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ZA

2018

Energy

South Africa's nuclear new-build programme

Who are the players and what are the potential strategies for pushing the nuclear new-build programme?

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Design: Farm Design, www.farmdesign.co.za

Cover photograph: Shutterstock.com

Citation: Prins, N and Davies, E (2018) South Africa's nuclear new-build programme: Who are the players and what are the potential strategies for pushing the nuclear new-build programme? WWF South Africa, Cape Town

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Series overview

The World Wide Fund for Nature, with the generous funding of the Open Society Foundation, South Africa, launched a research initiative to unpack and understand the South African Government's strategy for the nuclear new build programme to date, its possible strategy going forward, and possible points of intervention for civil society groups and other stakeholders opposed to the nuclear new build programme.

This report is the first in the series which includes the following reports:

- *South Africa's nuclear new-build programme: Who are the players and what are the potential strategies for pushing the nuclear new-build programme?*

www.wwf.org.za/report/nuclear_new_build_programme_players_strategies

- *South Africa's nuclear new-build programme: The domestic requirements for nuclear energy procurement and public finance implications*

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ACRONYMS AND ABBREVIATIONS

ANC	African National Congress
BOO	Build-own-operate
BOOT	Build-own-operate-transfer
BOT	Build-operate transfer
BT	Build-transfer
CFO	Chief financial officer
CSIR	Council for Scientific and Industrial Research
DDG	Deputy director general
DG	Director general
DoE	Department of Energy
DPE	Department of Public Enterprises
ECA	Export credit agency
EPC	Engineering procurement construction
IAEA	International Atomic Energy Agency
IGA	Intergovernmental agreement
IRP	Integrated Resource Plan
IRR	Institute of Race Relations
NECSA	Nuclear Energy Corporation of South Africa
NERSA	National Energy Regulator of South Africa
NGO	Non-governmental organisation
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
RFI	Request for information
RFP	Request for proposal
SAFCEI	Southern African Faith Communities Environment Institute
SPV	Special purpose vehicle
UK	United Kingdom
USA	United States of America
VVER	Water-Water Energetic Reactor

INTRODUCTION: SOUTH AFRICA'S CHANGING POLITICAL LANDSCAPE AND THE GOVERNMENT'S NUCLEAR AMBITIONS

South Africa's political landscape has gone through significant changes since the end of 2017. In December 2017, Cyril Ramaphosa, deputy president of South Africa, was appointed president of the African National Congress (ANC). On 14 February 2018, President Jacob Zuma resigned as president of the country and was replaced by Cyril Ramaphosa. Since taking office, President Ramaphosa has made significant changes. He has replaced ministers in key departments, including those responsible for determining South Africa's nuclear future, such as the National Treasury, the Department of Public Enterprises (DPE) and the Department of Energy (DoE).

What this means for the government's nuclear ambitions are not yet clear. However, it appears that the commitment to a nuclear new-build programme in South Africa may be waning. If this is correct, then the question that arises is how the programme will be brought to an end. It is possible that there could be a sudden termination, perhaps preceded by an official announcement. It is equally possible that the programme will be allowed to gradually fade away, maybe by placing more onerous conditions on the procurement process or by supporting alternative forms of energy supply, or possibly through reliance on poor economic conditions or depressed energy demand as justifications.

Announcements by the new Minister of Energy, Jeff Radebe, that the outstanding Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) contracts would be approved and signed, and the actual signing thereof on 4 April 2018,¹ could be read as a political move towards supporting renewables as an alternative to nuclear energy. Legally, however, the procurement of renewable energy had come to a stage where the South African government was required to reach completion with those contractors, or face paying damages. Yet, the fact that Minister Radebe moved quickly after his appointment as Minister of Energy to resolve the impasse that existed in the signing of the

1 Khumalo, S. 4 April 2018. *Jeff Radebe signs R56 bn contract with renewable power producers*. Fin24. [Online] Available at: [fin24.com/Economy/Eskom/jeff-radebe-signs-long-delayed-renewable-power-deals-20180404](https://www.fin24.com/Economy/Eskom/jeff-radebe-signs-long-delayed-renewable-power-deals-20180404)

renewable energy contracts implies that he may take a different stance on South Africa's energy mix.

At the same time, political observers might argue that the new regime under President Ramaphosa is being careful not to prematurely alienate any factions in the ruling party. There appears to be a desire to maintain an appearance of policy continuity with the previous regime and to create the impression of a unified political front. Rather than be against nuclear energy in principle then, it may be easier if other factors are left to ensure its inevitable demise, with no political capital expended in the process.

Under the Zuma administration, renewable energy and nuclear power were increasingly polarised. They were often positioned as alternative solutions to South Africa's bulk electricity needs. For example, proponents of nuclear energy argued that renewable energy could not provide baseload capacity and that the only way to transition to a cleaner energy mix was through nuclear energy.² Those in favour of renewable energy argued that, as the Council for Scientific and Industrial Research (CSIR) model has shown, large-scale renewable energy distributed around the country could provide baseload capacity at far cheaper prices than nuclear energy.³

Given the political changes that have taken place, it is important to understand both the nuclear strategy under the Zuma administration and the possible strategy under the Ramaphosa administration, if the latter were to pursue the nuclear new-build programme. Understanding the nuclear strategy until the end of 2017 helps to inform the extent to which the procurement process was able to advance. It also allows us to assess the current status of various aspects of the programme that were being pursued.

This document, therefore, seeks to understand:

- who the various stakeholders are in the nuclear debate in South Africa
- what the South African government's strategy was for pushing the nuclear new-build programme under the Zuma administration
- what the government's strategy could be going forward
- what the potential points of intervention are for those who seek to oppose the nuclear new-build programme.

2 Msebenzi, K. 6 March 2017. *Anti-nuclear, pro-renewable advocates mistake 'intermittent' supply for 'variable' supply*. Business Day. [Online] Available at: businesslive.co.za/bd/opinion/letters/2017-03-06-letter-anti-nuclear-pro-renewable-advocates-mistake-intermittent-supply-for-variable-supply

3 Bischof-Niemz, T et al. 24 November 2016. *Least-cost electricity mix for South Africa until 2014*. Pretoria: CSIR; Bischof-Niemz, T et al. 4 April 2017. *Formal comments on the Integrated Resource Plan (IRP) Update Assumptions, Base Case and Observations 2016*. Pretoria: CSIR.

