissions mitigation policy is that, in general, rent-seeking and corrupt procurement contracts in the incumbent coal-fired electricity generation system has been a mainstay of the state-capture beneficiaries, hence they have also been a core of the resistance to implementation of energy transition policies and climate change emissions mitigation policy.

The State Capture faction was narrowly defeated in the ANC elective conference in December 2017. The large-scale renewable energy electricity programme that had stalled for three years was partially resuscitated a few months later.

When Policy Community-type networks have dominated, public knowledge of policies has usually emerged only as the policies get implemented and the policies have often been largely for the benefit of

[45] Note that our definition of 'policy' is not limited to official promulgated government policy but also includes the kinds of policies developed in parallel to such policies recognizing a rich history of such parallel policies ultimately becoming the *de facto* policy and then evolving to official state policy.

the Policy Community members and to the detriment of broader society and environmental protection. On the other hand, processes where actors in Issue Network-type networks predominate have usually been associated politics and policies with explicit public welfare and environmental protection orientations, which were openly communicated and promulgated in official policy and legislation.

**Findings from the PNA analysis**

The main findings of the South African case study are that on the one hand a correlation between stronger involvement and effective influence of a larger number and diversity of actors in Issue Network-type networks and progress in transparent public policies explicitly or officially connected[46] to general welfare was observed.

On the other hand, a correlation was observed between stronger involvement and influence of a limited number and selected actors and exclusionary Policy Community-type networks and processes ranging from the opaque to covert in development of policies beneficial to those actors and detrimental to general welfare, or the resistance to implementation of public policies explicitly or officially connected[47] to general welfare.

The number of narratives does not allow for a general causal relationship to be established between Issue Network-type processes and progress in public welfare-type policies or between Policy Community-type policies and lack of progress in these. However, the rich narratives and analysis suggests that domestic and international governance that supports policy processes that are transparent and where a large number and diversity of actors are enabled to engage so that Issue Network-type networks predominate could substantially increase chances of success for policies connected to general welfare. These would include climate change emissions mitigation policies. Such governance

[46] We use this rather long phrasing to avoid taking a position that these policies were *in fact* supportive of public welfare. This is deliberate. An example would be – There IS still a substantial public debate in South Africa that renewable energy *in fact* has greater overall public welfare benefits than coal-fired power. We avoid taking a position on this so that we can focus on the types of networks involved in energy policies that advocate renewable energy and the types that advocate coal, thus keeping our focus on the object of our study namely ***types of relationships*** and the types of networks they are involved in and policy outcomes, not the content of the policies.

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arrangements would also benefit from familiarity with the details of the narratives to cater to very specific local conditions.

While there is an essential difference between legal and illegal activities, overlaps between the kinds of relationships between political actors in legal Policy Community-type networks and policies detrimental to general welfare and/or the frustration of implementation of policies connected with public welfare and the kinds of relationships between actors in state capture processes and their detrimental impacts to general welfare are notable.

This is not just peculiar to South Africa or a recent phenomenon. In their 2001 survey of nearly 4,000 firms in 22 transition countries Hellman and Kaufman conclude that the efforts of actors to influence policy is a *"normal and indeed healthy process. …What distinguishes such interactions in the capture economy is exclusion. Some firms enjoy exclusive privileges to influence decisions of the state while others are systematically excluded, enabling state officials to make choices that concentrate benefits on those with access at a high cost to those who are excluded"* (Hellman & Kaufmann 2001:3). Such exclusion is also a hallmark of legal Policy Community-type networks and the South African energy policy narratives have also found associated *"concentration of benefits"* on Policy Community-type political actors "*at a high cost to those who are excluded."*

While State Capture poses risks possibly more serious than climate change to South Africa in the short term, the relevance to the specific concerns of the PNA analysis and climate governance is the overlap between key proposed remedies for state capture and the proposed support to increase chances of success in climate change emissions mitigation policies. They are quite similar, namely transparent political processes that are also deliberately non-exclusive and enable (effective) participation of a large number and diversity of political actors (Hellman & Kaufmann 2001:3).

From an overall governance point of view the analysis would suggest that a predominating influence of political actors in exclusive networks ranging from Policy Community-type networks, through patronage networks to state capture networks would be incompatible with, or at least present severe problems to a successful transition to low carbon energy systems in countries with large fossil resources. This is exacerbated by the challenging timeframe. While supporting transparent processes and enabling effective participation of a diversity of political actors so that Issue Network-type networks can predominate might not be sufficient to assure successes in general welfare oriented policies, such as climate change emissions policy, it is suggested that this would greatly enhance the chances of success for these policies. Such support is well within the ambit of international governance, especially the broad functions identified in COP21 RIPPLES WP4.1 and WP4.2 (Oberthür et al. 2017, Rayner, et al. 2018)

## 5.2 General summary and conclusions and pointers to further work

A key observation from the policy transitions analysed is that progress in developing and implementing policies orientated towards public welfare were invariably associated with transparent programmatic

networks and processes and that conversely, when actors in closed Policy Community-type networks were in the ascendancy public welfare came second to the interests of the members of these communities. This pattern had been established in the colonial and apartheid years and has shown that it can become ascendant again after the democratic transition. For the moment (August 2019), the transparent programmatic 'constitutionalists' are ascendant, or have at least halted the ascendancy of grand corruption. But this is tenuous. Support for public welfare policies, such as those to implement emissions mitigation policies, is tantamount to support those fighting state capture.

Thus this kind of work focussing on politics is crucial to deepen understanding of political aspects of the dire failures[48] to implement policy, especially given the severe negative impacts of such failures. Politically orientated policy analysis is at least as important as the techno-economic analysis that receives primacy in research and that is used to drive most climate change policy rhetoric.

The case study in this paper has being carried out over some three years under the H2020 COP21 RIPPLES project beginning in January 2017. Up until around the beginning of 2017 the stories about clandestine patronage-RET vs. transparent programmatic-public-good dichotomy had not yet become mainstream. While the emergence of the mainstream line of analysis supports a mainline of argument of this paper, it also makes it less novel. Even so, merely outing the activities of the clandestine networks, especially in a number of formal processes where corruption is now acknowledged to pose an existential threat to South African democracy, neither prevents these clandestine networks from prospering and neither does it detract from the importance of exploring and building an understanding of how the politics involved in the competition between these networks is relevant to implementation of emissions mitigation policies. On the contrary, the experience so far has been that exposing corruption and formal commitments by the incumbent dominant faction to root it out has yet to lead to a single criminal conviction despite growing mountains of evidence makes building this understanding even more important.

Support for emissions mitigation policies will need to consider how this would be achieved even if, for example, a RET-patronage network gained ascendancy again, unless success in mitigation policy is to be assumed contingent on this not happening. In general, supporting any politics to promote emissions mitigation policies might need to explore whether condition such as strong democratic institutions, transparent policy development and implementation and openly public goods orientated programmatic policy might not be the only environment in which these mitigation policies will be successfully implemented. This leads on to further questions on whether these policies can prosper without the

[48] These might not be failures according to those that seek to maintain Eskom's monopoly, or to prevent private sector investment in electricity generation (such as organised labour). 'Failure' here means failure of official policy and the negative impacts: the economic one of the electricity supply shortage and the (possibly) unnecessary protracted political conflicts associated with a lack of understanding of implementation that well-established existing theories might ameliorate.

enabling conditions and whether support for these enabling conditions might be a requirement for effective emissions mitigation policies at the scope and scale and time frame required to be consistent with the PA. This paper does not and cannot answer these questions. But they need to be faced because of the possibility of an RET-patronage faction dominated government for a significant proportion, or all, of the time available to develop the next round of NDCs, and even longer.

The analysis of the transitions aimed at limiting itself to basic political science concepts around networks and relationships, especially Rhodes' conceptions of these. However, the socio-technical and sustainability transitions approaches also offer considerable potential for extending understanding of the politics of transitions. The academic disciplines related to sustainability transitions would be a logical area for extension of research on climate change politics.

A quote might sum up much of what the last decades of energy politics in South Africa could have taught us. Acemoglu and Robinson (2013:174) state: *"our argument is that economic analysis needs to identify, theoretically and empirically, conditions under which politics and economics run into conflict, and then evaluate policy proposals taking into account this conflict and the potential backlashes it creates. Our basic argument is straightforward: the extant political equilibrium may not be independent of the market failure; indeed it may critically rest upon it."*

Steyn's (2001) work had highlighted the problems linked to moral hazard and the managerial elite in Eskom. But this did not necessarily imply the chosen solution of restructuring, particularly from a political point of view, notably given organized labour's principled opposition. Much of the narrative in this chapter is about the direct results of this and tells the story of how relying on economic rationale for restructuring electricity generation, without providing the necessary political rationale for key stakeholders has possibly been the central problem in South African energy politics. Similarly with climate change policy, despite overwhelming scientific evidence of the need for the policy and compelling techno-economic analysis demonstrating that adequate mitigation is possible, without due attention to the political economy within this policy will be implemented in general, and the politics in particular, prospects for implementation remain highly risky.

While policies for restructuring have been in process for decades, repeatedly warranted by ever-refined economic arguments, in depth political analysis remains outstanding, fundamental political challenges persist, and the policies have not been implemented. The structure of the electricity sector is very much the same in 2019 as it was in 1999 and at present there is a stalemate on resuming the official policy of the Renewable Energy Independent Power Producer Procurement Programme in defiance of public assurances by the President.

### 5.3 Conclusions and information directed at the international governance paper

A key question that emerges from the analysis, and points to further research is whether closed processes (those dominated by Policy Community-type network ones) are compatible with success in

implementation of the kind of transitions analysed – the electricity reform, the (public welfare driven) mitigation targets and their incorporation (through opened up processes) into the IRP2010, or the open transparent REIPPPP auctions?

There are (at least) two competing factions in South African government. One tends to involve actors in networks of the Issue Network-type in transparent programmatic policy processes intended by democratic processes. It would appear that this faction would be more likely to effectively govern a low carbon transition.

The other tends to involve actors in networks of the Policy Community-type in strategic and opportunistic processes ranging from the opaque through to covert and is not envisaged by open constitutional democratic ideals and facilitates evolution of policy to patronage dominated through to grand corruption (state capture) to the extent that the democratic state is threatened (Swilling 2019b). Given the reliance of this faction on rents from a very large, dominant incumbent coal electricity generation sector it would appear that a democratic government that was undermined by this faction would be unlikely to effectively govern a low carbon transition. International governance of climate change mitigation needs to be cognisant that measures or structures that assist with supporting actors in transparent democratic Issue Network-type networks could play an effective role in fostering emissions mitigation policy implementation.

The resistance to climate change emissions policy is part of a larger process of crony capitalism which relies on easy pickings from coal rents from coal procurement contracts and coal capital plant. Much of this is facilitated by an Eskom procurement system highly compromised by patronage networks ranging from 'legitimate' 'radical economic transformation' (Desai 2018); through parasitic capital accumulation (Nattrass 2014: 24) plain corruption (Parliament of South Africa 2017), to state capture (Bhorat et al. 2017), (Baker et al. 2020).

From an overall governance point of view the analysis would suggest that a predominating influence of political actors in exclusive networks ranging from Policy Community-type networks, through patronage networks to state capture networks would be incompatible with a successful transition to low carbon energy systems in countries with large fossil resources. Hitherto, international governance has provided support for Issue Network-type networks in producing issues around which these networks have crystallised, which has mainly been to set up overall policy targets and intentions: agenda setting and the "ambition agenda". While there has been the (partial) exception of the REIPPPP programme in policy implementation, in general local networks of the Policy Community-type have frustrated implementation, even now the REIPPPP. Future governance of implementation, at the national and international levels, will thus need to consider how to support local and international Issue Network-type networks and how this can address challenges to climate policy presented by Policy Community-type networks.

It is out of the scope of this paper, but it is appropriate to mention that climate change has become a core issue in national politics of many countries and deepening the understanding of political aspects of mitigation policy in an era where rapid fundamental transformations in energy systems will be central to developing policies with credible prospects of achieving those transformations. It has become apparent that the 'bottom-up' features of the PA require a deep understanding of the nuances of national politics at country level, not just in South Africa but possibly also in many other countries, not just emerging economies. There are number of countries that are experiencing similar challenges with Policy Community-type networks' influence on mitigation policy. Thus improved understanding of these resulting from the South African study, including development and application of the conceptual framework, would be relevant to studies of these other countries.

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Horizon 2020 Societal challenge 5: Climate action, environment, resource efficiency and raw materials

# COP21 RIPPLES

## COP21: Results and Implications for Pathways and Policies for Low Emissions European Societies

# Competing coalitions in Brazil's biofuel-related climate policy

By Carolina Grottera, Britta Rennkamp, Emilio Lèbre La Rovere

## Table of Contents

## 1. Introduction

This paper analyses the role of Brazil's biofuel transition in terms of current climate policy and the implementation of its NDC. We investigate this transition from the perspective of policy implementation risk as a result of network competition. The framework for analysis distinguishes between relatively open issue networks and closed policy communities presented in this report. The risk analysis requires an assessment of the historical evolution of these networks in order to determine where these respective networks dominate and compete

Competing policy networks emerged in the ethanol policy processes as one of Brazil's central climate actions in three different phases between 2003-2018.

The three phases are marked by the respective presidencies of Worker's Party (PT) leaders Lula da Silva and Dilma Roussef, the Acting President Michel Temer of the Brazilian Democratic Movement (MDB) leading towards the election of the current president Jair Bolsonaro of the Social Liberal Party (PSL).

The paper is structured as follows: firstly, we briefly describe the historical evolution of the ethanol sector in Brazil as a result of the oil crisis in the 1970s. We then apply the framework of network competition to the evolution of these networks throughout the three phases between 2003 and 2018. We conclude with a perspective on future developments in the sector.

## 2. Historical background of Brazil's ethanol policy

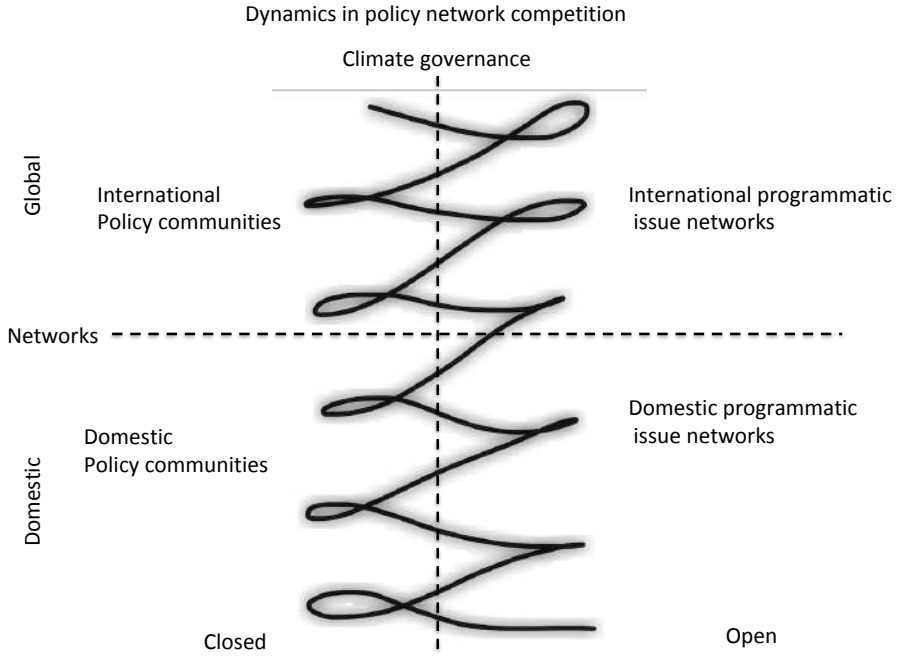
The development of the ethanol sector in Brazil dates to the 1970s, originally motivated by the first oil shock, the menace of a serious crisis in the balance of payments, and enabled by low sugar prices (Wilkinson **e** Herrera, 2010). Governmental leadership was crucial to ensure support for the so-called *Pró-Álcool* program from key stakeholders, namely Petrobras, sugarcane and ethanol producers, the car industry, and consumers. The federal government stimulated industrial production of ethanol-powered cars with a subsidy scheme. An initial target incentivised blending anhydrous ethanol to gasoline up to 22.4% (by volume) (La Rovere, Pereira and Simões, 2011).

In the late 1980s, reduced public subsidies to new distilleries due to the drop in international oil prices led to a major supply crisis. The share of ethanol-fueled cars fell to just 1.02% of new cars sold in the market by 1989. The ethanol sector survived mainly because of its improvements in air quality, compared with gasoline-fueled cars and employment generation in rural areas (La Rovere, Pereira e Simões, 2011)**.**

From 2003, a major breakthrough guaranteed a massive new investment cycle, during the early years of Lula da Silva`s government, which sought to "revive" the ethanol policy in Brazil, namely with the re-launching of the *Pró-Álcool* program. Manufacturers of direct fuel injection systems invested in R&D for the production of systems that can adjust the combustion of the fuel to any proportion of hydrous alcohol and gasohol fed directly into the tank, the so-called flex-fuel cars. Production rose immediately and, by 2007, flex-fuel cars accounted for nearly 90% of new car sales in the Brazilian market (ANFAVEA, 2007).

## 3. A Framework for Analysis: Climate Policy Network Competition in Brazil's Ethanol Transition

The analysis of Brazilian biofuel related climate policy follows the framework proposed in an earlier section in this report. The framework proposes that risk to the implementation of specific climate policies emerges from the competition between historically grown coalitions in support and opposition. These coalitions operate in networks which can be characterized as open issue networks and relatively closed policy communities (Rhodes 2015, Kitschelt 2007). 'Issue networks' emerge from common policy problems that bring political actors together in coalitions in support or opposition of specific policies that aim to solve these problems. Issue networks are typically open; that is, they present no major barriers to access. Relationships between network members are largely consultative. The resources that can be distributed through the network are limited as the main purpose focuses on the policy issue. 'Policy communities', in turn, can be characterized by their club-like nature. Policy communities persist over long periods of time. Members consciously limit the size of the network as they distribute significant resources amongst them (Rhodes 2015).
Figure 1 illustrates the two types of networks adapted for climate governance.




Source: Rennkamp 2020 in this report (4.4)
The following sections present the analysis of the competition between these two types of networks in the case of Brazilian climate policy in the ethanol sector. The analysis of the competition between issue networks and policy communities focuses on domestic and international networks. Brazil's political system is characterized by a strong notion of presidentialism in a federal republic, proclaimed in 1889. Data from policy documents, public expressions and research literature help to show the overall picture of network competition at a macro-political level in three phases. These three phases mark the presidencies of Luiz Inácio Lula da Silva, known as Lula, Dilma Rousseff, and Michel Temer, between 2003-2018.

## 4. Lula`s presidency, domestic industrial policy and «ethanol diplomacy»: Towards open policy networks?

The Presidency of Luiz Inácio Lula da Silva was characterized by a strong presidential agenda of promoting Brazilian biofuel production and export. This political agenda motivated both international and domestic biofuel issue networks.

### 4.1. International policy and open networks

The period between 2003 and 2006 was marked by an increased productivity in the ethanol sector, enabled by investments in R&D, scale gains and sector verticalization. Incentives to flex-fuel vehicles and high oil prices also sustained a favourable environment for ethanol production and export. The Lula administration understood that biofuel policy could be applied to its multilateral agenda and meet geopolitical interests, and launched what was later called the "ethanol diplomacy" (Basso, 2019, Afionis et al. 2016).

'Ethanol Diplomacy' can be considered one of the most iconic features of Lula`s government. Afionis et al. (2016) argue that Brazilian ethanol diplomacy was 'Brazil's quest to exert global leadership within the biofuels arena' (p. 129). It was a means and an end to Lula`s desire of reforming multilateral institutions (with the eventual goal of securing a permanent seat in the UN Security Council).

According to Tasca (2018), for his second term (2007 – 2010), Lula da Silva specified two aims for Brazilian transboundary action for biofuels: (i) enhancing biofuels-related technology exports to Latin American and African countries and (ii) promoting Brazilian ethanol exports and establishing ethanol as a commodity traded freely without barriers as a homogeneous good without qualitative differentiations across markets (Dalgaard, 2012; Roehrkasten, 2015). The World Trade Organization (WTO) classifies ethanol as an agricultural product, which makes it subject to corresponding rules covering taxes and subsidies. There are also the different environmental laws and technical specifications required by each country for trading in this commodity. Brazil, represented on this occasion by UNICA (Sugar Cane Industry Union) and APEX (Brazilian Exports Promotion Agency), sought to modify such status, to re-classify ethanol as an environmental product (Hira, 2011), but met with resistance especially on the part of producing – and even consuming – countries (Medeiros e Froio, 2012). A major struggle consisted of differentiating Brazilian sugar cane ethanol from US corn ethanol, to better reflect the former's much more advantageous energy balance.

International ethanol promotion was one of the main fronts in the strategy pursued by the Ministry of Foreign Affairs. Jointly with UNICA, they sought to disentangle the fuel - food competition issue and influence the European Union (EU) on its first European Directive on Renewable Energy (RED1)[1].

International cooperation was established through a few governmental entities, namely Petrobras Biocombustível, Embrapa and BNDES, the Brazilian National Development Bank. According to Basso (2019), between 2006 and 2008, Brazil launched different multilateral and bilateral initiatives regarding biofuels. Memorandums of Understanding on biofuels were signed in the India-Brazil-South Africa (IBSA) Dialogue Forum and between Brazil and the West African Economic and Monetary Union

[1] EC (2009)

(UEMOA); a working group on the topic was created in Mercosur (the common market trade group composed by South American countries); bilateral cooperation agreements were signed with Benin, Burkina-Faso, Ghana, Mozambique, Kenya, Rwanda, Ethiopia, Senegal, Nigeria, Guinea-Bissau, Algeria and South Africa; partnerships were established with the United States, the EU, Sweden, China and Japan (Machado, 2014). Embrapa – the Brazilian state-owned company leader in agriculture R&D – opened two offices in Africa (Acra and Maputo).

### 4.2. Domestic networks, interests and beneficiaries

Having collaborated with the automobile industry of São Paulo and the Brazilian Association of Automotive Engineering (AEA) to promote flex-fuel vehicles, the sugarcane industry lobbied for flexible-fuel vehicles to increase ethanol demand, creating a buffer for fluctuations of international sugar prices.

Volkswagen was the pioneer on launching a flex-fuel light-duty vehicle ("Gol" model). As part of the flex-fuel promotion policy, the Ministry of Development, Industry and Foreign Trade agreed on reducing taxes on industrialized products, an underlying maneuver to get the automotive industry onboard, represented by ANFAVEA (National Association of Motor Vehicle Manufacturers). Such choice can also be indirectly related to the macroeconomic growth engine of Lula`s era – boosting domestic consumption for emerging middle-classes, with a special focus on consumer goods such as private vehicles and white goods (Zanchetta Borghi, 2017).

The expansion of hydrated bioethanol would depend on its competitiveness vis-à-vis gasohol. Accordingly, measures were set to keep hydrated bioethanol competitive in the fuel markets, including tax incentives for the retailing and transport of ethanol (CIDE)[2] (Rodríguez-Morales, 2018).

During these initial efforts, one can also highlight the role of São Paulo state, main producer of sugarcane in Brazil and headquarters of UNICA. In São Paulo, the greatest fuel market in the country, state tax ICMS (tax on goods and services transactions) was kept at 12% for hydrated ethanol and 24% for gasoline. Local politicians kept close ties to Lula (who had been a local union leader in the state of São Paulo for decades himself) and to his Workers` Party (PT). Antonio Palocci, former mayor of Ribeirão Preto (a major sugarcane centre) actively engaged on Lula`s campaign and had a prominent role in his administration afterwards, as minister of finance.

The state of São Paulo also launched the 'Greener Ethanol' (*Etanol Mais Verde)* and other agro-environmental protocols, setting guidelines to phase out sugarcane burning for manual harvesting, replacing it with mechanical harvesting, along with actions to ensure water and soil quality, among others.

The favorable market conditions rapidly attracted new players. Companies such as Bunge, Rene Dreyfus, Cargill, Shell, Petrobras and British Petroleum searched for opportunities, in line with their ongoing activities on commodity and fuel markets worldwide. These oil companies entered the market with dual agendas: while searching for profits, they sought to improve their image in the public.

Despite the success of flex-fuel vehicles, Tasca (2018) argues that this and other incentives should rather be framed as industrial policy (including financial support from BNDES), given that central government did little to set actual guidelines for biofuel promotion. Central government efforts concentrated on Agroecological Zoning[3], specifying that areas of conservation were not eligible for sugar

[2] Laws No. 10453 and 10636 (2002).
[3] Decree No 6961/2009.

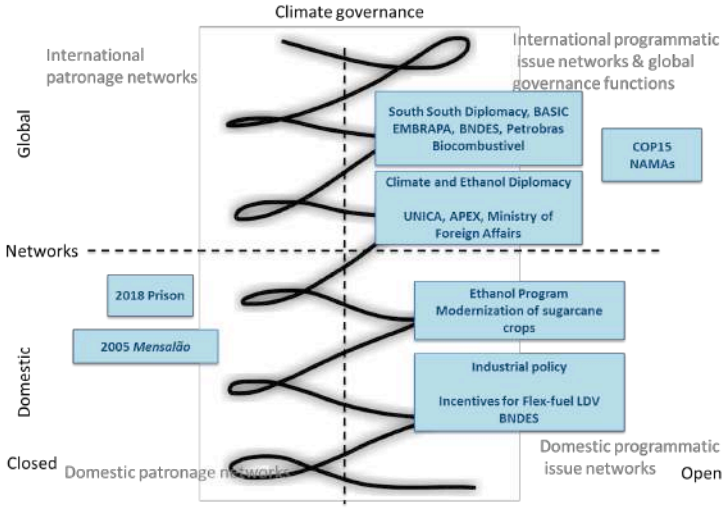
cane crops, namely in the Amazon, *Pantanal*, *Alto Paraguai*, in addition to indigenous lands and conservation units. It also addressed the enforcement of mechanization. These actions were supported by the *ProRenova* program, from BNDES, which funded renovation and implementation of new sugarcane fields.

Mostly, these were attempting to respond to the ´fuel vs. food` concerns of potential importers, particularly the US[4] and EU[5]. However, according to Mercure et al. (2019), zoning efforts remained a technical instrument of a merely indicative nature, which has never been translated into binding law as originally planned.

### 4.3. Summary

Luiz Inácio Lula da Silva`s term was characterized by an undistinguished balance between open international networks and domestic networks, with convergence between public and private sectors' objective (Rodríguez-Morales, 2018). Ethanol expansion was favored by the national and international context, namely low sugar prices, high oil prices, increasing light-duty vehicles domestic sales, political support and Lula`s positive image worldwide. The ethanol diplomacy era brought little concrete results. We can observe a dominance of activities through the operation of open international and domestic issue networks.

**Figure 2 - Biofuel policy network competition during Luiz Inácio Lula da Silva government**




## 5. Dilma: balancing Lula's ethanol heritage against Brazil's oil rush

From 2008 onwards, two major events changed the nature of the network structure and the political game: the discovery of Pre-Salt oil reserves and the international financial crisis. These events resulted in

[4] Energy Policy Act; Energy Independence and Security Act
[5] Towards an European Strategy for the Security of Energy Supply

losses of strategic and diplomatic priority of the biofuel agenda which triggered a change in the political discourse.

### 5.1. Reducing the role of open networks and the shift towards domestic patronage

In 2010, Lula succeeded in promoting Dilma Rousseff as his successor, despite an already deteriorated image for PT, following corruption scandals (such as *Mensalão*). Rousseff came originally from the energy sector, having served as minister of mines and energy. She kept close ties to traditional energy sectors and had lower abilities to bargain among actors in Brazil, compared to Lula.

Despite lower oil prices arising from the shifting international landscape, the perspectives of oil exploitation from Pre-Salt led to the government turning inward, putting Petrobras first via pricing regulations for the benefits of local actors and oil industries, at the expense of the ethanol sector – aiming at becoming a major oil exporter.

Indeed, the price control policy set in motion between 2008 and 2014 is considered a key feature of Roussef`s term. Petrobras kept gasoline prices lower than import prices. In addition, *CIDE combustíveis*, the tax on automotive fuels was reduced until full exemption was granted between 2012 and 2014. This mismatch between international oil and domestic gasoline prices was a short-term measure to control high inflation rates. The choice of keeping gasoline prices artificially low for such a long time led to a huge deterioration of Petrobras` financial situation, since it accommodated the associated losses. By the time the deep offshore oil auctions started, in 2013, Petrobras had no financial capacity to invest and keep up with partnerships, as required by law (Basso, 2018).

In the beginning of this period, many distilleries were already indebted, many of which were partially or fully owned by foreign companies (Wilkinson e Herrera, 2010). Drivers included high production costs (including fertilizers), adverse climatic conditions and the financial crisis itself.

Having disbursed significant amounts in biofuels, BNDES also saw itself in financial struggle. Between 2004 and 2008, BNDES - through its Department of Biofuels - increased its investment in ethanol projects from R $ 590.5 million in 2004 to $ 3,557.7 billion in 2008 (Milanez, Filho e Rosa, 2008).

Under these circumstances of great indebtedness of the sector, the measures adopted by the Ministry of Mines and Energy (MME) for the ethanol complex met resistance from the Ministry of Finance. On the one hand, the MME presented modest measures aimed at reducing the crisis of the sector (e.g. limited resources for *ProRenova* to foster the renewal of cane plantations funded by BNDES)[6] and, on the other hand, the Ministry of Finance sought to cope with a fiscal crisis and controlling inflation rates.

Following a small supply crisis of anhydrous ethanol (the one that is blended in gasohol, and therefore can lead to higher gasoline prices and inflation), a new regulation was passed in 2011[7]. The National Oil Agency (ANP) established the maintenance of minimum stocks of ethanol in the off-season period (diminishing producers' ability to choose between ethanol and sugar in response to market prices). This landmark increased ANP's control of the biofuels market, motivated by a concern for energy security. It is clear however, that it aimed at ensuring the supply of anhydrous ethanol only.

[6] Laws 12877 and 12865 (2013); Decree 8079/2013

[7] Resolution 67/2011

According to Tasca (2018), even with the lower international sugar prices from 2013 and reduction of investments in Pre-salt, the ethanol complex could not initiate a counteroffensive. Some reasons for this are:
(i) the singularity of Brazilian politics dominated by short-term policies in order to maintain the particularism of national oligopolies (especially those linked by hydrocarbons) (Viola, Franchini e Ribeiro, 2013); and (ii) the close relationship between the oil complex and the core of the executive (e.g. financing of political campaigns, while the ethanol complex encountered difficulties in dialogue during the two governments of Rousseff).

In fact, there is a clear distinction between the contact channels available for the oil and the sugarcane sectors concerning political decisions in the central government. The State is the major shareholder of Petrobras - a company that has been systematically used as a means for politics, including bribery and embezzlement. Meanwhile, the sugarcane sector is primarily private, so that it must resort to other channels of action in order to meet its interests (legislate, civil society, national agencies and unions).

A third reason emerges from the need to build refineries for the production of derivates from Pre-Salt reserves. On this issue, there was great pressure in the National Congress, especially in the Chamber of Deputies (lower chamber) - the one with the highest number of representatives linked to the oil and energy sector, for the construction and decentralization of these refineries in their regions and electoral bases.

The use of gasoline prices as a "heterodox economic tool" as defined by Basso (2018) was decisive for the outcome of the 2014 presidential elections - a very tight second term between Dilma Roussef and Aécio Neves. The fact that PT managed to keep gasoline prices artificially low for so long (alongside with reducing CIDE) reveals some level of instrumentalization. It also contributed to a certain verticalization trend of the sugar and alcohol sector in Brazil (Wilkinson e Herrera, 2010). Major groups capitalized on the smaller and scattered producers which found themselves in financial difficulty.

### 5.2. Gearing up for Paris while *Lava Jato* takes off

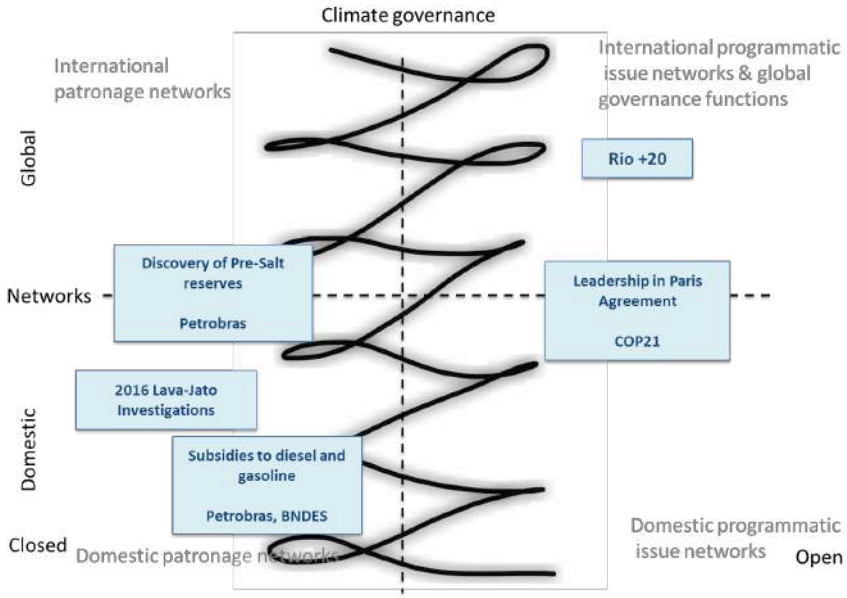
The worsening of the financial status of Petrobras, coupled to corruption scandals revealed in the *Lava Jato* operation were major drivers of the increasing disapproval of Rousseff's government, which led to her ousting in 2016. The price of Petrobras` shares collapsed, with minority shareholders filing lawsuits in the United States, where Petrobras shares are also listed. The corruption scandals that followed would increase the number of class actions (Basso, 2018).

Notwithstanding the delicate domestic situation, the Brazilian contribution to the success of the Paris Agreement outcome was decisive. The Brazilian intended Nationally Determined Contribution (iNDC) consisted of an economy-wide reduction in GHG emissions of 37% in 2025 and 43% in 2030, compared to 2005 levels (2.1 Gt $CO_2$e). Key biofuel-related measures in the pledge aimed at increasing the share of sustainable biofuels in the Brazilian energy mix to approximately 18% by 2030, by expanding biofuel consumption, increasing ethanol supply, including advanced biofuels (second generation), and increasing the share of biodiesel in the diesel mix (Brazil, 2015).

### 5.3. Summary

The discovery of Pre-Salt reserves contributed to undermining coordinated efforts on ethanol development previously put in place. The growing dominance of the oil sector networks dominated at the end of Rousseff's presidency. These included the changes in the domestic subsidy regime and a growing patronage network which extracted rents from the Pre-Salt project through civil engineering companies. Despite these domestic changes, the government under Dilma Rousseff continued to serve the international climate agreement and the monitoring of the deforestation activities to meet the national emission reduction targets.