STAKEHOLDER ANALYSIS: SUPPORTERS AND OPPONENTS OF THE NUCLEAR NEW-BUILD PROGRAMME

Ministers of and officials in the Department of Energy since 2009

President Jacob Zuma took office on 9 May 2009. He resigned on 14 February 2018, approximately one year short of completing his second term as president of the Republic of South Africa. During his tenure as president, he expressed continued support for the nuclear new-build programme. In fact, many speculate that he was the political driving force behind the programme.

During Zuma's presidency, he changed his Cabinet a number of times, including ministers of the Department of Energy (DoE). In total, there were 13 cabinet reshuffles and the DoE saw six different ministers since 2009, with 2017 witnessing three changes to the position of minister. Table 1, compiled from a report by the South African Institute of Race Relations (IRR) in 2017 titled 'Political musical chairs: Turnover in the National Executive and Administration since 2009', depicts the changes made to the DoE during Zuma's tenure as president.⁴ The column 'Cabinet' depicts the reshuffles that took place and 'Duration' the period in that Cabinet that each minister served.

Table 1: Ministers of Energy, 2009 to 2018

Minister of Energy	Cabinet	Dates	Duration
Under President Jacob Zuma			
Dipuo Peters	1st	10 May 2009 – 31 October 2010	13 months
	2nd	31 October 2010 – 24 October 2011	12 months

⁴ Van Onselen, G. August 2017. *Political musical chairs: Turnover in the National Executive and Administration since 2009*. Johannesburg: South African Institute of Race Relations. [Online] Available at: irr.org.za/reports-and-publications/occasional-reports/files/irr-political-musical-chairs.pdf

Minister of Energy	Cabinet	Dates	Duration
	3rd	24 October 2011 – 12 June 2012	8 months
	4th	12 June 2012 – 3 October 2012	5 months
	5th	3 October 2012 – 9 July 2013	10 months
Ben Martins	6th	9 July 2013 – 25 May 2014	11 months
Tina Joemat-Pettersson	7th	25 May 2014 – 22 September 2015	18 months
	8th	22 September 2015 – 9 December 2015	2 months
	9th	9 December 2015 – 13 December 2015	5 days
	10th	13 December 2015 – 30 March 2017	16 months
Mmamoloko Kubayi	11th	30 March 2017 – 17 October 2017	7 months
David Mahlobo	12th	17 October 2017 – 26 February 2018	4 months
Under President Cyril Ramaphosa			
Jeff Radebe	1st	26 February 2018 – present	

SOURCE: Van Onselen, August 2017

Table 2, which is drawn from information from the IRR report, various media reports and departmental statements, shows the ministers, deputy ministers, directors general (DGs), deputy directors general (DDGs) and the chief financial officers (CFOs) of the DoE under the Zuma administration.

Table 2: Ministers and deputy ministers of Energy, DGs, DDGs and CFOs under President Jacob Zuma

Date	Minister	Deputy Minister	Director General Nuclear Energy	Deputy Director General Nuclear Energy	Chief Financial Officer
10 May 2009 – 9 July 2013	Dipuo Peters	Barbara Thompson	Nelisiwe Magubane (Dec 2009 – Mar 2014)		Yvonne Chetty (Since December 2010 – present)
9 July 2013 – 25 May 2014	Ben Martins	Barbara Thompson	Nelisiwe Magubane (Jul 2013 – Mar 2014) Tseliso Maqubela (Acting) (Apr 2014 – Oct 2014)	Zizamele Mbambo	Yvonne Chetty
25 May 2014 – 30 March 2017	Tina Joemat-Pettersson	Ambassador Thembisile Majola (since 25 May 2014 – present)	Tseliso Maqubela (Acting) (May 2014 – Oct 2014) Dr Wolsey Barnard (Acting) (Oct 2014 – Sept 2015) Thabane Zulu (Sept 2015 – present)	Zizamele Mbambo	Yvonne Chetty
30 March 2017 – 17 October 2017	Mmamoloko Kubayi	Ambassador Thembisile Majola	Thabane Zulu	Zizamele Mbambo	Yvonne Chetty
17 October 2017 – 26 February 2018	David Mahlobo	Ambassador Thembisile Majola	Thabane Zulu	Zizamele Mbambo	Yvonne Chetty

Stakeholder analysis

Before examining the nuclear strategy pursued by the Zuma administration, it is important to get a sense of those who have supported the nuclear new-build programme and those who have opposed it. The following section, which is based on the author's knowledge and a review of over a thousand media reports and publications since 2015, provides an overview of some of the key stakeholders in the nuclear debate. While the list is certainly not exhaustive, it reflects those stakeholders who have been particularly vocal in the media and on other platforms over the past two to three years. In some cases individuals are named and quotes are provided to justify their categorisation.

Those opposed to nuclear energy

What is clear is that there is overwhelming opposition to the nuclear new-build programme. The reasons for this differ. On the whole they include economic concerns, concerns about electricity demand not justifying a build on this scale, concerns about the lack of transparency in the process and the potential for corruption, and environmental and human safety concerns. Those opposing nuclear plants are mapped out in Figure 1. They are categorised according to the reasons they have given for their opposition. However, these categories are not set in stone. It is possible that those categorised may have given further reasons which are not reflected below. The purpose is simply to give an idea of some of the reasons given by nuclear opponents.

Figure 1: Stakeholders opposing the nuclear new-build programme



- Citing the reason that falls under the category in the quadrant it is placed
- Citing reasons relating to energy demand and economic and financial considerations
- Citing reasons relating to economic and financial considerations and the potential for corruption and/or lack of transparency
- Citing reasons relating to economic and financial considerations; corruption and/or lack of transparency; and energy demand
- Citing reasons relating to economic and financial considerations; corruption and/or lack of transparency; and environmental and human safety concerns
- Citing all reasons (economic and financial; energy demand; corruption and/or transparency; and environmental and human safety)

Explanation (relating to Figure 1)

1. At a briefing by the former Minister of Energy, David Mahlobo, to the portfolio committee on Energy on 23 November 2017, Minister Nzimande ‘... expressed concern about how the costs involved would impact the poor’ (Payne, 2017).
2. At a briefing by the former Minister of Energy, David Mahlobo, to the portfolio committee on Energy on 23 November 2017, ANC parliamentarian Risimati Mavunda ‘... wanted to know from the minister how nuclear energy would provide poverty relief’ (Payne, 2017).
3. During testimony to the portfolio committee on public enterprises, former CEO of Eskom, Brain Dames, told the committee ‘There is absolutely no need for [new] nuclear ... we have no need for it. Secondly, I don’t think we can afford it’ (The Citizen, 2017).
4. President Trueman Goba stated that ‘in its [South African Academy of Engineering] opinion, it was not in the best interests of South Africa, especially the poor, for government to embark on a nuclear power procurement programme at this point’ (Carnie, 2017).
5. CEO of Business Leadership South Africa (BLSA), Bonang Mohale, stated that he ‘... found it hard to understand why, in a country with such abundance of sun and wind, SA’s energy focus was not on renewable, rather than on “those things we can ill afford”’ (Smith, 2017) and ‘expressed concern about the warm attitude of President Zuma to the Russian nuclear build proposal ... Nuclear is the last option ... we cannot afford it’ (Pressly, 2017).
6. In NUMSA and the UF’s Joint Memorandum on the Eskom Tariff increase they ‘reject the nuclear deal’ citing the cost to the fiscus and impact on tariffs, the opportunity for corruption, Eskom’s current oversupply, and the impact on human health and the environment, among others, as reasons for their rejection of nuclear (NUMSA & UF, 2017).
7. AMCU’s Joseph Mathunjwa stated that ‘[h]eavy propaganda is being directed at trade unions to get them to endorse nuclear energy, in the belief that this will create jobs. We will not allow ourselves to be manipulated into supporting the looting ambitions of the predatory elite. We believe South Africa has great potential to build a significant renewable energy industry, as indicated in AIDC’s ‘Million Climate Jobs’ (Mathunjwa, 2017).
8. Chris Yelland from EE Publishers stated that ‘I am certainly not opposed to a nuclear new-build in South Africa on ideological or technology grounds. But there are real issues that both nuclear and renewable energy proponents must deal with ... The high upfront capital costs, and associated financing and affordability of such mega-projects, is an issue, and one really has to deal with these issues, because it is one of the big drawbacks of nuclear’ (EE Publishers, 2017).
9. In response to the High Court judgment, the EFF’s Mbuyiseni Ndlozi stated that ‘[t]he declaration of the agreement to be unconstitutional is a victory against kleptocracy and state capture’ and that ‘[o]n numerous occasions, the EFF has

constantly reiterated that South Africa cannot afford the R1 trillion nuclear deal' (Ndlozi, 2017).

10. In response to the High Court judgment, SAFTU stated '[t]his has led to serious allegations that the R1 trillion deal, the details of which are still secret, involved corruptions ... [it] agreed to step up the campaign against nuclear energy' (SAFTU, 2017).
11. The Institute for Security Studies noted that '[i]n addition to the exorbitant cost and secret nature of the process, there are safety and environmental issues to be considered' (ISS, 2017).
12. CASAC'S executive secretary, Lawson Naidoo, said on an interview with SABC that 'the media statement handed out following the deal seems ambiguous ... it is important that the rules of the game, procurement processes and guidelines be clear upfront so that we do not end up with the arms deal fiasco' (Legalbrief, 2018).
13. Following a politburo meeting in May 2017, the SACP released a statement which noted '[t]he original intention to controversially deploy Molefe as finance minister was surely to drive a nuclear deal that our country neither needs nor can afford. Back at Eskom he will still pursue that same ruinous agenda' (Jacaranda FM, 2017).
14. UCT Graduate School of Business Professor, Anton Eberhard, and Chief Scientist at the Rocky Mountain Institute, Amory Lovins, conclude in their report titled *South Africa's Electricity Choice* that nuclear energy 'cannot compete with efficiency and renewables, by every relevant measure: cost, timeliness, financing, jobs, economic development, environmental and safety risk, independence, security, abundance of eternally free local energy sources, and the social good of "energy democracy"' (Lovins & Eberhard, 2017).
15. Jakkie Cilliers, author of *Fate of the Nation*, stated that South Africa neither needs nuclear energy until 2040 nor can it afford it. As to why we would pursue nuclear despite its cost and the lack of need for it, Cilliers stated that 'the question must be why. Has money changed hand? What are the reasons for this? Is it a payback for our membership in Brics? Nobody knows' (Cornish, 2017).
16. Hartmut Winkler has questioned why, despite not being able to afford nuclear nor needing it, the government was attempting to push it through (Winkler, 2017).
17. See Jay Naidoo's opinion piece in the *Daily Maverick* (Naidoo, 2017).
18. In a letter to cabinet ministers on 1 November 2016, Save South Africa convenor, Siphon Pityana, called on cabinet ministers not to make a decision on nuclear energy. In the letter he noted that '[i]t is far from clear whether South Africa needs or can afford to procure nuclear energy' and also that 'there is enormous uncertainty about the integrity and governance of important public institutions at the moment, including Eskom' (Herman, 2016). In 2017, Save South Africa stated that '[t]he next stage is seemingly to get him (Molefe) back in Eskom where, with the protection of the state-owned company's (SOC) equally

questionable chairman, Ben Ngubane, he will go back to overseeing multi-billion dodgy deals, including the nuclear energy deal' (Slabbert, 2017).

19. In 2017, following a meeting with BLSA where they agreed to fight state capture, COSATU stated that '[t]he organisations want a complete halt to the nuclear programme' (Grootes, 2017). In 2015, a statement released by COSATU on concerns regarding the nuclear programme, it referred to the costs of nuclear energy, the impact on electricity prices and the human health and environmental consequences, among others (Mabasa, 2015).
20. Author Dirk de Vos cites a number of reasons in various articles as to why nuclear energy is not a suitable option for South Africa. These include environmental and human safety, costs, lack of demand and lack of transparency (De Vos, 2017).
21. See Piet van Staden's article titled *EIUG: No nuclear needed anytime soon* (Van Staden, 2017).

Those in favour of nuclear energy

Those in favour of the nuclear new-build programme are overwhelmingly from government departments and associated institutions. Apart from representatives from these two sectors, there are very few commentators who appear to be in favour of the nuclear new-build programme. In general the reasons given by proponents are that nuclear provides baseload capacity, that it is the cheapest source of energy, that it has industrialisation potential, that it has a proven track record in South Africa, that it is safe and that it mitigates climate change. Below are the most vocal proponents of nuclear energy over the past two to three years.