**Figure 3 - Biofuel policy network competition during Dilma Rousseff's presidency**




## 6. Temer holding the fort (2015-2018):

When Michel Temer took over in 2016 as Acting President, the Brazilian sugar and alcohol sector found itself in troubled waters, with several bankrupted plants. Petrobras announced its 2017-2021 Business Plan, determining the integral withdrawal from the biofuel sector, as part of its attempt to recover financial health (Agência Petrobras, 2017).

In addition, rules for exploring Pre-Salt reserves immediately changed, leading to a lower mandatory participation share for Petrobras, benefiting private and foreign companies. The government also established tax breaks for the oil producing sector, as well as reduction of import tariffs for Exploration and Production E&P equipment[8]. In addition, new guidelines also established a revised price policy for oil products, responding to international oil prices. Fuel prices rapidly soared, with higher diesel costs severely impacting freight activity. This led to a major 'truckers strike' in May 2018, with

[8] Provisional Measure No 795/2017

supply shortages across the country. However, it also contributed to levelling the playing field for the sugar and alcohol producers, which had been struggling in the previous years.

### 6.1. *RenovaBio* – Biofuel development as a lever to meet NDC targets

In contrast to Petrobras` withdrawal from the biofuel sector, the Temer administration launched the *RenovaBio* programme[9], formally approved by Congress in 2018. This was a new attempt to foster biofuels production in Brazil based upon market predictability, sustainability and the imperative of climate change mitigation.

Inspired by California's Low Carbon Fuel Standards (LCFS), *RenovaBio* includes the following mechanisms: (i) targets for GHG emissions reduction in the fuel mix, including individual targets to distributors (ii) decarbonisation credits, (iii) biofuel certification, (iv) addition of biofuels to fossil fuels, (v) incentives on tax, finances and credits (Mercure *et al.*, 2019). *RenovaBio* sought to reduce the carbon intensity of the Brazilian fuel supply, contemplating the following products: gasoline, diesel, aviation kerosene; vehicular natural gas; anhydrous ethanol; hydrous ethanol and biodiesel. It targeted a 10% reduction of carbon intensity up to 2028[10].

ANP regulated the certification of efficient biofuel production or importation and the accreditation of certifying firms[11]. Producers and importers willing to join the programme were required to hire such companies in order to carry out the Biofuel Certification and validate their Energy-Environmental Efficiency Note, valid for three years from the date of its approval by the ANP.

Distributors must prove compliance with compulsory individual targets through the purchase of Decarbonization Credits (CBIO), a tradable financial asset derived from the certification of the biofuel production process based on the respective efficiency levels achieved in relation to their emissions. In addition, those who voluntarily join the program may trade these credits from certified production.

An endeavour initially promoted by the ethanol producers with influence on the Ministry of Energy and Mines (MME), *RenovaBio* relied on extensive support from governmental entities, producers` associations and cooperatives, workers` unions, the civil society, among others. The Brazilian based vehicle manufacturers have perceived the programme in alignment with their strategic planning, because it contributes to slowing of the transition from internal combustion vehicles to BEV and hybrid motor technology. This trend is unique to the Brazilian situation and cannot be found in countries with lower biofuel availability.

The Brazilian Confederation of Agriculture and Livestock (CNA), in contrast, argued that farmers should also be entitled to the earnings derived from efficiency gains, exclusively directed to agents associated with the biofuel production. Given that *RenovaBio* established the regulation point at the distribution stage, fuel distributors have argued that it tends to favour producers, at their expense. Brazil has nearly 40 fuel distributors, many of which are affiliated to *Plural*, one of the institutions partially resistant to the programme.

[9] Law No 13576/2017

[10] Reaching 66.75 $gCO_2eq/MJ$, compared to 74.25 $gCO_2eq/MJ$ in 2017.

[11] Resolution 758/2018

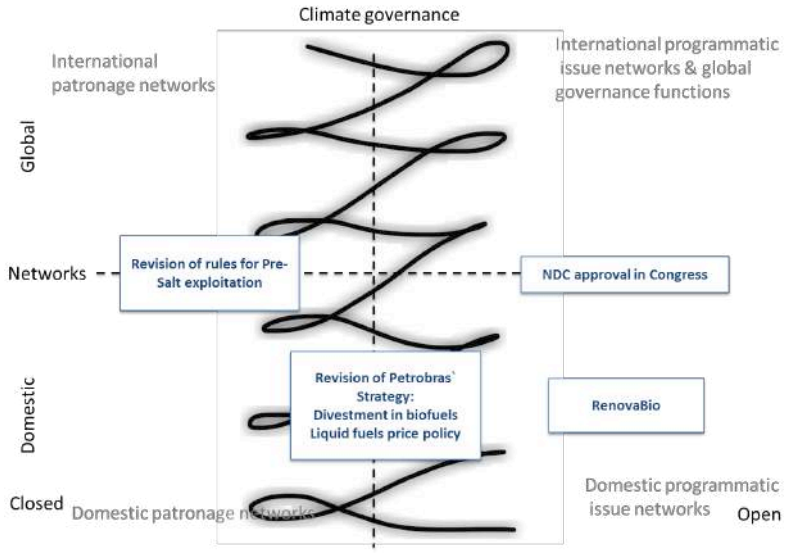
**Table 1 - Discourse in support of and opposition to RenovaBio**

| Main arguments pro RenovaBio | Main arguments against RenovaBio |
|---|---|
| Increased share of sustainable biofuels in energy matrix<br>Contribution to NDC achievement<br>Reduced demand and external dependency on fossil fuels<br>Job creation | Pressure on energy prices<br>Pressure on land use and food prices<br>Loss of international competitiveness |

### 6.2. Summary

The incentive system under the Temer administration pulled in opposite directions. Governmental investments in the biofuel sector were withdrawn, while the government announced an ambitious long-term biofuel program, the *RenovaBio*.
This period is also characterized by incentives to the oil sector and changing rules for Pre-Salt exploitation, detrimental to Petrobras` participation.

**Figure 4 - Biofuel policy network competition during Michel Temer's presidency**




## 7. 2019 - the first year of Bolsonaro's presidency

Jair Bolsonaro`s election signaled changes in multilateralism and climate diplomacy, for example the refusal to host the United Nations Conference of the Parties (UNFCCC COP25), initially planned to take place in Brazil. Amazon deforestation rates have been soaring, driven by the weakening of control activities and laxer penalties for illegal environmental practices. The rise of deforestation rates poses a

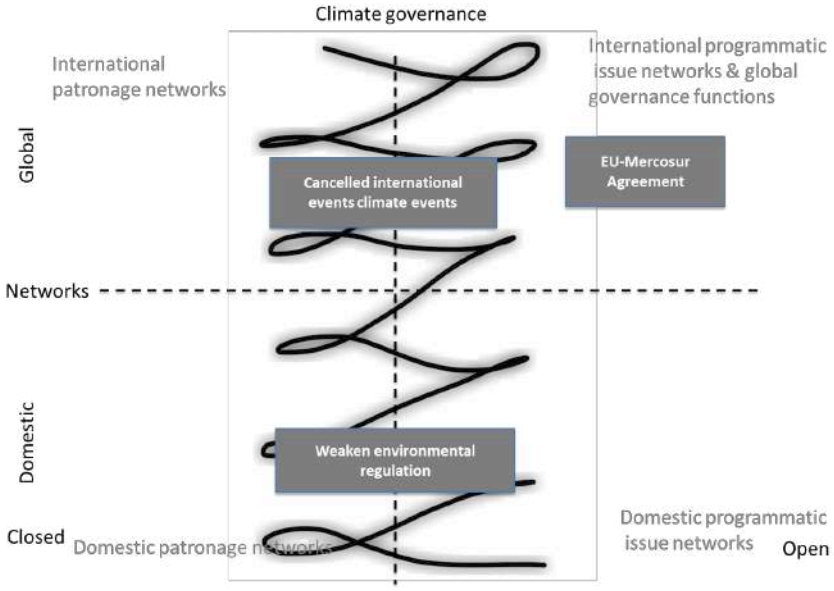
major challenge for Brazil to meet its NDC targets, which requires the total elimination of illegal deforestation in the Amazon by 2030.

At the same time, perspectives for the biofuel sector are fairly positive, with producers recovering from the tough years experienced during the gasoline price control period. The major bet on *RenovaBio* was low international sugar prices which result from massive governmental subsidies in India, a major player on the sugar market. In addition, the possibility of mandatory blending of ethanol in the fuel mix in major economies such as China, India and other Asian countries also cheered investors. Harvests have nevertheless remained at similar levels, partially due to decreasing productivity resulting from the lack of investments in field renovation.

In parallel, the continuity of tariff exemptions and higher quotas has been granted to US corn ethanol imports[12]. Notwithstanding a laxer protection regarding imports, Brazilian producers expect better access to the US market for Brazilian sugar in exchange, even though this has not been determined yet.

To what extent the negative repercussions of the Bolsonaro-led environmental policy on the international arena will spill over into the biofuel sector is still to be revealed. It has held up important negotiations, namely the EU-Mercosur agreement, which foresees trade quotas for Brazilian ethanol (including ethanol for industrial use) and sugar. The massive international repercussion of fires and higher deforestation rates, as recently experienced – a 29.5% increase compared to 2018 (INPE, 2019) - can undermine Brazil`s bargaining power in securing access to European markets.

**Figure 5 - Biofuel policy network competition during Jaír Bolsonaro's presidency**




[12] Ordinance 547/2019

## 8. Conclusion

This study analysed the ups and downs of Brazil's ethanol cycle that started with the advent of flex-fuel cars up to the present day (November 2019). The Brazilian strategy for ethanol can be framed as a transition to low carbon. The evidence suggests that, from 2003 on, Brazil has not fostered a long-term, perennial policy for ethanol, but has rather acted under existing circumstances. In spite of the country`s efforts to foster the creation of a global commodity market for ethanol, domestic biofuels policy responded to variables beyond oil and sugar prices. These include election-oriented decisions and the role of the conservative socio-political force usually linked to fossil energy (Tasca, 2017).

Biofuel development is an underlying element in low carbon scenarios consistent with the Paris Agreement goals (UNFCCC 2015, La Rovere et al., 2018; Neves et al., 2019). In Brazil, there are currently strategic plans aiming at increasing the biofuel share in the transportation sector. However, an analysis of the past decades shows that the implementation of biofuel-related policies was subject to unbalanced power relations. The incentives and policies set in place will determine if the biofuel sector will contribute to reaching the Brazilian NDC goals at its full potential. A process exempted from instrumentalization and protected from the influence of powerful opposing coalitions is needed to ensure such transition.

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## 10. Annex: RenovaBio stakeholder network

| Supporting actors: | Opposing actors |
|---|---|
| Associação Brasileira de Biogás e Biometano<br>Associação Brasileira de Biotecnologia Industrial<br>Associação Brasileira de Indústria de Máquinas e Equipamentos<br>Associação Brasileira do Agronegócio<br>Associação Comercial e Industrial de Araçatuba<br>Associação Comercial e Industrial de Piracicaba<br>Associação das Indústrias Sucroenergéticas de Minas Gerais<br>Associação dos Micromunicípios da Região do Vale do Rio Grande<br>Associação dos Plantadores de Cana da Paraíba<br>Associação Mineira de Municípios<br>Associação Pró-Desenvolvimento Industrial do Estado de Goiás<br>Centro de Integração Empresa-Escola<br>Coalizão Brasil Clima Florestas e Agricultura<br>Confederação Nacional da Indústria<br>Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável<br>Conselho Regional de Engenharia e Agronomia do Mato Grosso do Sul<br>Consórcio Interestadual de Desenvolvimento do Brasil Central<br>Cooperativa dos Plantadores de Cana<br>Federação da Agricultura e Pecuária do Estado de Alagoas<br>Federação da Agricultura e Pecuária do Mato Grosso do Sul<br>Federação das Indústrias do Estado de Goiás<br>Federação das Indústrias do Estado de Minas Gerais<br>Federação dos Plantadores de Cana do Brasil<br>Organização dos Plantadores de Cana da Região Centro-Sul do Brasil<br>Secretaria Estadual de Agricultura e Abastecimento de São Paulo<br>Secretaria Estadual de Agricultura, Pecuária e Irrigação do Rio Grande do Sul<br>Secretaria Estadual de Desenvolvimento Agropecuária e Pesca<br>Sindicato dos Trabalhadores da Indústria do Açúcar de Minas Gerais<br>Sociedade Rural Brasileira<br>União dos Produtores de Bioenergia | PLURAL<br>CNA (partially) |

| | |
|---|---|
| ÚNICA - União da Agroindústria Canavieira do Estado de São Paulo<br>ABIOVE - Associação Brasileira Indústrias Óleos Vegetais<br>APROBIO - Associação dos Produtores de Biodiesel do Brasil<br>FNS - Fórum Nacional Sucroenergético<br>Viralcool<br>IBP – Instituto Brasileiro de Petróleo, Gás Natural e Biocombustíveis<br>Montadoras (ex. FIAT)<br><br>***RenovaBio Committee:***<br>MME – Ministério de Minas e Energia<br>MMA – Ministério do Meio Ambiente<br>MAPA – Ministério da Agricultura e Pecuária<br>MDIC – Min. Desenvolvimento Industrial<br>MF – Ministério da Fazenda<br>MPDG - Ministério do Planejamento, Desenvolvimento e Gestão<br>CC/PR – Casa Civil<br><br>***Guests:***<br>MCTIC - Ministério da Ciência, Tecnologia, Inovações e Comunicações<br>MTPA - Ministério dos Transportes, Portos e Aviação Civil<br>MRE – Ministério das Relações Exteriores<br>ANP – Agência Nacional de Petróleo, Gás Natural e Biocombustíveis | |


Horizon 2020 Societal challenge 5: Climate action, environment, resource efficiency and raw materials

# COP21 RIPPLES

## COP21: Results and Implications for Pathways and Policies for Low Emissions European Societies

# Coal in Transition in China

By Teng Fei

## Introduction

The role of coal in China is complex and changing. This short paper aims to provide a storyline to understand the changing role of coal in China's climate and environmental policy. The paper aims to explain two things: firstly, why coal has begun to be phased out from China's energy system and what the future of such transformation could be; and secondly, what the impact of this coal phase out is, and how China is trying to manage it.

## 1. Changing role of Coal in China's Energy System

China is both the biggest coal consumer and coal producer in the world. In 2015, China produced 3.7 billion tons of coal (including both steam coal and coking coal) and consumed 3.97 billion tons of coal, accounting for 47% of global production and around 50% of global consumption. The energy mix in China is also dominated by coal with a share of 64% in primary energy, much higher than the world average of 28%. The four biggest coal consuming sectors are power generation, iron and steel industry, the construction material industry and the chemical industry.

Due to its energy endowment, China is regularly described as a country with "rich in coal, lack of oil and gas". To secure the energy supply for economic development, energy security has become a major cornerstone for China's energy policy in past decades. And as a major coal producing country, domestic coal production provides a sound basis for energy security. At the early stage of China's energy policy, energy security was understood as the share of domestic resources in overall energy supply. Because of its relatively wide availability, coal is recognized as a "dominant" energy resource in China. Because of the lack of oil and gas resources, coal is also regarded as a strategic resource to generate gas and oil through coal-to-gas and coal-to-liquid technology. Although oil and gas prices have declined substantially from their peak, making coal-to-gas and coal-to-liquid technology no longer profitable, those technologies are still alive.

Although coal has been considered as a safe and domestic resource, domestic supply was not sufficient to supply the fast growth of China's economy. Coal is the main raw material and fuel for industry sectors. Due to the rapid expansion of energy-consuming industries in coastal areas, China's coal import also increased fast. The rapid expansion of production capacity and output

of energy-consuming industries in coastal areas has prompted the rapid expansion of coal demand in thermal power, metallurgy, and building materials, etc. Most imported coal is thermal coal, followed by coking coal, accounting for about 2/3 of overall coal imports, which is much higher than anthracite coal and other coal. This is consistent with the rapid expansion of the heavy chemical industry in coastal areas, and also the increased power generation capacity located in coastal areas due to the advantages of lower shipping costs.

For a long time, the amount of imported coal remained relatively low. But after 2008, coal import has boomed at an unprecedented rate. In 2009, China imported more than 100 million tons of coal, and then become the largest importer in 2011. Coal import exceeded 200 million tons and 300 million tons respectively in 2012 and 2013. In 2018, Chinese coal import amounted to about 280 million tons. In contrast, coal exports dropped substantially over the past decades. Export volume had been increasing from the 1980s to the beginning of the 21st century, especially after the 1998 financial crisis. The export volume in 1980 was only 6.32 million tons, reaching 36.48 million tons in 1996 and a peak of 93.88 million tons in 2003. Since then, exports have declined rapidly, dropping to 45.43 million tons in 2008 and reaching 7.51 million tons in 2013, which was 8% of exports in 2003.

The rapid changes in coal imports and exports have effectively supported the socio-economic development of China's coastal areas and eased the gap between its energy supply and demand. However, it also shows that the social and economic development of China is increasingly dependent on imported coal, which became an energy security concern for the government. Thus, the interpretation of energy security began to shift from “depend on domestic resource” to diversification over various resources, including both fossil fuels and non-fossil fuels.