Table 3: Stakeholders in favour of nuclear energy

Institution	Proponent
South African government	Former President Jacob Zuma
	Thabane Zulu (DG at the DoE)
	Senti Thobejane (former adviser to the Minister of Energy)
	Mpetjane Lekgoro (SA ambassador to the United Arab Emirates) <i>Speaking at a conference in Abu Dhabi in November 2017, the ambassador stated that nuclear was not only a viable option for countries such as South Africa but also that it was critical for ensuring energy security (ESI Africa, 2017).</i>
	Zizamele Mbambo (DoE)
	Tebogo Seokolo (former chairman of Board of Governors of the International Atomic Agency)

Institution	Proponent
Eskom	Brian Molefe (former CEO)
	Matshela Koko (former COO)
	Dave Nichols (Chief Nuclear Officer)
	Loyiso Tyabashe (senior manager, Nuclear New-build Programme)
	Ben Ngubane (former chairman of Eskom board)
NECSA	Kelvin Kemm (chairman)
	Phumzile Tshelane (CEO)
	Andrew Venter
National Nuclear Regulator	
Nuclear Energy Committee	
Nuclear Industry Association of South Africa	Rob Adam (chairman)
	Knox Msebenzi (MD)
	Des Muller (supply chain committee member and director of Nu Energy Developments)
National Radioactive Waste Disposal Institute	Wolsey Barnard (CEO)
South African Network for Nuclear Education, Science and Technology (SAN-NEST)	Anthony Cilliers (national coordinator of SAN-NEST and honorary research fellow at Wits)
	Joe-Nimique Cilliers (SAN-NEST research fellow and Nuclear Engineering lecturer at North West University)
	Jannie Neethling (SAN-NEST research fellow and director of the Centre for HRTEM, Nelson Mandela University)
Other	Rob Jeffrey (independent economic risk consultant)
	Dawid Serfontein (North West University)
	Mohsin Seedat (PWC) <i>At a panel discussion in 2015 hosted by NIASA, Seedat stated that 'nuclear could provide South Africa with baseload power in an "environmentally sensitive" way' and that '[a]ll indications are that South Africa is ready for the next stage of economic growth, that is why nuclear is needed' (WNN, 2015).</i>
	Collin Little (SA Manufacturing Circle) <i>Speaking on a panel at an event hosted by NIASA, Little stated that 'There will ... be opportunity for local manufacturers to create capacity and supply' and that 'a stable energy hub would also help South Africa to industrialize and become a regional manufacturing hub' (WNN, 2015).</i>
Russian government	Alexander Galushka (minister for the Development of the Russian Far East)
	Viktor Polikarpov (regional vice president for sub-Saharan Africa at Rosatom)
	Sergey Donskoy (Russian minister of Natural Resources and Environment)

THE ZUMA ADMINISTRATION'S STRATEGY TO PUSH THE NUCLEAR NEW-BUILD PROGRAMME

Despite a succession of energy ministers under the Zuma administration, there was a continued commitment to procuring the nuclear new-build programme. In fact, many speculate that the reason for the rapid succession of energy ministers, particularly in 2017, was to appoint ministers who would push the nuclear programme through faster.

In 2017, following the judgment by the High Court in favour of two non-governmental organisations (NGOs), Earthlife Africa Johannesburg and the Southern African Faith Communities Environment Institute (SAFCEI),⁵ those in charge of nuclear energy at the DoE and affiliated institutions such as the South African Nuclear Energy Corporation (NECSA) and Eskom, appear to have been exclusively focused on addressing the court's concerns. In other words, their strategy appears to have been to deal with the court's findings as expediently as possible, with the hope of pushing the nuclear new-build programme through by 2019.

This was probably based on the assumption that President Zuma, a strong supporter of the programme, would remain in power until 2019. Should Zuma not remain in power, it was hoped that his allies would continue to drive the programme. Officials therefore had a very limited period in which to get all their nuclear ducks in a row before 2019. The urgency of this quest is important to understand, as it fed into the near-fatal tunnel vision that characterised the approach of officials who pursued the programme in the DoE, and can explain many of the shortcomings in the procurement process to date.

To understand the DoE's most recent strategy on nuclear energy, it is important to understand not only the findings of the High Court but also what the DoE did to address these. The following sections explore these aspects.

⁵ High Court of South Africa, Western Cape Division. 26 April 2017. *Judgment: In the review application between: Earthlife Africa (et al) and the Minister of Energy (et al)*. South Africa: Department of Justice.

The Earthlife Africa / SAFCEI legal judgment: a summary of the precedents set and implications for proceeding with nuclear procurement⁶

In October 2015, Earthlife Africa Johannesburg and the Southern African Faith Communities Environmental Institute (SAFCEI) brought a case against the Minister of Energy, the president of South Africa and the National Energy Regulator of South Africa (NERSA), challenging the legality of the nuclear procurement process. The speaker of the National Assembly, the chairperson of the National Council of Provinces and Eskom were also included as respondents. The case centred on the legality of two processes:

SECTION 34 OF THE ELECTRICITY REGULATION ACT 4 OF 2006⁷

34. New generation capacity

- (1) The Minister may, in consultation with the Regulator –
- (a) determine that new generation capacity is needed to ensure the continued uninterrupted supply of electricity;
 - (b) determine the types of energy sources from which electricity must be generated, and the percentages of electricity that must be generated from such sources;
 - (c) determine that electricity thus produced may only be sold to the persons or in the manner set out in such notice;
 - (d) determine that electricity thus produced must be purchased by the persons set out in such notice;
 - (e) require that new generation capacity must –
 - (i) be established through a tendering procedure which is fair, equitable, transparent, competitive and cost-effective;
 - (ii) provide for private sector participation.

- the section 34 determinations issued by the Minister of Energy that 9.6 GW of nuclear energy must be procured, issued first in 2013 and again in 2016 (the second time to identify Eskom as the procurer)⁸
- three intergovernmental agreements (IGAs) that were tabled in Parliament, governing aspects of the relationship on nuclear energy between the government of South Africa and Russia, South Korea and the USA.

In April 2017, the Western Cape High Court found in favour of the two NGOs. In essence, the High Court found that:

1. The tabling in Parliament in June 2015 of the IGA that had been signed with Russia in 2014 was unconstitutional and unlawful, and on this basis it was set aside.

Importantly, the court did not pass judgment on the content of the IGA. Instead, its finding was procedural – the court took issue with the manner in which the IGA had been tabled in Parliament. International agreements that the government of South Africa signs with other countries have to be tabled in Parliament for approval, and only then do they become binding. The exception is if these agreements are of a 'technical, administrative or executive nature', in which case they just need to be tabled for noting within a reasonable period of time.

The Russian IGA was only tabled for noting, but the High Court found that it should have been tabled in Parliament for approval. This is because the IGA was found not to be merely technical, administrative or executive. Instead, the court concluded the following:

⁶ Op cit note 5.

⁷ Also see the Electricity Regulation Act 4 of 2006.