The fast development of non-fossil fuel energy resources became more attractive for the government to achieve energy security. Domestic nuclear technology is cost-competitive with coal but limited by concerns about nuclear safety and the availability of feasible plant sites. The cost of solar PV and wind turbines have declined substantially in recent decades due to both technology innovation and subsidies. Energy conservation also constitutes a solid basis for a new concept of “energy security” through managing the incremental energy demand.

The changing understanding of energy security provide an important political circumstance for phasing out coal. It no longer focuses exclusively on domestic coal but tends to diversify among various domestic fossil and non-fossil resources. The new concept of energy security

concentrates both on demand and supply, and even prioritizes energy conservation to curb fast growing energy demand. The cost-effectiveness of non-fossil fuel technology is also improving, the installation of non-fossil fuel capacity can in the meantime almost meet the increasing energy demand.

## 2. Defending the Blue Sky

Coal is also the biggest source of air pollutants in China, accounting for 91% of $SO_2$, 69% of $NO_x$ and 52% of primary $PM_{2.5}$ emissions. Coal consumption has grown very fast in past decades from 1.3 billion tons in 2000 to 3.5 billion tons in 2013, with an annual growth rate of 6.5% in the period 2000-2016. In 2014, for the first time coal consumption stopped growing and decreased by 3%. In 2015 and 2016, coal consumption was reduced further by 3.5% and 4.7%, respectively. For 2017, the initial statistics of the National Bureau of Statistics show a slight 0.4% increase. However, most experts consider this increase a short-term effect due to the rebound of energy intensive industry.

The reduction of coal consumption in China is a combined effect of several factors. These include: the slowdown of economic growth and restructuring of the economy, known as the "new normal"; efforts to pursue air quality; and actions on climate change.

Air quality is a key driver in the process of coal transition in China. In the report on global burden of disease by the World Health Organization, particulate matter in outdoor air quality ranked fourth in overall health burden risk factors of China (Sun et al, 2016). Coal related $PM_{2.5}$ emissions were responsible for about 670,000 premature death in 2012, through chronic obstructive pulmonary disease, lung cancer, stroke and ischemic heart disease (Yang and Teng, 2016).

The production, transportation and consumption of coal in China also reinforces environmental problems in other sectors, such as water scarcity, soil erosion, vegetation degradation and desertification. Those environmental costs associated with coal are not fully reflected in China's coal pricing system and are framed as the "hidden cost" of coal. According to a study of Tsinghua University, the real cost of China's coal production and consumption is about 260 yuan/ton of coal ($37.65/ton). Although parts of China's pricing mechanism take these costs into consideration, the level of environmental taxes is not enough to internalize external costs. China's current coal pricing mechanism only has 30-50 yuan/ton of coal in environmental taxes,

mostly focused on the production side, with only 5 yuan/ton in coal pollution fees on the consumption side.

In 2014, the state council issued the National Energy Development Strategy Action Plan (2014-2020), and clearly stated that, by 2020, the total annual coal consumption should be capped at 4.2 billion tons/yr, and the share of coal in primary energy consumption should be below 62%. In the 13th Five Year Plan (2016-2020), China included for the first time a target of a national coal consumption cap of 4.1 billion tons for 2020, a more stringent target than the 4.2 billion tons mentioned in 2014. The environmental protection chapter of the 13th Five Year Plan adds a goal of reducing the primary energy share of coal to 58% by 2020, from 64% in 2015, also more stringent than the targets set in 2014. Recognizing that air quality is a regional issue, the Five Year Plan also establishes specific coal consumption reduction targets for specific regions, such as 10% for the Jing-Jin-Ji region and the Pearl River Delta, 5% for the Yangtze Delta. If these regional targets can be fulfilled by 2020, this will result in a reduction of 140 million tons in coal consumption in these regions by 2020 compared with 2015.

The concept of coal control was first raised by the Ministry of Environment Protection (MEP) in 2011, due to the increasing concern about air quality in some areas of China. MEP firstly develop the idea of "Piloting the total coal consumption control in key regions". The pilot regions included Beijing-Tianjin-Hebei (the cities around the capital area of China), the Yangtze river delta, and the pearl river delta. These three areas are characterized by a higher per capita income but worse air quality, compared with other regions. In November 2016, the government of China approved the 13th Five Year Plan on Energy Development. In this plan, for the first time, China announced a mandatory goal to control coal consumption, that is to reduce the share of coal in primary energy to 58%. This coal control target has significant implicationsfor China's energy policy, environmental policy and climate policy. Since then, the phase down of coal has become a national strategy, an important part to achieve the goal of "defending the blue sky". In 2018, the Chinese government announced "the three years plan on defending the blue sky", with a view to reducing the concentration of PM2.5 by 18% compared with 2015 levels, to increase the number of good air quality days in the prefecture-level cities and above to 80% by 2020. Those targets are also mandatory in the 13th Five Year Plan which means non-compliance with the target will have consequences for political leaders.

## 3. Managing the Transition

It is important to explain the ownership of China's coal industry before the discussion of its transition. China has more then 6,800 firms in the coal sector with over 10,000 mines. State-owned enterprises account for more than 80% of coal production in China. Small coal enterprises are mainly owned by small private companies with a share of lower than 20% in overall production. Most of the small private mines have been closed because of the more stringent environmental and safety regulation. Thus, the phase out of coal production capacity is mainly to occur within state-owned coal companies.

The first issue is how to decide which production capacity needs to be phased out. The government made a "one size fits all" policy for all coal producers. The policy was issued in April 2016 and required all coal mines to reduce their working days to 276 days. This policy is equal to imposing the same discount factor on production of all existing capacity stocks. Another policy to implement the coal phase out is to trade production quotas. This policy is mainly for new coal capacity addition. Although the central government has banned most of the newly added capacity, some new production capacity is still needed due to various reasons. The central government requires any newly added capacity to acquire the capacity quota from other producers who are willing to close their mines. The basic idea of such production capacity quota policy is to minimize the overall cost during the phase out through a market-based mechanism.

Although most of the coal phase out costs are on state-owned companies, the impact on workers is still challenging. As an average, about 2,000 coal mine workers will lose their jobs for one million tons of capacity phased out. From 2016 to 2017, China phased out 440 million tons of coal production capacity, which means resettlement of 0.8 million coal mine workers. Most workers have been resettled within the enterprise, because most state-owned coal companies also operate other energy businesses such as power plants and chemical plants. The government also prepared a 100 billion RMB fund to support the resettlement of unemployed workers in energy-intensive industries. As the overall financial needs to resettle the unemployed workers is much higher than the government fund, the central government also required local governments to identify financial resources for workers' resettlement. However, the provinces with rich resources suffered not only from the burden of phase out but also from a loss of tax revenue. Thus, local political leaders hope that the central government can provide more finance and policy support to local governments.

The third issue is the debt of coal industries due to stranded assets. Along with the declining production and capacity, most coal firms also face serious cash flow problems. Those enterprises have to rely on their parent company to provide additional support or use short-term debt to pay off long-term debt, making the company's debt ratio rise substantially. One puzzle for the government is whether or not to require banks to provide credit to coal companies. Banks worry that the coal industry's rate of non-performance on debts will increase substantially, and poor handling may increase the risk for the financial system. However, if they do not provide credit to the coal industry, the debt crisis may happen right now. One solution pursued is the plan of "debt to equity", which can play a role in addressing those problems. However, the success of the debt to equity solution depends on the design; without careful design, it may even worsen the problem. Banks do not have capacity to operate the coal business, and some coal companies may be no longer viable due to the climate change agenda which requires the complete phase out of coal around 2050.

## 4. Conclusion

To conclude, the phase out of coal initiated in China is driven by the air quality target which requires coal consumption to be reduced as a major resource of particular matters. The changing concept of energy security removes barriers of coal phase out because the new concept of energy security focuses on diversification and replaces the old concept which mainly relied on domestic energy resources. One key characteristic of China in this process is the state ownership of coal companies which makes the transition much easier because of the strong government control of the industry. However, this does not ease the transition process because the enterprises still suffer from the cost of resettlement and financial loss. Because of the relative weak negotiation power of coal industry with the government, the industry takes a major share of the burden, although the government also provides support for workers' resettlement and debt issues. The fundamental issue relates to the who and and how of the mobilization of the financial resource to deal with the cost associated with the coal phase out. The coal phase out in China was initiated in 2016 to 2018. Although 440 million tons of coal capacity has been phased out, there are still more than 4 billion tons of coal production capacity remaining. They will also need to be phased out to achieve the Paris Agreement goals, which will be even more challenging and unprecedented.

# Political Implementation Risk in South African and Brazilian Climate Policy

Britta Rennkamp

## Abstract

The Paris Agreement has changed the structure of international climate policy. Nationally determined contributions (NDC) stand at the core of the Agreement, providing a vehicle for loosely coordinated international cooperation. What can go wrong with this approach that emphasises the implementation of national climate action as the critical solution to the world's climate crisis? While most scholarly attention focuses on large emitting nations in the Europe, North America and East Asia, this analysis investigates the political risk associated with the implementation of the NDCs of the largest emitters in Latin America and Africa: Brazil and South Africa. These two nations also count as the most unequal societies in the region. The paper assesses political implementation risk within the structures of domestic environmental and climate policy networks. The central argument is that climate policy outcomes emerge from negotiations between competing implementation networks, which operate partially as open programmatic issue networks and partially as closed policy communities in the same climate policy arena. While issue networks attract large numbers of interested actors who engage in national public climate policy debate, policy communities are much smaller, dominated by like-minded actors who protect the sources of resources divided between them. These historically grown networks resist climate policy change as they might potentially lose from technological change and ambitious climate action. Both Brazil and South Africa have witnessed changing balances between open climate policy networks and closed communities, which aim to protect the status quo. Global governance functions have been influential in strengthening domestic climate policy networks, in the Earth Summits in Brazil and the COP 17 in South Africa. Actors in open climate policy networks are currently battling against severe institutional decline that creates high risks for the successful implementation of the respective NDCs. The implementation of the Brazilian NDC is highly threatened by the high deforestation rates and the deconstruction of the environmental governance system over the course of 2019. EU limitations to the import of agricultural imports from Brazil can strengthen open climate policy networks and turn the beneficiaries of the current administrations into opposition. The current president of South Africa is open and active in strengthening open climate networks, but internal opposition is threatening his thin majority. Hosting another major UN Conference in South Africa can help to strengthen the actors in open networks and boost the implementation of renewable energy infrastructure, which is essential to the country meeting its NDC.

## Table of Contents

## 1. Introduction

The Paris Agreement on Climate Change (PA) marked a success in the international negotiations of climate change, which raised expectations of breaking with the inertia of decades of ineffective international climate governance. Nationally determined contributions (NDC) stand at the core of this Agreement. NDCs are voluntary, not legally binding, submissions to the UN by individual nation states which articulate national actions and measures to the goals of mitigating and adapting to the consequences of climate change. The Paris Agreement builds largely on 'soft' power as all Parties, independent of their levels of socio-economic development, can determine their contributions to achieving the global temperature goal. Obligations under the Agreement do not bind Parties to achieve what they have communicated in their NDC, but to "pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions" (Paris Agreement 2015, Oberthuer 2016).

Successful implementation of the national climate actions communicated in the NDCs would lead to sizeably lower aggregate global emission levels than on pre-INDC trajectories (UNFCCC 2016). Yet, here are numerous risks and uncertainties associated with the implementation of the actions proposed in individual NDCs. Implementation risks of climate action under the NDCs occur at both international and national levels. Risks emerge from the structure of the Agreement as well as its integration (or lack thereof) with domestic policy and action.

This paper investigates the political implementation risks and policy networks associated with the energy related climate action outlined in the NDCs of two major emitting and highly unequal societies in the Global South: Brazil and South Africa. The central argument suggests that political implementation risks emerge from competing policy networks that pursue strategies towards opposing or supporting specific climate actions and energy policies in line with their respective interests. The paper presents an analysis of policy networks and political actors that shape competing coalitions in support and opposition to energy-related climate actions central to the first NDCs communicated to the UNFCCC by the governments of Brazil and South Africa.

The paper is structured as follows: section 2 presents the conceptual and empirical literature related to the research problem, drawing on the literature on political risk, implementation risks, policy networks and the role of international governance networks (Hanger and Kopp et al. 2019, Mischen and Jackson 2008, Rhodes 2015, Dai 2010). Section 3 introduces the framework for the analysis and the methodology. Section 4 presents the analysis of policy networks and political implementation risk associated with energy-related climate actions in Brazil and South Africa. The final section synthesizes and summarises the findings.

## 2. Political implementation risk and climate policy networks Post-Paris

Risks and uncertainty form a central part of climate policy processes as they address unknown futures. The IPCC defines risk broadly as "the potential, when the outcome is uncertain, for adverse consequences on lives, livelihoods, health, ecosystems, economic, social and cultural assets, services (including environmental services), and infrastructure" (IPCC, 2014, p. 1772). This definition identifies uncertainty as a source of risks. Uncertainties emerge from unknown events in the future. Risks are potentially negative consequences, as opposed to positive opportunities. Risks result from uncertainties and can impact on any aspect of human life, economic activity and nature. The IPCC definition distinguishes various risks associated with climate change (risks of climate impacts, vulnerability, market and technology risks). The IPCC provides no definition of political risk. This paper uses Hanger

Kopp's definition of uncertainty, as the 'general absence of knowledge of about future outcomes, which can be either positive or negative'; risks more specifically refer to 'a calculated or perceived potential for negative impacts' (p. 11) in instances of uncertainty (Hanger Kopp et al 2019).

### 2.1. Political risk and implementation

Political risk generally focuses on risk that political conditions and decisions may affect the profitability or return of investment of economic actors (Matthee, 2011), such as through unexpected changes to "the rules of the game" under which businesses operate (Butler and Joaquin 1998). This risk is generally quantified through the use of sets of indicators, which include measure of the quality of democratic accountability, bureaucracy, law and order and corruption (ICRG 2019, Transparency International 2019, Freedom House 2019).

Political risks can be divided into implementation risks and consequential risks. While consequential risks refer to the potentially negative consequences of an implemented policy, implementation risk is the risk to policy which potentially prevents it from being designed or implemented. While implementation risk is the focus of this paper, it is acknowledged that these two forms are interrelated, for example as "consequential risk may become a cognitive barrier to the implementation of a pathway and turn into an implementation risk" (Hanger-Kopp et al., 2019, p. 14). Risk can also emerge from policy results that turn out to be much less impactful than anticipated.

However, risk is also subjective and risk perceptions can be be individual or shaped by epistemic groups (Hanger and Kopp et al., 2019). The literature distinguishes between 'epistemic uncertainties' and 'aleatory uncertainties', as sources of risk perceptions. Epistemic uncertainties can be reduced by human action, such as increasing knowledge and information, while aleatory uncertainties result from the physical nature of things (Hanger-Kopp et al., 2019, p.12). Political risk emerges from epistemic uncertainties and individual and epistemic perceptions define these uncertainties.

### 2.2. Political risk and climate policy networks

Policy networks can be defined as 'sets of formal institutional and informal linkages between governmental and other actors structured around shared, if endlessly negotiated, beliefs and interests in public policy making and implementation' (Rhodes 2008). Policy networks shape, enable and constrain political action. The analysis of policy networks helps to understand the nature of relationships between political actors and the ways they operate, which is why their analysis is essential to understanding policy outcomes, institutional order (polity) and conflicts of interests (Schneider 2009, Victor et al 2017).

What do we know about policy networks that are specific to climate change? Climate policy network analyses frequently centre on the macro-economic and macro-political factors that determine different levels of ambition in national climate policy. Explanations range from levels to democracy to power of fossil fuel association to the influence of international norms by international organisations (Baettig and Bernauer 2009, Stevenson 2011). Policy network analysis has centred on specific climate policies with the aim to understand discourse and action, debates, postitions and power relations as part of the processes that enable or hinder climate policy change (Ylä-Anttila et al. 2018, Broadbent 2018, Boulle 2018, Mander 2008, Rennkamp 2019). Climate policy networks operate as transmission mechanisms between the international and national levels. These networks frame the 'bigger picture' in the national policy arenas where the debates over individual policy processes emerge. This analysis adds to understanding this middle level between national and international actors to understand the bigger picture of climate policy networks.

The analysis adopts distinguishes between 'issue networks' and 'policy communities', which emerged in the early stages of network theoretical explanations for the distribution of resources and power relations between political actors (Marsh and Rhodes 1992, Marsh 1998). This conceptual distinction resembles the continious competition which we observe between energy security and sustainability narratives which emerge from competing networks and interests. Clashes emerge from competing interests between potential winners and losers in current energy transitions. A major line of conflict emerges between the established, historically grown politicy communities that aim to protect resources generated from traditional fossil fuel and agri-businesses, while issue networks driven by interest in renewable energy and low-carbon development from civil society and the international community are expanding (Jacobs 2018, Boulle 2019, Rennkamp 2019).

'Issue networks' and 'policy communities' emerge from common themes or issues. These networks are differentiated from each other by the i) the level of integration of network members, and ii) the way groups distribute resources among them. Issue and policy community networks vary in the number of participants, interests, frequency of interactions, continuity, consensus, resources and distribution thereof, as well as power relationships (Rhodes 2015). Issue networks are open, attracting a large number of participants, who interact through open channels of communication. Issue networks come and go as they are determined by the relevance of the issue. Resources are generally limited to a few participants, as the nature of the relationship is consultative.