⁸ A section 34 determination is essentially a directive that the Minister of Energy issues, which states what energy must be procured, how much and by whom. This triggers the start of a procurement process. It is a legal requirement that the directive be issued, as determined by South Africa's energy regulations.

- i. The IGA provides for a strategic partnership, which would focus on the development of a comprehensive nuclear new-build programme, including the design, creation and decommissioning of nuclear plants; use of the Russian Water-Water Energetic Reactor (VVER) technology for a total capacity of 9.6 GW; collaborating on implementing two units of 2.4 GW at specifically stated sites and with additional IGAs to be signed on how this would be done, with joint committees to oversee this; favourable tax regimes and other incentives provided for Russia; and with South Africa incurring all liability as a result of any nuclear incidents.
- ii. The provisions of the Russian IGA were not contained in the IGAs with other countries, and stand well outside the category of a broad nuclear cooperation agreement.
- iii. The IGA contained the hallmarks of specificity and frequent use of peremptory language, and was unmistakable in its intended permanence, scope and importance, suggesting a firm legal commitment to a strategic partnership.
- iv. The IGA puts South Africa on the road to a binding, exclusive agreement to procure nuclear power plants from Russia. This was further reinforced by a press conference held by South African and Russian entities after signing the agreement, where they explicitly stated this.
- v. The High Court found this agreement to have potentially far-reaching financial consequences for South Africa.
- vi. A 2004 IGA with Russia was in place, already providing for a general nuclear cooperation agreement and containing none of the characteristics listed above, which raised the question as to why the 2014 agreement was necessary.
- vii. The State Law Adviser had advised the DoE that approval was required, but this was ignored.
- viii. The Minister of Energy either 'failed to apply her mind, or at worst deliberately bypassed the approval process for an ulterior and unlawful purpose'.

This will be important to remember for future IGAs. If they contain these clauses again then the procedure by which they are tabled in Parliament could be legally challenged (i.e. whether tabled for noting or for approval).

Of course, the actual substance of future IGAs can also be legally challenged as unfair, unreasonable or unjustified in their own right – the High Court judgment did not deliberate on this, but this could form the basis of a future legal challenge.

2. The tabling of the IGAs with the USA and South Korea was found to be unlawful, unconstitutional and on this basis these IGAs were set aside.

Given that the IGAs were signed in 1995 and 2010 respectively, the court found that an unreasonable period of time had passed between these dates and their tabling in Parliament on 10 June 2015.

3. The section 34 determination of 11 November 2013, which NERSA concurred with on 17 December 2013, was only gazetted on 21 December 2015. This was found to be unlawful and unconstitutional, and on this basis was set aside. The court found that:
 - i. NERSA is required to consider all determinations, and only if the regulator concurs with these determinations do they become enforceable. However, two years had passed between NERSA's concurrence and the DoE's gazetting, making it publicly known and official. The court found that NERSA's continued concurrence (two years later) could not be assumed. According to the court, during this period other factors may have arisen which could have resulted in NERSA looking differently at whether the determination should be made, and so this was considered unfair to NERSA.
 - ii. In addition, NERSA was required to engage in public consultation before concurring in the first place, which had not been done. Given the far-reaching consequences of a nuclear build programme, the court found that a fair and rational decision-making process by NERSA would have to include public consultation. **The court also stated that NERSA had a statutory duty to act in the public interest, in a justifiable and transparent manner. This is an important requirement to bear in mind for the future.**
4. The section 34 determination of 5 December 2016, with which NERSA concurred on 8 December 2016, was found to be unlawful and unconstitutional (the determination was introduced to make Eskom, not the Department of Energy, the procurer).⁹ The High Court found that:
 - i. NERSA's short turnaround time for concurring with the 2016 determination, together with the fact that NERSA had stated in its own minutes that not concurring had not been an option, was found to be evidence that NERSA had not applied its mind, which it had been required to do.
 - ii. NERSA's decision to concur with the 2016 determination had not been informed by a public participation process, which it was legally required to do.
 - iii. Passing the 2016 determination meant that there were now two determinations for the same thing, as the DoE had not withdrawn the first one or drafted the second as an amendment. These two determinations were found to be mutually inconsistent, leading to uncertainty over which one had standing. Conjecture would have to be relied on to interpret what was intended.
5. As such, any Request for Proposal (RFP) or Request for Information (RFI) associated with the two determinations was set aside.

⁹ Note that the reason the DoE gave for having Eskom become the procurer was that the DoE's legal counsel, Advocate Marius Oosthuizen, had advised that the DoE and the Minister of Energy were not empowered to procure on Eskom's behalf unless consent was obtained.

The government's response to the High Court judgment

The High Court's ruling came as a shock to nuclear proponents. It meant that they now had to go back to the drawing board in the procurement process. However, doing so in a coordinated manner would prove difficult. Political uncertainty and lack of continuity in the DoE (as evidenced by the changing of ministers) led to confusion as to who really was in charge of driving the programme.

Initially, however, there appeared to be enough consensus among key players (the various ministers of energy, the nuclear division of the DoE, NECSA and Eskom) to continue pursuing the new-build programme, as evidenced by the steps they were to take over the following months. Their strategy appeared to roughly consist of the following:

- Restart the procurement process, addressing the various shortcomings highlighted by the High Court.
- Pursue a contract model where the vendor is *effectively* the owner-operator, so that the vendor would have to find all the financing required, then construct and operate the plant as if it were theirs. Officially, however, the plant would belong to the state.
- Push the vendor to provide the nuclear power produced at a relatively low cost, which would serve to counter objections that nuclear energy is not affordable.
- Proceed with procuring just two nuclear units of 2.4 GW for the time being, then pursue more units in a phased fashion.
- Use a site next to the existing Koeberg Nuclear Power Station near Cape Town in the hope that fewer obstacles would be encountered than if a totally new greenfields site was pursued.
- Use pre-existing energy plans as the basis for issuing new determinations. This would allow the key players to claim that a process allowing for public participation had been followed, as NERSA had held public consultations for both the IRP2010 and the IRP2016. Adjustments would be made to reduce the total amount of energy procured but keep the same relative proportions of each technology type.
- Renegotiate all the IGAs with other countries, before going to tender.

While all appeared to agree on the overall strategy, the biggest stumbling block seems to have been maintaining coherence and cooperation between the different players. In the beginning, Eskom and NECSA joined forces, cooperating to drive the nuclear new-build programme forward. However, cracks in this relationship soon became apparent. Immediately after the court ruling, Eskom and NECSA both studied the ruling independently. Despite the section 34 determination designating Eskom as procurer being set aside, the Eskom leadership appeared to be under the impression that this would simply be redesignated to them at a later stage. NECSA, on the other hand, began to feel that, given its nuclear expertise, it deserved ownership of the programme.

Around the same time, there was something of a leadership vacuum in the DoE. The director general, Thabane Zulu, had been seconded as head of the Strategic Fuel Fund, and the chief operating officer, Muzi Shange, who had worked closely with him, had been sent back to Eskom after his contract had come to an end.¹⁰

Furthermore, in an attempt to drive cooperation and push the nuclear programme, a series of committees were convened to address various issues related to nuclear procurement, including those that had arisen in the court case. By mid-2017 a number of these committees had been formed, consisting of stakeholders from various government departments and entities. However, only the Eskom- and NECSA-driven committees were properly active, with some of the other committees hardly having met at all. Moreover, it appears that tension was brewing between Eskom and NECSA and that cooperation between the two had begun to break down.

Under Minister Mahlobo, a new strategy became evident, intensifying the push for the nuclear new-build programme.¹¹ His approach appears to have been to engage with a surprisingly vast array of stakeholders in order to understand what was needed for successful nuclear procurement, and to attempt to ensure the requisite support. However, with only a few months left before the critical December 2017 ANC leadership election, he had a limited period in which to get all the ducks in a row. Not surprisingly, engagements were done at speed, particularly during November 2017. There appeared to be a focus on getting a new integrated resource plan (IRP) in place so that an announcement on the new section 34 determinations could be made, which in turn would trigger a new procurement process.

However, some setbacks were encountered. The new IRP that had been drafted would require consultation and there was limited time in which to accomplish this. It was also very likely that there would be significant pushback on the IRP and in particular its inclusion of nuclear energy. This would give the nuclear opponents a very strong focal point for their campaign – further delaying the procurement process. In addition, the renegotiation of the IGAs, begun under Minister Mmamoloko Kubayi in 2017, still had a long way to go.

Not surprisingly then, despite the urgency in Minister Mahlobo's approach, the groundwork for the procurement process was still incomplete by December 2017. The ANC elections on 16 December 2017, which failed to go the way of President Zuma, put a considerable, if not terminal obstacle in the way of any further progress. The resignation of Zuma as president of South Africa on 14 February 2018 was followed by a cabinet reshuffle that saw Mahlobo removed as Minister of Energy. Further sources of support for the programme were diluted by the replacement of the Minister of Public Enterprises, the Minister of Finance, as well as changes in the leadership at Eskom. The nuclear procurement programme now appeared to be in limbo, and at least one scheduled nuclear conference was cancelled amidst the uncertainty.¹²

10 Energy Portfolio Committee Meeting. 10 October 2017. Parliament of the Republic of South Africa.

11 Presentation by former Minister of Energy, David Mahlobo, to Energy Portfolio Committee. 21 November 2017. Parliament of the Republic of South Africa.

12 The 'Nuclear Africa 2018 Conference' was due to be held from 6 to 8 June 2018 at Misty Hills Country Hotel, Johannesburg, but was cancelled after the March cabinet reshuffle. A notice on the nuclearafrica.co.za website merely states: '– Conference postponement notice –', and still remains as such into 2018.

While the political developments of late 2017 and early 2018 appear to have significantly halted the nuclear programme, and the political support for the new-build programme appears to have waned, it would be premature to assume that nuclear energy is now completely off the table. In the event that the South African government remains committed to procuring nuclear energy, what are its options given the process to date? The following section explores this question.

POSSIBLE STRATEGIES THE GOVERNMENT COULD USE TO PURSUE THE NUCLEAR DEAL

1. Attempt to move procurement back to the DoE
2. Allow for the vendor to be the owner-operator
3. Pursue a pseudo owner-operator model
4. Proceed with just two units of 2.4 GW
5. Use the older IRP2010 or IRP2016 as basis for s 34 determinations
6. Renegotiate nuclear IGAs with all countries

Attempting to move procurement back to the DoE

It is possible that the DoE could decide to keep the procurement process within the department. In other words, the DoE may choose not to delegate the procurement process to Eskom, as it had previously attempted to do. This would have a number of potential consequences:

- **Significantly diminished procurement capacity:** In contrast to Eskom, which has sophisticated procurement capacity, the DoE's procurement capacity is limited, particularly for the handling of infrastructure projects.
- **The DoE would need express authorisation from Eskom to procure on its behalf:**¹³ Legal advice has maintained that there are no legal grounds on which the DoE can procure on behalf of another public entity (such as Eskom) unless it has express permission from that entity to do so. In other words, Eskom would need to expressly authorise the DoE to procure nuclear energy on its behalf. However, there are a number of reasons why Eskom would be reluctant to do so:
 - To procure nuclear energy on behalf of another entity implies a major undertaking, given the cost and other implications associated with the operation and ownership of nuclear plants. The receiving entity would not give its permission lightly, and would still have a fiduciary duty to accept full accountability for the procurement, including the impact of the procurement on its future operations, balance sheet and general financial situation.
 - The receiving entity would still be held accountable as if it had embarked on the procurement itself – but with far less control than had it managed the process itself.
 - From a financial point of view, the future liability of the plant procurement would presumably have to be included on the receiving entity's balance sheet.
 - Organisational considerations as well as numerous other considerations relating to regulatory, technical, environmental and organisational

¹³ This is according to section 16(A)(6.6) of the National Treasuries Regulations issued in terms of the Public Finance Management Act, 1999.

capacity could make Eskom reluctant to allow another entity to design and commit it to infrastructure builds on this scale.

If the DoE does attempt to procure on behalf of another entity, then it would be prudent to get a legal opinion on all the aspects that both the DoE and the receiving entity would be accountable for, from the commencement of the procurement process to final sign-off, and to monitor each of the steps for procedural compliance.

Allowing the vendor to be the owner-operator

There have at times been suggestions that the DoE might pursue an owner-operator model in order to pass the burden of raising finance and dealing with construction risk fully on to the vendor. This appears to be an especially attractive option for nuclear proponents, given the constrained fiscus and National Treasury's apparent lack of support for the programme.

There are two routes that could be followed here: a build-own-operate (BOO) / build-own-operate-transfer (BOOT) model, or a build-transfer (BT) / build-operate-transfer (BOT) model.

Build-own-operate (BOO) and build-own-operate-transfer (BOOT) models

Under both these models, the vendor (e.g. Rosatom, the Russian state corporation specialising in nuclear energy) must build, operate and maintain the plant, and is responsible for raising all the financing.