Policy communities, in turn, are limited to fewer participants. These networks can be consciously exclusive towards other groups. Resources are distributed amongst all participants, and often an entry barrier to the community is access and ownership of resources. While creating an exclusive group, this access and distribution of resources also mitigates against inequalities that emerge within the network while limited resources in issue networks leads to inequality in access to those resources and unequal power relations. A policy community brings together 'potential actors drawn from the policy universe who share a common identity or interest'. Policy communities share three characteristics: differentiation, specialized organizations and policy-making institutions, and interaction (Rhodes 2017, 28). While there are key distinctions between these concepts, it is essential to acknowledge that they are not necessarily mutually exclusive (Rhodes 2015).

Table 1: Dimensions of policy communities and issue networks

| Dimension | Policy Community | Issue network |
|---|---|---|
| Membership | Limited, excludes consciously | Large |
| Type of interest | Economic / and or professional interests dominate | Encompasses range of affected interests |
| Integration/ Frequency of interaction | Frequent, high-quality, interaction of all groups on all matters related to specific policy issues | Contacts fluctuate in frequency and intensity |
| Continuity | Membership, values and outcomes persistent over time | Access fluctuates significantly |
| Consensus | All participants share basic values and accept the legitimacy of outcomes | Conflict is ever present |
| Distribution of resources within the network | All participants have resources, basic exchange relationship | Limited resources, consultative relationships |
| Distribution of resources between members | Hierarchical | Varied and variable distribution and capacity to regulate members |
| Power | Balance of power among members, positive sum game essential for community to persist | Unequal powers, reflecting unequal resources and unequal access, zero sum game |

Source: Rhodes (2015)

The concept of policy communities suggest that members share interests and close connections and 'personal relationships between major political and administrative actors' (Heclo and Wildavsky 1974 cit in Rhodes 2017). The dominance of policy communities has raised concerns about their legitimacy, the basis of sharing resources and the institutional arrangements which determines the rules of the game within a policy community. Policy communities are different from patron-client networks, which rely on reciprocal exchanges between hierarchical relationships (Hicken 2011).

### 2.3. Policy networks, political risk and patronage in highly unequal societies

The intimacy of relationships between members in a policy community does not necessarily mean that these communities are engaging corrupt interactions. Policy communities operate through personal relationships and focus on resources, however, can make them vulnerable as they bear similarities with kleptocracies, which refer to ruling elites who divide up gains from natural resources between them at the expense of providing public goods for all (Hicken 2011). Governance structures which operate through these kinds of relationships often create to opportunities for rent-seeking. [1] Network structures determine the framework conditions that determine rent-seeking opportunities, types and scale of corruption[2] (Stokes 2013). In conclusion, the analysis of policy networks enables us to disentangle and visualise the complexities of relationships between actors. While some networks may act as issue networks, open to a wide number of diversity of participants through open channels of communication, others act as closed, club-like communities, with elements of patronage and opportunities for corruption and rent-seeking. While patronage and rent-seeking also occur in wealthy, more equal countries, they are prevalent in poor and unequal societies, both as a cause and a consequence of a lack of other formal opportunities (Stokes 2013).

### 2.4. International implementation risk to domestic climate policy

The problem of uncertainty and power imbalances in the negotiations of international climate policies creates agreements which are ambiguous and vague, thereby creating potential implementation risks. These risks emerge from a number of characteristics in the Paris Agreement.

Firstly, the implementation of the Paris Agreement on Climate Change relies heavily on the domestic action communicated in the NDCs which lies outside the control of the international community. National sovereignty therefore can shield national action or inaction from the influence of multilateral governance, a feature not only of the Paris Agreement, but international governance more generally (Finnemore 1996).

Secondly, the current NDCs take very different forms and levels of 'ambition' as there is no specific format. The Paris Agreement lacks precision in the detail of the contributions in the NDC, which allows states to compromise its effectiveness (Lawrence and Wong 2017). The Rule book developed during the COP 24 in Katowice provides guidance for future NDC cycles (Obergassel et al 2019).

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[1] Rents can be defined as income that deviates significantly from the norms in competitive markets, including legal or illegal transfers organized through political mechanisms or private mafias (Khan and Jomo 2000). Rents are an element of corruption, more broadly, which 'occurs where the private search for economic advantage and personal advancement clashes with laws and norms that condemn such behavior' (Ackerman 2011, p. xiv).

[2] 'Corruption occurs where the private search for economic advantage and personal advancement clashes with laws and norms that condemn such behavior' (Søreide and Rose Ackerman 2011, vii).

Thirdly, the different actions communicated in the respective NDCs may communicate conditionalities and require support through international cooperation for access to finance, technology and capacity building. These requests may exceed available climate funds (Pauw 2019).

Fourthly, there is no explicit penalty for non-compliance. The enforcement branch that existed under the Kyoto Protocol has fallen away and was widely considered to be ineffective (Hagem et al. 2005, Bernstein 2002). The compliance committee under the Paris Agreement has no formal sanction mechanism, and relies on facilitation only. Implicit cost of non-implementation remain a significant source of uncertainty. This 'soft law' legislation was opposed by the EU, developing states and small island nations but was a requirement for getting critical parties such as the US and China to the negotiating table (Byrnes and Lawrence 2015, Lawrence and Wong 2017).

Lastly, the Paris Agreement and the NDCs address specific horizons in the future. The NDCs determine short-term futures of five-year cycles, which add up to the long-term temperature goal to 'hold the increase in the global average temperature to 'well below 2°C' above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change' (Art.2, PA 2015). To achieve this long-term goal, «Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty' (Art.4, PA 2015).

This long-term horizon translates into six NDC cycles from now on to reach the international climate goal. The recent IPCC report (1.5°C) found that 'global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018). To achieve the global temperature goal, many countries will have to reduce their emissions drastically and implement radical changes in economic and energy policy which will have to be communitcated in the NDC submissions for 2020. This outcome is unlikely thanks to the combination of a non-binding Agreement on Climate Change and domestic policy networks in many countries that protect energy intensive industries and emissions intensive pathways.

Despite these weaknesses of international agreements, international networks can still have significant power to influence national policy. The promise of these networks lies in two central domains. Firstly, through their ability to formulate responses to urgent problems, networks offer the opportunity to close the operational gap that characterizes international environmental policy today. And secondly, through their non-hierarchical structure and their ability to involve non-state actors, networks promise to bridge the participation gap that is often the main reason behind international political deadlocks. Networks typically perform one or several of the following functions (Streck, 2005: 10):

- Strengthening of negotiation power. Networks bring together different actors with similar interests and thus increase the leverage of the arguments put forward. For example, in climate policy, numerous international and national actors have joined 'issue' networks on climate protection aiming to facilitate the negotiation and implementation of the Agreement over the past years (Dai 2010).
- Coordinating policy approaches. Governments choose to cooperate in networks to coordinate policy responses with regard to a specific issue, thereby increasing the effectiveness of the response.

- Bolstering institutional effectiveness. Networks can facilitate the building and effectiveness of institutions and broaden their constituency base.
- Implementing policies and agreements. Networks are also formed with the specific purpose of translating the results of intergovernmental negotiations into concrete activities and improving the willingness and capacity for compliance of different stakeholders.
- Generating and disseminating knowledge. Networks can serve as tools for gathering existing knowledge in a fast and efficient manner and can even generate new knowledge where gaps are identified.

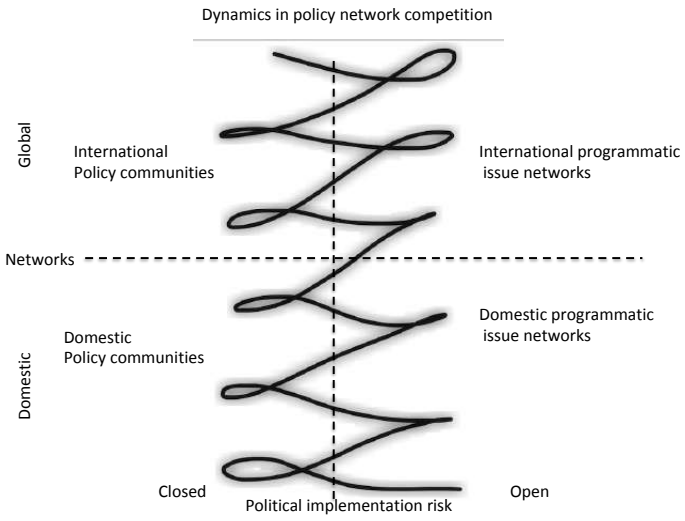
These functions correspond with global governance functions, as other authors have called them, and they enhance the influence of international institutions, even in the absence of 'hard' regulations and direct enforcement power (Dai 2010). Global governance functions include agenda setting/signal and guidance, information sharing/knowledge and learning, capacity building, technology and finance, enforcing of regulation where applicable and integration across different global environmental governance arenas (Bulkeley et al, 2012, Oberthuer, Hermwille and Rayner 2019, van Asselt 2017). Climate governance may involve more discursive and normalizing practices, facilitating the exchange of knowledge, ideas, and beliefs. In this sense the instrumentalism implied by a governance 'function' opens ways in which governing is accomplished transnationally. Global governance functions operate predominantly under soft law, which dominates most international law, with exception of the enforcing of regulation, setting rules and standards to facilitate collective action, where applicable.

## 3. Political implementation risk as network competition: a framework for analysis

The proposed framework for the analysis of political implementation risk in highly unequal societies applies the distinction between open issue networks and closed policy community networks at the intersection of the international and national levels of climate governance.

The framework suggests a dynamic of competition between open issue networks and established policy communities reaching across national and international spheres of power and influence, protection and provision of public welfare, and access to public vs. private resources and finance. The power balances between these networks vary over time. The networks co-exist and influence each other continuously. The dynamics in the network competition ultimately produce the implementation risk of climate action.

Figure 1: Policy network competition and implementation risk




source: own

The framework structures the analysis of the policy networks and inter-linkages with international actors in climate governance in Brazil and South Africa. The focus is predominantly, but not exclusively, on central energy transitions as vehicles for climate policy in each country.

The analysis grounds in a combination of quantitative and qualitative methods. Political risk assessment is most reliable in combining quantitative indicators and qualitative expert inputs, which can provide both a bigger and nuanced picture (Toksöz 2014).

Comparative, global risk assessments have established sets of indicators for political risk. The International Country Risk Guide (IRCG) assesses indicators on government stability, socioeconomic conditions, investment profiles, internal conflicts, external conflicts, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability and quality in bureaucracy. These data have informed various studies on political risk (Khan 2013, Busse/Heffer 2007, WTO 2004).

The qualitative network analysis establishes the main characteristics of policy networks in the domestic and international climate policy arenas. Qualitative network analysis helped to identify elements of patronage and programmatic networks that operate in co-existence and competition to each other. The qualitative analysis grounds in data from the existing literature, document analysis, expert interviews and written expert inputs in the form of case studies (see Grottera et al. for Brazil and Trollip for South Africa in this report).

The analysis focuses on two countries. Brazil and South Africa, who share commonalities and many differences. Brazil and South Africa count as upper middle income countries, with relatively low (multi-dimensional) poverty levels (12% in South Africa and 6 % in Brazil) (Alkire et al., 2019) but high levels of inequality (as per Gini, 63 in South Africa and 53 in Brazil) (World Bank, 2019). Both countries have relatively high *per capita* emission levels with Brazil's main source of emissions coming from deforestation, while South Africa's are a product of its reliance on energy derived from coal.

Although South Africa and Brazil have distinct and independent histories and political systems, governments in both countries developed similar climate change and environmental policy regimes in similar periods of time and both countries submitted NDCs to the United Nations Convention on Climate Change ahead of COP 21 in 2015 and have ratified the Paris Agreement in 2016 (UN 2019, UNFCCC 2019). Subsequently, their climate change mitigation policies set out to reduce emissions, which largely originate from sectors that traditionally create income for ruling elites. These sectors are the minerals and mining sectors and the agricultural sectors, which generate fuels for electricity supply and transport.

The analysis investigates specific periods in domestic and international climate policy policymaking over 25 years between 1994-2019. The analysis distinguishes six periods for each country, which can be considered as case studies (King, Keohane and Verba 1996). The logic of the periodization emerges from the changes in the relationship between open issue networks and closed policy communities and the relative dominance of one of the other. The analysis of the empirical data largely follows interpretive methods, not quantitative measurement, in linking the data to the framework. Each analysis section will conclude with an overview of key policies, actors and events placed in the structure of the framework. The synthesis section combines an overview of the central network dynamics over time. The analysis has limitations, because it focuses on showing the overall lines of competition and conflict between competing networks. The analysis will not be able to depict individual social network or discourse networks, because of the scope and length of the period of investigation.

## 4. Political implementation risk for climate policy in Brazil and South Africa

Political risk indices for both countries show high political risk in governance-related functions: corruption, law and order and the quality of the bureaucracy feature very high political risk. Most of these concepts are relational. Having closer insights into these relationships requires analyzing the networks in which political actors operate. The political risk indicators suggest that overall there are favorable conditions for patronage networks in all three countries, which may translate into implementation risks for climate policy. Table 2 shows indices for Brazil, South Africa, India and China, which BASIC countries all show high political risk in governance related functions: corruption, law and order and the quality of the bureaucracy feature very high political risk. On a range from 12 to 0, high numerical values indicate low risk and vice versa.

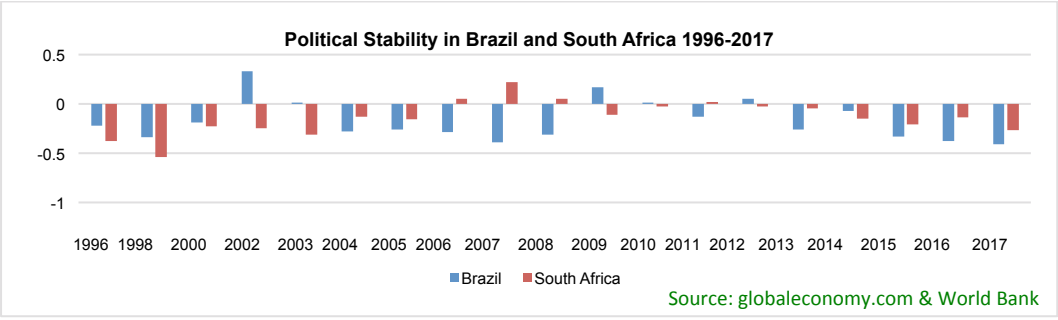
Table 2: Political risk components of the BASIC group

| | Brazil | China | India | South Africa |
|---|---|---|---|---|
| Government stability | 5.0 | 7.5 | 8.0 | 6.5 |
| Socio-economic conditions | 6.5 | 7.5 | 5.5 | 3.5 |
| Investment profile | 7.0 | 6.0 | 8.5 | 7.5 |
| Internal conflict | 9.0 | 7.0 | 6.5 | 9.0 |
| External conflict | 10.5 | 7.5 | 9.0 | 10.5 |
| Corruption | 2.0 | 2.0 | 2.5 | 2.5 |
| Military in politics | 4.0 | 3.0 | 4.0 | 5.0 |
| Religious Tensions | 6.0 | 4.0 | 2.5 | 5.0 |
| Law and Order | 2.0 | 3.5 | 4.5 | 2.0 |
| Ethnic Tensions | 3.0 | 3.5 | 2.5 | 3.5 |
| Democratic Accountability | 5.0 | 1.5 | 6.0 | 5.0 |
| Bureaucracy Quality | 2.0 | 2.0 | 3.0 | 2.0 |
| Rating in 06/16 | 62.5 | 55.0 | 63.0 | 62.5 |

Source: own compilation based on IRCG June 2016 [3]

These indicators provide an overview of the various factors contributing to political risk more broadly. The World Bank measures political stability in combined indices of Political Stability and Absence of Violence/Terrorism, which measure perceptions probabilities of governmental destabilization or unconstitutional change resulting from politically motivated violence. Figure 2 shows the severe fluctuations of political risk perceptions for Brazil and South Africa since the first years of the young democracies in 1996 until 2017, which is the last available data point.

Figure 2: Political Stability in Brazil and South Africa 1996-2017




Source: globaleconomy.com & World Bank

[3] ICRG and global economy.com belongs to a commercial enterprise, which locks most recent data behind high pay walls which why the research had to rely on open access data from 2016. World Bank data is available until 2017.

### 4.1. Climate policy networks and implementation risk in Brazil

The central implementation risk to Brazilian climate policy emerges from the competition between historically grown networks which have benefit from the extractive economic activities and alternative, open networks which propose a leadership in global climate and environmental governance.

The analysis of implementation risk and climate policy networks in Brazil is structured in six phases: i) a historical background which surfaces the institutional and cultural structures in which climate policy networks struggle to operate, ii) the change to democracy and beginnings of open environmental networks, iii) the peak of open issue networks under the Lula years, iv) continuation and decline of climate leadership under the presidency of Dilma Rousseff, v) climate pragmatism under Michel Temer and vi) finally, the detour of Jaír Bolsonaro's presidency in promoting open networks for climate denial and active deforestation.

#### 4.1.1. Historical cleavages and environmental change in Brazil's political system

The administrative systems and cultures created in Brazil under Portuguese colonial rule structured the country into loosely connected units, far away from each other with rulers subject to minimal external control. These days may seem far away to the minds of today's readers, but they still matter to understanding modern Brazil. These historical structures led to 'oligarchical politics in a representative system' (Montero 2005), which results in a system where ruling elites in the provinces still have very little interest in a centralized state. The proclamation of the Republic in 1889 replaced a parliamentary, unitary form of state with presidential, federal system. Personalism in presidential leadership, state governors and party leadership continues as an unresolved problem in Brazil's political system, which makes it increasingly fragile (Arcaro Conci 2018). The provinces compete with each other and the federal system serves their interest to remain as autonomous as possible. As a result, tax evasion and fiscal redistribution of federal resources remain a severe problem (Lieberman 2001). The governors in the Northeastern provinces continue to be influential players in Brazil's political establishment.[4] At the same time, the fragmentation of the party system, with strong personalities in leadership, but limited participatory practices, make it difficult for the presidents to establish and maintain political coalitions and serve the various political interest, which has made the political system increasingly unstable (Arcaro Conci 2018).

The largest part of the Amazon forest grows its roots in the Northern and central parts of Brazil. Cattle, soy and sugarcane farming have traditionally been a major source for the livelihoods of ruling elites, farm workers and indigenous communities. The inequalities of the agricultural and forstry sectors have persisted. Large-scale agribusiness networks, partially dominated by multi-national companies and large national champions evolved along with small-scale and subsidence farming. Tensions between conservation of the forest and use of agricultural land have been ongoing for decades, and in some cases have led to violent clashes and the deaths, ranging from Chico Mendes in 1988 to Paulo Guajajara in 2019 (DW 2019). Local communities, local and international NGOs in the Amazon and other

[4] President Lula and his successor Dilma Rousseff reportedly paid visits to José Sarney in Maranhão and other influential governors in the Northeastern states who are traditionally affiliated to conservative parties (Hart 2010). Sarney was affiliated with the ARENA party during the military dictatorship, then changed his loyalty to the opposition and became the 31st President of the county in 1985. High inflation, debt crisis and patronage mark the legacy of his presidency.

forests such as the Mata Atlântica, Brazil's coastal forest, 85% of which has been lost, call for conversation and protection of the forest, specifically from fire-clearing practices.

Brazil's energy sector is also very interrelated with the agricultural sector as it offers a major potential for the use of biofuels. Brazil's dependence on imported oil is the «Achilles heal» of the energy sector (Aamodt 2015). The development of the Brazilian biofuels sector dates back to the 1970s in the response to the oil crisis. The authoritarian government formed the "Pró-Álcool" program, which brought together the state-owned oil enterprise Petrobrás, major sugar cane and ethanol producers and the automotive industries. The initial target aimed for a influx of 20% of ethanol in conventional gasoline along with a subsidy for industrial production of ethanol powered cars to reduce the dependence on imported oil. Once the oil prices recovered, these subsidies ceased in the 1980s. The ethanol program became dormant until the early 2000. Brazil's biofuel policy turned into a significant industrial policy effort with the aim to innovate in the agricultural, petrochemical and transport sectors.

In sum, Brazil's economy historically developed on extractive businesses models with a large agriculture sector. Clashes with indigenous communities and activists for conversation of the forest have been a long standing conflict line. Sugar cane and soy beans often grow on land that was previously covered with forest in the central, northern and northeastern regions of the country. Cattle farming is another main factor for the demand for pature land. In these regions many livelihoods depend on agricultural income, at large and small scale. The agricultural sector links in into the energy sector with the ability to prodcue fuel from sugare cane based ethanol and biodiese from soy to reduce the dependency on imported oil.

#### 4.1.2. Towards open environmental issue networks: 1992-2003

With the return to democratic rule, Brazilian government slowly started to signal commitment towards multilateralism, open markets and started to promote liberal values, democracy, diversity, and human rights (Encarnación 2019, Vigevani and Cepaluni 2007). In the early transition governments of Fernando Collor and Itamar Franco, the Brazilian government slowly took first steps to building environmental soft power. Brazil hosted the Earth Summit in 1992, which marked a change in the multilateral agenda on environmental and development policy after the end of the cold war. This sizeable UN conference brought thousands of political actors and environmental activists together. The summit let to the Agenda 21, the forest principles, and the Rio Declaration on Environment and Development, and most importantly set out the UN Conventions on Biodiversity, Climate Change and Combat of Desertification (UN 1992). The Earth Summit was not «just» an international conference. The influential event marked the change of an era of globalisation of environmental politics in Brazil (Viola 1998). Economic development priotities, however, continued to trump the domestic policy agendas. The environmental sustainability concerns were marginal in the electoral campaigns in the elections in 1994 in both Cardoso and Lula's campaigns (Viola 1998). The government under Fernando Henrique Cardoso, a centrist with the Brazilian Social Democracy Party, continued to struggle with the emancipation of the country from the old economic development model, dominance of external economic actors, debt crisis and dependence on loans from the Bretton Woods Institutions. The challenge at the time was to strike a balance between import substitution and relative economic isolation and economic neoliberalism, promoted by the US. Cardoso's attempts already geared up a reform of the international trade regime strengthening relations with powerful emerging economies. The Cardoso administration strengthened the role of the president in fostering a stronger role for Brazil's presence in the world economy (Cason and

Power 2009). The Brazilian government adopted a rigid approach to the climate change negotations in the Kyoto protocol, though, resisting progress for international forest regulations, as a result from the devastation of the Amazon during this period (Viola and Franchini 2018).

The Cardoso administration supported domestic climate policy networks with the creation a Brazilian Forum on Climate Change in 2000 with the intention to 'raise awareness and mobilize society and contribute to the discussion of actions needed to address global climate change'. The forum coordinated the process of formulating the national mitigation actions, and later NDCs, including research and the participation of civil society throughout the rule of the workers party under Lula and Dilma (Centroclima 2015, personal communications).

This period marked the beginning of a slow transition towards strengthening open environmental domestically and internationally. Another change was the growing role of the presidential influences in international affairs. However, high deforestation rates left Brazil with an image of a 'climate villain' (Viola and Franchini 2018).

### 4.1.3. Consolidating open environmental networks while juggling domestic interests (2004-2010)

The rule of the worker's party in 2003 set out with ambitious progressive agendas domestically and internationally. The victory of Lula Ignacio da Silva, a stern opponent of the military dictatorship, in the presidential elections in 2002 after three unsuccessful attempts marked a significant change. The rule of Brazil's left catalyzed progressive liberal values, with the support of the progressive and environmentalist vote.

Domestically, the Lula administration set an ambitious environmental policy agenda, which strengthened the role of the Ministry of Environment (MMA) in climate policy. The Amazon-born minister of environment, Marina Silva, prioritized deforestation control. The country witnessed significant emission reductions of an annual average reduction of 317 mtCO2, between 2005 and 2010 (Centroclima 2015b). Internationally, the administration's diplomacy consolidated Cardoso's legacy in building up the trade relations with other emerging powers in the Global South (Jeffrey and Power 2009, Freitas Couto 2010). The Lula administration build the IBSA group (G3) with India and South Africa in 2003, the O5 with the OECD outreach and joined the G20. The Brazilian government took a leading position in the international climate change negotiations with the creation of the BASIC group (Brazil, South Africa, India, China) ahead of COP 15, the United Nations Conference of the Parties in Copenhagen in 2009. Brazilian diplomacy was significant for the outcome of the negotiations in counter-balancing EU and US diplomacy in building a powerful alliance with China, India and South Africa. Marina Silva's successor in the MMA, Carlos Minc, announced the goal to reduce Brazil's forest emission by 80% by 2020, at COP 15 (MMA 2009).

Lula revived the biofuel sector with various programs and spearheaded Brazil's 'ethanol diplomacy'. The sector attracted significant investments into the ethanol sector. The national development bank (BNDES) supported domestic industries with specific industrial policy incentives (Tasca 2018 cit in Grottera et al. 2020, in this report). The program aimed to generate employment in the rural areas, boost industrial development and reduce local air pollution through the cleaner combustion of gasoline blended with sugarcane-generated ethanol. This blend could contain up to 24% of ethanol.[5] The successful

[5] The so-called gasohol contains gasoline blended with sugarcane ethanol for light-duty vehicles only. Biodiesel, orignates mainly from soybean, is blended with diesel for heavy duty vehicles like trucks and buses.

development of flex fuel vehicles motor were game changing innovation at international technological frontier, which turned into a mainstream market innovation with almost 90% of all new cars sold in the country (ANFAVEA 2007, cit in Grottera et al 2020).

At the peak of Lula's ethanol diplomacy, the president had put together a body of national government agencies (including a branch for bio-combustive fuels with the state owned oil company Petrobrás, the National Development Bank BNDES and the state agency for agricultural research Emprapa). The Lula administration had signed numerous multilateral and bilateral agreements that focused on biofuel trade and research. The ambition of the ministers of environment, Marina Silva and Carlos Minc, strongly supported the environmental agendas in Lula's presidential diplomacy. The Brazilian government became a more credible leader in the international climate negotiations, with the success of the emissions reductions from deforestation. Brazil's ambitious climate leadership was not without problems at the time, because of the competition with nationalist conservative coalitions pulling national interests into different directions (Viola and Franchini 2017). Lula managed to integrate most of the interests of historically conflicting party into his political agenda, including the agribusiness, banking system and environmental NGOs (personal communication).

#### 4.1.4. Decline of open issue networks (2008-2016): balancing ethanol heritage and Petrobrás oil patronage

The international financial crisis and the discovery of deep ocean oil reserves outside the coasts of Rio de Janeiro (known as Pre-salt) gradually challenged the political enthusiasm for biofuels. The prospects of local oil rents associated with the exploration of the pre-salt reserves turned the government's attention inward, at the expense of open environmental and ethanol networks (Grottera et al 2020). President Lula da Silva's successor, Dilma Rousseff, changed the pricing regulations and biofuel targets in favor of the oil industries and gradually destroyed the prospects of the ethanol industries. The price control policy kept domestic gasoline prices below the import price and reduced fuel taxes on conventional gasoline. This controversial regulatory policy did not only harm the biofuel sector; it came at the expense of Petrobrás financial stability which had declined dramatically by the time the pre-salt auctions started in 2013 (Basso 2018 cit in Grottera 2019).

The gradual swing from the dominance of open the domestic environmental issue networks and ethanol diplomacy towards favoring the state owned companies in the oil sector surfaced one of the world's largest patronage networks: big oil (*petrolão*). Petrobrás' financial decline led to wide spread protests against corruption. The rents extracted from Petrobrás illegally strengthened a conservative elite, financed multiple parties and campaigns which destabilized the political system and made it more difficult to maintain a coalition to support the ruling party. President Rousseff initiated the biggest investigation on corruption in Brazilian history, known as operation car wash - *operação lava jato*. This investigation produced evidence of a patronage network with links into 12 countries, with hundreds of indictments officials across all major political parties (Watts 2017).

The investigation led to hundreds of arrests. Evidence of personal benefits from the operations of the patronage network included former presidents, Fernando Collor de Melo, Fernando Henrique Cardoso and led to the arrest of Lula da Silva in 2018. President Rousseff was impeached, despite her having put the conditions for the investigation in place and lacking evidence if she benefited personally.

The reprioritization of domestic over international issues during Rousseff's presidency occurred gradually. Her presidency continued to serve the international climate

commitments. Brazil hosted the Rio + 20 conference in 2012. The minister of environment, Izabella Teixeira, worked inclusively towards the submission of the Nationally Determined Contribution (NDC) with the participation of civil society through the Climate Change Forum. The climate change community in the country already focused its attention on decarbonization of the energy and transport sectors, assuming that the control of the forest related emissions would continue (personal communications). The NDC has identified 'economy-wide flexible pathways to achieve Brazil's climate objectives to reduce greenhouse gas emissions by 37% in 2025 and 43% in 2030, below emissions levels of 2005 (UNFCCC 2015a, p.2-3).
The NDC communicates further energy and forest related measures which are supposedly consistent with the 2C temperature goal:

1) Biofuels: the increase of 'the share of sustainable biofuels in the Brazilian energy mix to approx. 18% by 2030',
2) Forest emissions: 'strengthening policies and measures with a view to achieve, in the Brazilian Amazonia, zero illegal deforestation by 2030', 'restoring and reforesting 12 million hectares of forests by 2030
3) Renewable Energy: Achieving 45% of renewables in the energy mix by 45%', which includes an expansion of non-hydro renewable energy sources to 28-32% by 2030. (*ibid*)

The long-term goal aims for decarbonised and renewable energy powered energy systems by the end of the century. The successful emissions reductions from deforestation control depended on policing and monitoring systems, based on state policy which required funding. The monitoring system was fragile and dependent on a combination of government support, environmental activism, public awareness and compliance by key economic actors (Viola Franchini 2017, personal communications). The gradual decline of monitoring under the Rousseff administration continued under her successor, Michel Temer, and totally collapsed under the first year under Jaír Bolsonaro in 2019.

The financial crisis created losses for the banks and the export business who requested the support of the government. President Rousseff had to make choices and defended the bolsa familia programme, Brazil's successful social policy, and the socialist agenda of the Worker's Party. Unlike the days of Lula administration, not everybody could win and Rousseff made many enemies. Her support of the regulatory agencies, her oil pricing policy and allegations of funding for her campaign from contracts for the controversial hydroelectric plant in the Amazon forest created opposition including in her own Party (Reuters 2016, personal communications).

#### 4.1.5. Rearranging the chairs on the titanic: Michel Temer's interim presidency (2016-2018)

Michel Temer stepped up as interim president in 2016 as he appeared 'untouchable' during the first set of anti-corruption investigations. His administration aimed to restore investors' confidence into the Brazilian market with the introduction of a new biofuel program, RenovaBio, which aims to reduce carbon intensity in the fuel mix by 10% in 2028. The program was well received in the industry and civil society for its intention to increase the share of sustainable biofuels and bring Brazil back on track to its communicated contributions in the NDC. Criticism, however, came from the resulting pressure on energy, land use and food prices, which may create challenges for the international competitiveness of other sectors (ANP 2018).

Temer's administration amended legislation to sustain the Brazilian forum on Climate Change in 2017 'in accordance with the provisions of the National Policy on Climate Change and the United Nations Framework Convention on Climate Change and the agreements international agreements, including the Paris Agreement and Brazil's Nationally Determined Contributions' (Art 2, Decreto 9082, Federal Government of Brazil 2017). Temer was a member of the political establishment who continued with the diplomatic tradition that was built up over the past decades. The climate and environmental diplomacy in the negotiations continued until the end of his term in December 2018. Temer was arrested as part of the corruption investigations in March 2019. Deforestation in the Amazon increased to the highest level since 2008, reaching almost 8,000 km2 with an increase of 28.7% compared to 2015 (Azevedo et al 2017). Temer's short presidency stood for a continuation of the decline of Brazil's climate leadership with growing dominance of inward communities and irrational extractivism.

#### 4.1.6. 2019- current: Between U-turn and continuity- Anti-climate discourse and deconstruction of environmental governance under Jaír Bolsonaro

Bolsonaro's administration has been largely destructive with regards to the implementation of the NDC, as the monitoring of illegal deforestation has been abandoned. The situation of illegal deforestation through fire-clearing in the Amazon rain forest has increased by 50% in 2019 (INPE, 2019). Bolsonaro's government has strengthened issue networks against forest protection. The country has witnessed groupings of farmers that pursue active fire settings and land-grabbing of public land for private benefits. The land is mainly used for agricultural activity for soybean and palm oil farming (Vaughan 2019) The government fails to sanction illegal seizure of land. As a result, indigenous groups have increasingly taken own initiatives to fight illegal loggers (Maisonnave 2019).

The increases in the deforestation rates pose the main risk to the implementation of the NDC (personal communications, Grottera 2020). Bolsonaro's forest policy sparked global outcry as the president rejects international assistance in keeping fires under control over 'national sovereignty' (G7 2019). So far, the international community has not managed to respond to this crisis effectively.

In the meantime, Bolsonaro has largely deconstructed the national environmental governance system. The National Environmental Council (CONAMA), which was established in 1981, is an essential consultative organ that oversees environmental policies in a composition of government, interest groups and NGOs. The Bolsonaro administration changed the members on this council and reduced the number from 96 to 23. Ten of these representatives are permanently appointed staff from the central government (agenciabrasil 2019). Another important institution is the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), which is a critical implementation agency for the Ministry of Environment. IBAMA is entitled to enforce the deforestation laws and issue fines against offenders. Bolsonaro has openly accused the agency of operating an "industry of fines". The Minister of Environment dismissed 21 of 27 state superintendents (Wallace 2019). The number of issued fines has drastically declined, the ministry is left with a minimal budget of 300 000 USD per annum.

In his first year of his presidency, President Bolsonaro dissolved dozens of public administration bodies, which have been an integral part of public participation in environmental issue network in Brazilian democracy. These bodies include the National REDD+ Commission, Executive Committees for deforestation control plans in the Amazon and Cerrado biomes, the National Commission for Native Vegetation Recovery, the Steering Committee of the Amazon Fund, the Steering Committee of the National Policy for

Territorial and Environmental Management of Indigenous Lands, the National Council of Traditional Peoples and Communities, the Interministerial Committee on Climate Change, whose goal was to coordinate the implementation of National Police on Climate Change and articulate government actions relating to the Climate Convention and the Executive Committee and the Support Committee of the National Contingency Plan for Oil Pollution Incidents (PNC) (Observatório do Clima 2019a). Bolsonaro dismissed the head of the climate change forum, but has not managed to undo its underlying legislation yet.

The Bolsonaro administration strengthens an open anti-climate discourse and a network of denialists over social media. Fake news related to climate change spread beyond the forest issue and have been powerful in dividing Brazilian society (Observatorio do Clima 2019b, Ortellado and Ribeiro 2019).

The prospects the biofuel and renewable energy components of the NDC are comparatively more positive. The *RenovaBio* program continues, to date. Biofuel producers are recovering from the years of price control under the Rousseff administration. The sector achieved a record production in biodiesel and ethanol in 2018 (EPE 2019). The roll out of renewable energy program also continues. Wind and solar auctions have been successful and the uptake of residential photovoltaic has increased significantly (REF). The looming tax reform in 2020 may even see aspects of carbon pricing mechanisms, but the details are still to be seen (personal communication). The discussion about the Brazil following the US precedent of exiting the Paris Agreement, have been abandoned. Currently there are no processes towards an update of the NDC (personal communications).