Under a BOOT model, there is the option that ownership could be transferred back to the client (i.e. the state government, in this case the South African government) after a specified period.

Some models allow for the vendor to share ownership with the client and with third parties.

The vendor would typically raise finance from its home country, through a combination of loans from an export credit agency (ECA), government-to-government state loans or concessional loans from their development finance institutions, and may even try to tap into a sovereign wealth fund.

The vendor may ask for government guarantees or fixed off-take agreements in order to reduce its risk exposure. If neither can be secured, the vendor may seek a long-term commitment to build more plants for the client.

Even with the vendor being fully responsible for the construction costs, as with BT or BOT models (see text box on page 28), there is no guarantee that in practice the client will not be called upon to share the cost of overruns. This could result from the fact that the project would otherwise not be able to move forward, or a legal challenge could ensue where there is disagreement about the apportionment of blame for the overrun or delay.

Challenges

If the DoE opted for a BOO or BOOT model, a number of challenges may arise. These include:

- **Using these models would contradict prevailing nuclear policy and could be subject to political backlash:** Ownership of the nuclear plants by a foreign vendor or even a private sector entity would contradict prevailing nuclear policy, which states that Eskom is to be the owner of South Africa's nuclear generation capacity. Furthermore, placing the ownership of major infrastructure assets in the hands of an entity other than the state could result in a political backlash from certain constituencies who believe that the state should retain ownership of nuclear plants or that a foreign power should not own nuclear plants in South Africa. It would be difficult for the DoE to garner support from these various constituencies.
- **The procurement process could be challenged:** If the DoE remained vague about ownership, it would open itself to challenge at an early stage of the procurement process. Procurement regulations require that the contracting model between the DoE and the vendor needs to be stipulated upfront in the procurement documents. This would require stating who is to build, operate, maintain and own the plant. This is explored in more detail in report two of the series, *The domestic requirements for nuclear energy procurement and public finance implications*.
- **Vendors would be reluctant to take on this risk:** There are few vendors who would want to be owner-operator of the nuclear plants they build. This carries significant risk for the vendor, including construction and financing risk.

Risk, costs and potential strategies

The question remains why any vendor would want to participate in South Africa's nuclear new-build programme on a BOO basis. This model carries significant risk for vendors, particularly financially. Nuclear builds are almost always fraught with cost overruns and schedule delays. For this reason vendors have traditionally sought to push the financial risks back onto the client country. In fact, some vendors have stated that they will not work on a BOO basis.

To mitigate this risk and because there has been increasing pushback by client countries who are unwilling to take on the risk themselves, some vendors have been willing to compromise to attract business, but with conditions. For example, in the case of the United Kingdom's Hinkley Point C, the cost of EDF Energy taking on the risk of a fixed-price agreement meant that a very large premium was added. This resulted in electricity at a cost twice as high as other alternatives.¹⁴

High-cost electricity deals do not seem viable in the South African context. The cost of nuclear energy, particularly as it will impact on consumers who have already been burdened by sharp escalations in electricity prices in recent years, is increasingly contentious in South Africa. The degree of sensitivity is such that politicians have consistently stated that the construction of nuclear plants would only be undertaken

¹⁴ UK Government. September 2016. *Hinkley Point C: Contract for Difference*. [Online] Available at: gov.uk/government/publications/hinkley-point-c-documents

if it is affordable or financially feasible to do so ('at a pace and scale that we can afford'). South Africa's electricity consumers form a considerable constituency that would not hesitate to engage in disruptive protests. This would make it very difficult to push through a deal with high-cost electricity prices. It is unlikely that politicians would risk their political capital by supporting high-cost nuclear programmes.

In fact, such is the sensitivity over the cost of nuclear energy in South Africa that it appeared at one stage that the DoE strategy was going to lean in the opposite direction: to try to agree on costs that would be low. In particular, the DoE's strategy appeared to be to demonstrate that the unit price at which nuclear energy would be sold by the vendor would be competitive with other technologies.

Yet, nuclear energy is known to be a very expensive technology, so how exactly would the nuclear proponents achieve this? There appear to be four possibilities:

1. **Deception about costs:** Provide vague or deceptive calculations as to what the costs to South Africa would be. However, this is vulnerable to challenge by constituencies who are well informed and keenly interested in the impact on electricity prices.
2. **Promising future projects:** Getting the vendor to provide the first two units at a low cost, in return for future contracts from which it can recoup its losses. But how could the DoE commit to further projects? One method could be to try to approximate official deals by making vague agreements that are subject to interpretation. This might give the vendor sufficient reassurance regarding the DoE's intention without it having any legal standing. However, getting just the right amount of vagueness and specificity is difficult, as was evident with the Russian IGA. The alternative could be for the DoE to offer a firm commitment for future contracts, which the vendor would prefer. However, any agreement of this nature would be subject to as much immediate scrutiny and objection as the contract for the first units.

Strategies that could be used in agreements to hide the fact that future contracts are being promised at higher prices could include the following:

- Not stipulating the actual payment rate, but the type of costs that would have to be covered in the price, which would only be worked out at a future date (without seeing actual numbers, it is hard for the South African public to object). In other words, rather than stipulating an exact price for supplying the plants (or electricity), the bid documents or contract would include a list or even quantify the types of inputs or components that would be required for the project and for which cost recovery would be required. Only after the plants are built, are the costs then calculated.
- Agreeing on a range of prices that could be paid, with the stipulation that the high end of those prices would only be paid under exceptional circumstances (except that this would not be the case – in reality the high-end price range would have been agreed beforehand).
- Agreeing on a high price, but because these prices would only be paid in the future, making dubious calculations as to what this translates to in current terms (by using too big a financial discount rate). This would result in prices appearing much lower than they actually are. Proponents could exclude most of the public from engaging on this question by relying on highly technical arguments. **However, with sufficiently informed**

financial or project finance expertise on standby to scrutinise the arguments on behalf of the public, this could be countered.

- 3. Getting the vendor to provide the units at a low cost, in return for some other advantage:** This option has received little attention because it has always been assumed that the vendor is seeking a deal related to an isolated project that must be commercially viable. However, most vendors are attempting to expand their markets to maintain the sustainability of their businesses in a highly competitive environment with decreasing appetite for nuclear builds. South Africa may be seen as an opportunity in itself, as a base from which to grow new markets, particularly in sub-Saharan Africa. South Africa could also be seen as a potential supply base, whether of materials, expertise or regional business oversight.