The active undermining of forest protection of the Bolsonaro administration is the main risk to the implementation of the NDC. Forest emissions will overcast the achievements of the RenovaBio program and the increase in renewable energy. The government is aiming to increase the role of natural gas and oil production, but is struggling to attract international investments into pipeline and refinery infrastructure (personal communications).

In sum, the Bolsonaro administration is taking a U-turn on the past decades of climate policy, with its main emphasis on the devastation of the Amazon forest. The administration openly promotes climate denialism and negligence. The climate related energy policies, in renewable energy and ethanol, have largely remained in tact.

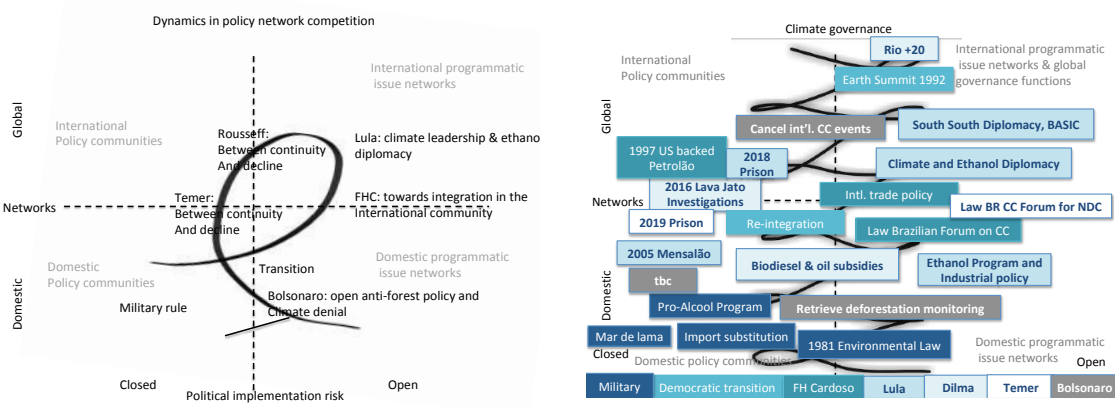
### 4.1.7. Summary

The case study of political networks and implementation risk for NDC identified dynamics of competition between layers of open environmental issue networks in climate change and biofuels and traditional fossil fuel, especially oil, interests, patronage and corruption. The transition from a military dictatorship to democracy led to an open democracy, with thematic issue networks in biofuels, renewable energy and highly skilled diplomatic competence, which build up Brazil's environmental soft power. The movement towards open networks gained momentum with Cardoso's government, peaked with Lula's administration and declined with the oil discovery under the Rousseff administration. The patronage networks were operating largely in parallel, as a characteristic of the political system that does not only define the relations – politics – but also the institutional context under which politics and policy happen – polity. The imbalance of these networks through the inflation of the patronage networks in the oil sector had the opposite impact of the intended anti-corruption investigation: many voters in Brazil had hoped for improvements in bureaucratic quality as a result of the investigation, which let to the rise of a conservative government jeopardizing the fragile progress in democratic rule, forest and climate protection.

Initially, Bolsonaro refused to play the game with the established powerful elite. The imprisonment of former president Lula da Silva, and the subsequent appointment of his prosecuter, as Minister of Justice in his government, raise many questions about their impartiality (Phillips 2019). His government has been largely destructive and focused on undoing what can be undone in the regulation for forest protection. Bolsonaro has already produced a record of own small scale corrupt activities, like employing his family and friends as false staff members in the public service and channeling their income into private family accounts. His networks in Rio de Janeiro include links to military and paramilitary (Fogel 2019, Darlington 2019). Bolsonaro's presidency, to date, marks a dynamic towards domestic inward patronage driven networks, despite them being different networks. His lack of political will to deal with uncontrolled fire-clearing practices and refusal to accept international support to contain fires in the Amazon forest poses the main risk to the implementation of Brazil's NDC.

The Brazilian case showed how patronage networks and rent-seeking behaviour of the political classes had framed climate and energy policy progress in parallel to open issue networks which led to progress in implementing these policies. This system worked to a certain extent until rent seeking opportunities destabilised a fragile democratic system. The increasing dominance of the conservative networks tipped the system over and opened the stage to the far-right that promotes open issue networks pulling into the opposite direction, while serving the interests of the military and large agricultural businesses. These dynamics create severe risk to the progress climate policy in the past.

Figure 3: Overview of network dynamics and events in Brazilian Climate Policy




## 4.2. Climate policy networks and implementation risk in South Africa

Implementation risk to South African climate policy emerges from competing networks, which operate in political system dominated by single- party rule. The ruling party- the African National Congress (ANC)- has formally ruled South Africa since it won the first democratic elections in 1994. The ANC has maintained mostly a majority rule, securing an electoral basis of two thirds of the national vote. Emerging opposition parties on both sides of the political spectrum have not managed to attract sufficient voters to win the national elections. As a result, the ANC absorbs the various and often conflicting interests, which leads to fragmentation and different factions within the party. This is a significant difference to the Brazilian system, where political instability emerges from fragmentation and multiple political parties. The effects of political instability, however, are similar. The growing emphasis on personalism and presidentialism, which Arcaro Conci (2019) and Hochstedtler

(2019), respectively, observe in Brazil, also occurs in South Africa. The specific role of individual politicians within the party, their power over others, indicate a dominance of specific in-party factions, which have stabilizing or destabilizing factors for the party and the political system overall.

The critical role of the president in the non-federal Republic of South Africa justifies the identification of six phases for the analysis of implementation risk and network competition in South Africa's climate policy.

### 4.2.1. Historical evolution of high emissions intensive industries in South Africa

South Africa's economy has historically grown its roots in the mining and agricultural sectors. These sectors were traditionally structured to generate benefit largely for colonial elites. Unskilled, cheap labor sustained these businesses. The coal mining businesses, coal power generation plants and other mines grew and the government historically evolved into a system of capital accumulation which has been referred to as the 'minerals-energy complex' (MEC) (Fine and Rustomjee 1996). The system served mutual interests: the heavy reliance on coal for electricity generation has historically benefitted highly electricity intensive industries and mines. The mines can sell their product back to government owned Eskom to produce more electricity (Eberhard 2011). Further mining products – gold, platinum, diamonds, coal, ore and other minerals – then typically trade overseas. The capital accumulation in the MEC fragmented over time, with increasing electricity prices and international competition for South African coal (Mc Donald 2009, Baker 2017). The belief systems and political culture around coal mining continue, while the contribution of the mining sectors to South Africa's GDP decline and social inequalities grow (StatSA 2019). Global mining cooperations, such as Anglo American and de Beers, with heavy colonial histories, continue to operate in South Africa and struggle to wean themselves off carbon-intensive electricy supply (Anglo American 2018)[6].

Colonial structures continue to shape South Africa's economic system and occasionally clash over steep inequalities. The Marikana Massacre at the London-based Lonmin platinum mine, in 2012, was one of the most violent manifestations of this persistent and exploitative heritage (Coovadia 2012). The majority of South Africa's energy intensive industries operate in the mining and electricity sectors, absorbing about 40% of the country's available electricity, sustaining over half a million jobs (EUIG 2020).

The creation of SoEs in South Africa's energy sector reaches back to the government of the Union of South Africa, which established the Electricity Supply Commission (ESCOM) as part of the Electricity Act in 1923. Eskom historically played a central role in the government in managing and sustaining the minerals-energy-complex (Fine and Rustomjee 1996). Eskom has operated as a monopoly for almost a hundred years and has been generating rents for generations of political elites. The international isolation during the late apartheid years allowed to shield Eskom's monopoly status from a global trend of liberalization electricity sector reform and privatization (Gratwick and Eberhard 2008, cited in Trollip 2020, in this report).

[6] Anglo Americans global operations were powered by 12 % of renewable energy sources in 2018, according to the company's sustainability report.

The oil and gas related SoEs emerged in 1950 and 1965 with the aim to increase energy security in autonomy from international oil imports.[7] The National Party experienced increasing international criticism of its oppressive rule towards the majority of the population of colour, which led to sanctions and periods of international isolation in the 1970s. In response to that, coal to liquid technologies, which were not economically viable elsewhere, were heavily subsidised in South Africa. Sasol's highly emissions intensive industrial processes of coal liquefaction continue to create rents for South African elites and contribute largely South Africa's greenhouse gas emissions (Burton et al 2019).

Overall, South African history pre-democracy was marked by a colonial extractivism and the emergence of a coal based electricity sector that sustained electricity intensive mining industries and a political culture around coal mining into the present days. The pre-democracy period was characterised by governance through closed, community and club-like networks that defined membership and associated benefits by skin color. The liberation movement opposed this club governance as a large issue network. Competition between the networks were largely defined by the struggle between those who benefited from the system and those who were fighting to turn it over.

Nelson Mandela stated in 1990 that 'the ANC has never been a political party ... the ANC is a coalition [...]. Some will support free enterprise, others socialism. Some are conservatives; others are liberals. We are united solely by our determination to oppose racial oppression. That is the only thing that unites us.' (Mandela 1990 cited in Butler 2005).

### 4.2.2 Transition, reconciliation and reintegration: Mandela's presidency (1990-1999)

The transition to South Africa's 'new democracy' marked a change from closed policy community networks to open inclusive networks and reintegration into the international community. The democratic government aimed to create a 'new South Africa' eradicating previous legislation and ensures social equality amongst its citizens in the new constitution (The Republic of RSA 1996). New policies did not always start from scratch. In the transition period between 1990 and 1994 election, groups in the ANC prepared for their new tasks in government. During the transition period, the ANC started to convene working groups on several policy issues to prepare the liberation movement to become the ruling party of a democratic South Africa. These working groups included one specifically for energy policy.

The ANC government produced an Energy White Paper in 1998, which proposed a process of liberalisation towards 'unbundling' of the various functions: 'Eskom will be restructured into separate generation and transmission companies' (RSA 1998, p 12). Eskom's coal monopoly continued until 2012, when the government allowed independent power producers to generate electricity from renewable energy sources. The process of 'unbundling' the several funcions into separate functions is still outstanding.

Mandela's administration created a relatively stable and capable central government which operated within the constraints of the political culture that emerged from the past. In the spirit of reconciliation, the new government made an effort to integrate those officials from the previous government into new positions, despite heights of corruption that occurred in the National Party before the election in 1994. A surprisingly high number of officials from the old administration stayed on while «disgrunted» colleagues were retired (Hyslop 2005, p. 785). Gender affirmation offered opportunities for

[7] Sasol is South Africa's largest petrochemical company, which specializes in liquid fuel technologies. Sasol was previously state owned and is now private. Soekor was previously the state owned oil company which reorganised into what is known known today as PetroSA and the Petroleum Agency of South Africa

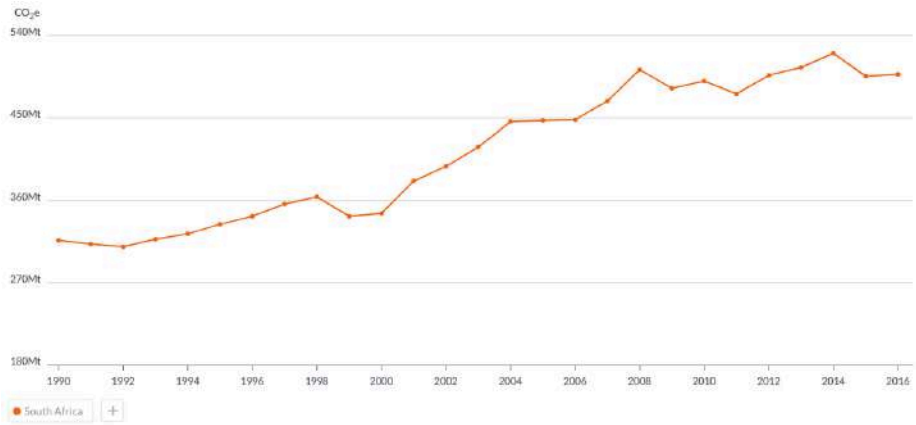
white women with administrative skills in the new government. The task for the government of the «rainbow nation» was to put an economic framework in place which would change the decline of the late apartheid years into prosperity and economic growth. The ANC quickly started to adopt liberal policy measures, despite different ideologies within the Party. The 'Growth, Employment and Redistribution' (GEAR) strategy emphasized fiscal discipline and stabilization through measures as inflation targeting (Kahn and Blankley 2005).

Liberal economic policy was accompanied by a pro-active diplomatic program aiming to enhance trade relations bilaterally and multi-laterally. Mandela's diplomacy was often described as a 'honeymoon period' with a high moral authority and dominant human rights agenda (Sidiropolous 2014). The new government identified South Africa as a developing country, unlike its predecessors. Secondly, South Africa integrated into the United Nations (UN), the Non-Aligned Movement (NAM), the Organization of African Unity (OAU) and the Commonwealth, which Mandela considered essential for the promotion of liberal values: human rights, peace and equality (Barber 2005).

Mandela coined presidential diplomacy in his government style, as he represented an 'authority on the international stage because of his moral character and reputation'. These characteristics remained when he left the presidency (Avant, Finnemore and Sell 2010, p 10). Actors may also be authoritative because of what or whom they represent. They may represent a respected institution, an underrepresented other, or a lofty ideal.

A major challenge for Mandela's presidency was to balance the interests of diverse networks: these included the expansion of open networks as part of the reintegration into the international system, managing major investment interests in the economy and balancing the socialist values of the ANC. The carbon intensity of the electricity was not a priority in the first ANC's energy policy white paper in 1998. Emissions were relatively high with 320 mt in 1990 for a developing country and grew consistently with the economy.

Figure 4 GHG emissions in South Africa 1990-2016




In sum, Mandela's government strengthened general open networks taking an active role in international society, growing influx of international actors and serving the national developmental priorities aiming to heal the society from its traumatic past. The main values were human rights, non-violence and freedom without a specific focus on the environment and climatic change.

### 4.2.3. Mbeki's presidency: towards climate leadership and domestic negligence (1999-2008)

Mbeki's presidency was marked by his focus on South Africa's diplomacy and international relations, at the expense of denial of domestic policy problems. Mbeki sustained and expanded progressive South African diplomacy building on the diplomatic 'honeymoon' period under Mandela's administration. Mbeki headed the ANC's Department of International Relations since 1989 and was actively involved in the working group which had established the principles of new South African diplomacy under Mandela's presidency. Mbeki was internationally experienced. He had lived in exile in Botswana, Tanzania and the UK for many years.

Mbeki's administration focused on building soft power on the African continent. His Africa Agenda included increases in trade and cultural cooperation as well as influencing multilateral bodies to focus on continental issues (Sidiropolous 2014). The South African government sent large delegations to the UN's climate change negotiations and took an active role in the negotiations of the Kyoto Protocol. The South African government established a designated national authority and hosted a number of projects under the CDM mechanism as part of the Kyoto Protokol (DoE 2020).

The government engaged in an climate focused issue network to tackle South Africa's emissions in long term mitigation scenarios (LTMS), which grew through a participatory research process that involved numerous stakeholders (Winkler 2010, Raubenheimer 2011). The findings of this process formed the basis for South Africa's current climate policy, the National Climate Response White Paper and the NDC (RSA 2011, UNFCCC 2015, personal communications). The LTMS was the first research driven plan that set out different options including a scenario of where South African emissions will be heading with or without policy measures. The network sparked the policy processes to implement carbon pricing mechanisms beyond renewable energy, as emissions continued to grow in an unconstrained way throughout the early 2000 (Winkler 2010, Raubenheimer 2011).

Mbeki's priority on the international agenda came at the expense of attending domestic issues. His presidency suffered from a combination of denial of domestic problems and a focus on negotiation as a strategy of problem solving. Consequently, the HIV crisis led to hundreds of thousands of deaths as patients were denied the treatment of anti-retrovirals. Mbeki actively denied the connection between HIV and AIDS (pers. communication, 2015). Mbeki's management of the electricity crisis took a similar approach of denial. South Africa experienced electricity shortages as the growing economy demanded more electricity than current supply could offer. Eskom urged the presidency to take action and to build new generation capacity. By the time Eskom's generation expansion programme started in 2005, the demand exceeded the supply infrastructure and led to power shortages (see Trollip 2020 for more detail, in this report).

'Recent electricity failures posed no crisis but an opportunity for economic growth through infrastructure expansion,' President Thabo Mbeki said to the National Assembly in 2006. 'There was no reason for investors to worry' (Mbeki cited in Le Roux 2006). A year later, Mbeki publicly apologised to Eskom, saying that its representatives were right in asking for investments into electricity infrastructure, while the government was wrong in denying their request (Sapa 2007). Despite the electricity shortage, renewable energy technologies continued to be shut out of the electriciy system. The Renewable Energy White and the Feed In Tariff (REFIT) faced stiff opposition by the coalitions that fear losses in nuclear and coal technologies at the expense of an increase of renewable energy (Odeku et al 2011). The National Energy Regulator played a central role in a lengthy policy process in preparing the REFIT between 2007 -2009 remained unimplemented as a result of internal

governmental opposition by the DME and Eskom, despite NERSA's right for tariff approval under the Electricity Regulation Act (NERSA 2011, Odeku et al 2011).

In sum, Mbeki's presidency continued to keep up Mandela's legacy of open programmatic networks internationally with the commitment to the human rights agenda, building and sustaining South Africa's soft power in the climate change negotiations and other strategic international issues. Continuous non-action in dealing with domestic problems, especially in managing the electricity sector and the HIV crisis, eventually led to his dismissal. The established policy communities associated with coal and nuclear technologies continued to dominate the reform of the electricity sector and managed to continue to shut renewable energy technologies out of the system. Mbeki lost the confindence of the ANC's National General Council in 2005 and subsequently the election to confirm his lead of the ANC to in the Party's conference in Polokwane in 2007. Mbeki's unseating was a test for South Africa's young democracy. The transfers to interim President Kgalema Montlanthe and his successor Jacob Zuma, in 2009, however, were peaceful. Efforts to the decarbonisation of the emissions intesive electricity sector, however, remained minimal and the traditional emissions intensive industries remained largely unchallenged, with an exception of less reliable electricity supply.

#### 4.2.4. Zuma's administration leading to progress in implementing climate change and renewable energy policy (2009-2014)

Jacob Zuma's canditure for the presidency was controversial, because of his records in a major corruption scandal known as the arms deal, multiple charges for corruption and rape. Zuma first presidency was marked by continuity of the diplomatic course of his predecessors and unexpected climate leadership. In his first year of presidency, Zuma attended the COP 15 and announced that South Africa 'will implement mitigation actions that will collectively result in a 34% and a 42% deviation below its „Business As Usual' emissions growth trajectory by 2020 and 2025 respectively', in accordance with the obligation to the UNFCCC and the Kyoto Protocol (NCRWP 2011). These commitments were translated into the National Climate Change Response White Paper in 2011, shortly ahead of the COP (PMG 2011).

2011 was a year of remarkable change and unprecendented progress in South Africa's climate and renewable energy policy. President Zuma successfully hosted the UNFCCC's annual Conference of the Parties (COP 17) in his home province, KwaZulu Natal, in 2011. The main policy changes in climate and renewable energy policy occurred before and after hosting this major event which paid a lot of international attention on South Africa in. The Department of Energy invited invited industries to submit competitive bids for specific quantities of installed capacity in a competitive bidding programme, the Renewable Energy Independent Power Producer Procurement Program (REIPPPP) (DoE 2011). Competitive bidding worked well in bringing down the cost of renewable energy. Soon wind energy reached price parity with coal generated electricity.

Bids won by mainly international industries were assessed by 70% for their prices and 30% for their compliance with socio-economic development (SED) criteria. These criteria include community development and local content requirements. The community development criteria were inspired by the mining industries and foresaw payments to community trusts for local development processes for communities in the proximity of 50km of renewable energy plants. Local content requirements incentivized the gradual local manufacturing of certain components (such as towers in wind energy, assembly in solar photovoltaic industries to incentivize local job creation and skills development).

The implementation of the socio-economic development requirements came with learning both in policy, industries and communities, but has after all led to growing industries, creating jobs and generating additional funding for community projects (Wlokas 2017, Fyvie 2017, Rennkamp and Westin 2019 in RIPPLES D3.3.).

Despite its climatic advantages and available technology, it took fifteen years from the intention to increase the renewable energy share in the electricity mix, as expressed in the National Energy White Paper of 1998, for renewable energy to actually enter the national grid. An unimplemented Renewable Energy White Paper in 2003, a draft feed-in tariff in 2009 and finally the REIPPPP in 2011 were landmarks on the regulatory route towards implementing renewable energy. The Independent Resource Plan (IRP) legitimised the introduction of renewable energy into South Africa's electricity mix for the future in 2010.

Table 1: Main renewable energy-related policies in South Africa's electricity sector

| *Policy* | *Date* | *Objective* | *Status* |
|---|---|---|---|
| Energy White Paper | 1998 | Support implementation of RE technologies, attract investment in RE and support the development of the renewable industry | Promulgated |
| Renewable Energy White Paper | 2003 | 10 000 GWh (0.8 Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro. | Promulgated, parliamentary approval |
| IRP | 2010 | 9,6 GW of nuclear; 6,3 GW of coal; 17,8 GW of renewables; and 8,9 GW of other generation sources. | Promulgated |
| IRP update | 2013 | Delay nuclear decision, amplify gas and continue procuring renewable energy with additional annual rounds of 1000 MW PV capacity; 1000 MW wind capacity and 200 MW CSP capacity, with the potential for hydro at competitive rates. | Not promulgated |
| REFIT | 2009 | Set fixed prices for generation of PV, wind | Not promulgated, superseded by REIPPPP |
| REIPPPP | 2011 | 6,9 GW in 5 bidding rounds of PV, wind, biomass, CSP and small hydro power | Promulgated |
| ISMO | 2010-2015 | Provide ISMO as a company responsible for the planning of supply of electricity […] to minimize electricity to customers | Not promulgated, submitted and withdrawn from parliamentary approval |

The policies summarised in the table above were managed through different processes. The Energy White Paper, the Renewable Energy White Paper, the IRP and the REFIT were all open policy processes. The white papers and the IRP were mostly planning exercises, containing recommendations but no binding decisions. The non-binding nature of the IRP was underlined by calling it a 'living plan' that should be revised every two years (DoE 2013). The REIPPP did not undergo a formal public consultation process. The DoE invited public comment on the IRP update, but never integrated these into the document. The DoE presented the IRP update belatedly and presented it for parliamentary approval. The update came as a surprise to the public and even to government officials in other departments (National Treasury, Department of Environmental Affairs, personal communications 2013).

Overall, the first Zuma administration enabled climate and clean energy policy in an unprecedented way. The impetus of the COP 17 created a window of opportunity for advancing climate action in South Africa. The National Climate Change Response White Paper passed the parliament in October 2011, a month before the COP. The President launched the South African Renewable Energy Initiative (SARI). The National Treasury invited for bids to the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) in the same year. National Treasury announced the Carbon Tax in 2012, which was finally approved into law in 2019.

### 4.2.5. Zuma's second term: international patronage and domestic state capture (2014-2018)

During the second term of the Zuma presidency, large parts of his administration, allies and family members engaged in large scale patronage and state capture. The process of capture occurred over time, through multiple changes in the cabinet, slow capture of strategic government departments and SoEs and the electoral system. The president, along with anIndian family known as the Guptas, had set up channels to extract rents through state-owned enterprises into overseas accounts (for an overview see Bhorat et al 2016).

Eskom became a central agent in the process of capture; with growing financial losses and active opposition to the renewable energy program. Eskom's financial losses are mainly associated with excessive expenditure on coal contracts and management of its power plants (Trollip 2020 in this report). In 2015, Eskom refused to sign the power purchase agreements, which were necessary to conclude the fourth bidding round under the REIPPPP (Njobeni 2017). This was not only an open breach with government regulation, it also posed a major risk to the implementation of the South African NDC.

Despite the progress in state capture, the international climate change policy remained largely intact. The South African government submitted an INDC ahead of the Paris Agreement, despite national controversies about the necessity of a submission (PMG 2015). The REIPPP program has been regarded as a success in the South African NDC and counts as one of the main sources of investments in climate change mitigation. The NDC refers to a potential expansion of the renewable energy program, which is currently under consideration with the South African Economic Development and Labor Council.

The NDC refers to the REIPPPP, with '79 renewable energy IPP projects, total 5 243MW, with private investment totalling ZAR 192 billion (approx. US$ 16 billion). Another 6300 MW are under consideration.'(UNFCCC 2015b, p.9).

The decarbonisation of the electricity sector is central to meeting the «range» for an emissions trajectory, 398 and 614 Mt CO2–eq, for 2025 and 2030. Five years cycles structure the 'implementation at the national level, specifically, 2016-2020 focused on developing and demonstrating the above mix of policies and measures in order to meet South Africa's pledge, and the periods 2021-2025 and 2026-2030 for its INDC. This level of effort will enable South Africa's greenhouse gas emissions to peak between 2020 and 2025, plateau for approximately a decade and decline in absolute terms thereafter' (UNFCCC 2015b). These emissions reductions are unlikely to occur if the REIPPP program continues to be interrupted. Eskom refused to sign any power purchase agreements and bring the progress of the implementation of South Africa's central and most successful mitigation policy to a halt (Njobeni 2017).

The years of state capture undermined not only state legitimacy. It let to economic recession, decreases in recession, mass migration, increasing poverty and unemployment and largely compromised on South Africa's public goals in equitable and sustainable development. As a result, the second term of Zuma's presidency was marked by the dominance of harmful domestic and international patronage networks. Zuma's networks extended internationally into the BRICS group, which South Africa was invited to join in 2010. Jacob Zuma and Vladimir Putin reportedly used the BRICS forum to extend their trade relations with a nuclear power program at its core. The so called new built nuclear program became another channel for rent-seeking practices into an international patronage network through the commission of overpriced services without adding any physical value (Gosam 2017).

### 4.2.5 2018 – current; Cyril Ramaphosa's presidency of damage control in a divided ANC

President Zuma did not finish his second term and resigned from the presidency in 2018, after he had survived several motions of no confidence with very thin majority. The Constitution did not allow Zuma to run for a third term. His preferred successor and ex-wife Nkosazana Dlamini-Zuma stood in his place for the election for the presidency of the ANC. Vice President Cyril Ramaphosa won the elections with a very thin majority of 51.9 % vote. Ramaphosa served as an acting president after Zuma's resignation in 2018, and was confirmed as the fourth President of the Republic after the elections in 2019. The results of both the ANC and the national election surfaced the divide within the ANC and in the country. The vote for the ANC fell below 60% for the first time since 1994 (National Results Dashboard 2019). Half of the National Executive Committee of the ANC, currently consists of President Zuma's supporters (ANC 2020).

In the first months, Ramaphosa's presidency started with momentum for change and for undoing the damage from the years of capture. A major investigation into 'state capture' occured at the Zondo Commission of Inquiry, as part of Ramaphosa's commitment to hold individual's engaging in criminal corruption accountable (Omarjee 2019).

Ramaphosa supported the continuation of the REIPPP program and had to ensure telephonically that Eskom officials finally sign the delayed purchase agreements, in April 2019 (personal communication). Ramaphosa recommitted to the REIPPP, an enhancement of the NDC and further commitments to the green climate fund in an unexpected speech at the UN climate change summit in September 2019 (DIRCO 2019).

The implementation risk for the NDC, through the REIPPP, is still imminent as representatives of Eskom and other beneficiaries of coal and nuclear related rent-seeking activities spun an anti-renewable narrative, which blames the REIPPP program for Eskom's financial crisis. This narrative motivated the government to renegotiate contracts of the first bidding rounds, although the developers have successfully delivered much needed clean electricity infrastructure (Lutango 2019).

Ramaphosa's challenge is to manage a transition from a historically grown and corrupted system of rent seeking from coal and nuclear contracts towards a transparent and prosperous sustainable energy regime which generates employment opportunities locally, without deterring foreign investors in renewable energy.

This will continue to be difficult, as the opposition to renewable energy continues to undermine progress in building renewable energy infrastructure within the ANC. The halt of the RE program during the second term of Zuma's administration let to an problematic discourse against renewable energy. The discourse equals renewable energy with privatisation, foreign businesses and job losses vs. Eskom, coal and job security in coal and Eskom jobs. Some trade unions have also been effectively working on spreading this narrative, which peaked in an unsuccessful court case initiated by the National Union of Metalworkers (Malema 2018). A growing number of actors continue to spreading anti-renewable narrative in order to protect traditional ways of rent-seeking and distracting from Eskom's structural problems and necessity for reform.

At the same time, Eskom's debt is increasing and leading to increasingly disadvantegous investment ratings, power shortages and economic decline (Treasury 2019). Attempts to change the structure of Eskom's business models have not been successful despite efforts of the Minister of Public Enterprises, Pravin Gordhan. The rivalry in the ANC has increasingly put pressure on the President to let go of Gordhan, who had actively resisted the process of state capture and was dismissed in his function as minister of finance as he refused to approve the Nuclear Build Program (MG 2017, Paton 2020). The divide in

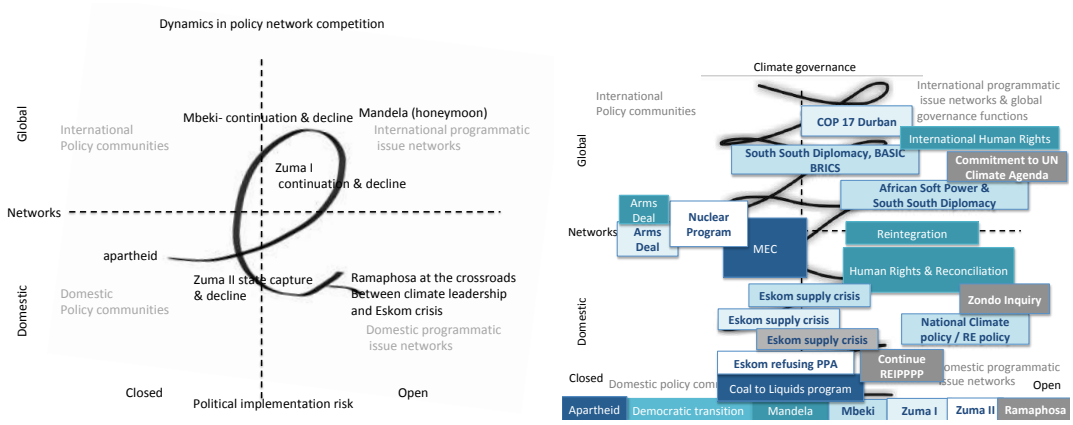
the Party presents a major implementation risk to South Africa's climate and renewable energy policy. In the current situation, the network of supporters of the transparent, clean energy policy which could enable South Africa to meet its commitments in the NDC and to the Paris Agreement is still dominant. The network, however, is very thinly spread with lots of responsibilities concentrating on a few individuals.

### 4.2.6. Summary

In sum, the South African case demonstrates a significant implementation gap between communications in the national and global development priorities and the NDC. Despite renewable energy policies being in place, coal infrastructure continues to be sustained and expanded without showing a commitment to the decarbonization plans outlined in the NDC.

The implementation of the South African NDC is highly compromised, because of the dominating coalitions of political actors opposing progress towards a clean and sustainable energy transition. This is despite the progressive communication in the NDC, and potential positive SDG outcomes in terms of emissions reductions, energy security, job creation and poverty reduction. A vision towards carbon neutrality by 2050 is still outstanding (personal communication, DEA 2019). The presidential power within the ANC is crumbling, as it rested on a very thin majority in the first place. The institutional decline is gradual with Eskom at its core. The corruption inquiries have taken place. The justice system is still largely in tact, with government critical NGOs still standing chances to win court cases.[8] If the corruption inquiries will lead to imprisonment is yet to be seen.

Figure 5: Overview of network dynamics and events in South African climate policy




## 5. Conclusions

The analyses of the implementation risks for NDCs emerging from competing policies showed that domestic climate action communicated under the UN stands on fragile grounds. Fragile young democracies face significant implementation risks through the underlying competition of historically grown interest, rent and patronage driven networks. Where closed networks dominate, we find higher implementations risks for climate policy. Closed networks often find that progressive climate policy leads to transitions which jeopardise traditional sources for rents.

[8] Two South African NGOs won a court case which put the governments controversial nuclear built program to a halt.

The phases of climate policy and implementation risk in Brazil were marked by the 'climate villain' with high deforestation rates in the 1990. Successful mitigation measures and increased climate leadership occured under the Lula administration, followed by gradual decline under Rousseff and Temer. Bolsonaro actively turned the forest protection measures around, in a populist fashion, while leaving energy and ethanol policy largely intact. Brazil's legacy of international climate leadership was actively abandoned and turned around to promoting climate denialsim.

South Africa underwent a similar trajectory, when the first democratic government could reintegrate into the international system and put active poverty reduction measures in place under Mandela. Climate leadership was not yet pronounced under Mandela, but his successor actively pursued an international agenda. International climate leadership peaked under Mbeki and Zuma's first term, but then crumbled away with the bumpy road in implementing the renewable energy programs which are essential to the decarbonisation of the electricity sector. The dominance of closed networks tapping into illegal rent seeking mechanism jeopardised the progress in the implementation of the renewable energy programm. The financial crisis in Eskom, linked with an aging coal fleet and a strong anti-renewable energy lobby create a dangerous situation for South Africa. The impasses in the electricity sector constrain both the economic situation as well as the implementation of the NDC.

The gap between implementation and climate leadership was narrowed in the first years of the Zuma administration, but has widely opened again with the increase of anti renewable rethoric. Unlike Brazil, South Africa never overcame the phase of a 'climate villain', but has maintained its role in serving as a climate leader to the international negotiations. Institutional decline continues gradually, and less rapidly than in Brazil With its electricity sector running on a string, the country has the potential to become the first example of embracing an energy transition by collapse.

The signal function of global climate governance had significant influence on creating momentum to initiate policy processes and implementation within the constraints of national network competition. In Brazil and South Africa, the hosting of the Earth Summits and the COP, respectively, created significant momentum for the implementation of domestic policy and strengthening of open issue networks. This power of international norms should not be underestimated and can potentially make a big difference in high emissions intensive economies, including India and China.

In the case of Brazil, the EU should urgently consider using its power to implement trade limitations to Brazilian agricultural imports, if the devastation of the Amazon forest continues. Limiting the external markets for Brazilian agricultural products will likely turn Bolsonaro's support from the big agribusiness lobbies around. External pressure through hard sanctions are currently the only way to strengthen open climate networks in Brazil, as the political opposition, environemental governance institutions and NGOs are weakened and threatened by the Bolsonaro administration.

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