In addition, South Africa has some existing nuclear energy assets, which the vendor may want to gain control of. Revenue-providing assets, such as the Koeberg Nuclear Power Station, could be attractive if they are obtained at low or no cost, and used to raise the financial viability of the overall programme. It is possible that in a desperate attempt to secure the new-build programme, the DoE may be prepared to give these assets away for very little – not because the assets lack value, but because they could make up for the vendor's shortfall for the new build. The cost will, however, show up in Eskom's lower revenues as a result of losing Koeberg from the power generation fleet, which Eskom could ill afford. Furthermore, the DoE would require Eskom's permission to do this as well as a high level of government approval. It is unlikely that it would garner such support.

- 4. Pursuing an alternative and unrelated objective for the vendor's host country:** This is potentially the most concerning objective. While home governments always have a certain level of involvement in helping their nuclear vendors pursue new markets, there can be far more to the relationship. The nuclear vendor may actually play a key role in achieving foreign policy objectives, which may not be as obvious to the outside observer.

The above analyses are purely speculative because it is impossible to know what vendors' intentions in fact are. However, it is useful to consider these potential motives as they may influence how the programme is designed.

Pursuing a pseudo owner-operator model

Given that the transfer of ownership to a vendor is unlikely for the reasons laid out above, the other possible strategy is to pursue a build-operate-transfer (BOT) model, and in a manner where the vendor is required to do everything as if it were the owner, just not in name.

This strategy would require finding a way to push all the risk on to the vendor and get it to operate the plant for a long period (e.g. 20 years). Only then would the plant be transferred to Eskom, the DoE or a designated state institution. There are precedents in the infrastructure space where concessions have been given to companies to build and then operate plants for a period long enough to enable them to recoup

the revenue to pay off all the construction and associated financing costs. The infrastructure is then transferred after this period.

Build-transfer (BT) and build-operate-transfer (BOT) models

- The vendor builds the plant, is paid for the construction and hands it over to the client after construction. It is likely that this will be done on an EPC (engineering procurement construction) and turnkey basis where the vendor is fully responsible for the entire project, and hands it over completed and ready to operate to the client.
- The vendor may also have a concession to operate the plant for a period of time. If it is a long-term period, then the vendor may be expected to pay off the plant construction costs and associated debt before handing the plant to the client.
- Construction risks usually fall to the client, although there may be attempts to limit these, for example by attaching a fixed price to large parts of the contract.
- Even if the entire project is subject to a fixed-price contract, it is likely that the client will have to give financial assistance because nuclear build cost overruns would be so large that they could sink the vendor. In any event, the vendor could claim that the client was partly responsible for the delays or overruns and a legal case may ensue to ensure that the client agrees to share the costs.
- The client owns the project. Ownership could be shared if a strategic equity partner or a group of companies (such as large electricity users, who have also committed to buy the electricity) buy into it.
- The client is responsible for raising finance to pay the vendor's construction costs.
- Finance for infrastructure such as electricity-generating plants usually comes from a combination of corporate finance, government equity, government guarantees, loans from development finance institutions, a long-term loan from an export credit agency, and extra cash generated from regulated tariffs (that the regulator allows when assets are under construction). With nuclear plants, there is likely to be far less involvement by corporate finance. Instead, government-to-government loans or financing from state banks or development finance institutions of the vendor's home country are more likely to be used. Another possibility is tapping into sovereign wealth funds, but this option does not appear to have been used yet.
- The nuclear new-build project could be ring-fenced by forming and placing it in a special purpose vehicle (SPV). This would rely on a secure off-take agreement to ensure that financing can be serviced and repaid.

Risk and costs

Using this model for nuclear energy means that the problem of construction risk and how this impacts on financing costs sit with the vendor. With no control over electricity prices, the vendor can only hope that the concession period, which is usually set for a fixed term upfront, is long enough to cover all its costs. This uncertainty would be off-putting for most vendors, who would still be looking for an arrangement where the risks are shared.

Proceeding with just two nuclear units of 2.4 GW

While the nuclear proponents in South Africa have remained committed to the 9.6 GW programme since it was first proposed (circa 2010–11), suggestions for smaller amounts of installed nuclear capacity have been put forward. This appears to be an attempt to gain support for smaller amounts of nuclear energy and use these as a stepping stone towards building the full 9.6 GW.

When the idea of undertaking construction of just 2.4 GW (i.e. two units of 1.2 GW each) was first introduced in policy debates, it was to compare the costs with the full 9.6 GW in order to appease the fears of those concerned about the costs of the nuclear new-build programme. This did not mean that the 2.4 GW was actually seen as an economical or affordable choice. It was simply an easier project to sell. The idea of the 2.4 GW appears to have arisen as the alternative option whenever plans for the full 9.6 GW came under attack.¹⁵

Nevertheless, there are some important elements of the 2.4 GW proposal that cannot be ignored:

- Generating 2.4 GW of nuclear power remains far more expensive than generating 2.4 GW using any other power generation technology, and continues to pose unnecessary burdens on the fiscus, macroeconomy and consumers.
- The proponents of nuclear energy have not necessarily given up on pursuing the remainder of the 9.6 GW. In fact, the 2.4 GW appears to be seen as a stepping stone to opening the way for the full 9.6 GW.
- To counter vendors' fears that South Africa's new official commitment to procurement was now for only 2.4 GW and not the lucrative 9.6 GW they had been hoping for, commitment to the full programme would be demonstrated in other ways.

¹⁵ For example, Minister Kubayi commented at a press conference in Russia in June 2017 that 'we will do the project at a scale and pace we can afford. So we will look at that completely, if we need to review the scale we have obviously to go back'. (Reuters. 21 June 2017. *South Africa to review nuclear plans in response to recession*). Similarly, Minister Mahlobo commented at the Energy Indaba in December 2017 that 'South Africa will push ahead with its nuclear expansion plan but will now do so at a slower pace, as weak economic growth means there is less demand for power ... what is changing is the scale, the volumes, we will no longer do 9.6 when you ask about nuclear. It has come down'. (EWN. 7 December 2017. *SA to scale down nuclear expansion plan – energy minister*. Eye Witness News).

If it appears that this is the option that is being pursued, consideration should be given to potential commitments given to vendors for the full 9.6 GW which are not apparent on the face of it.

Using the older IRP2010 or IRP2016 as the basis for section 34 determinations

With the High Court having set aside the 2013 and 2016 section 34 determinations, the Minister of Energy will have to issue new determinations if he or she wishes to proceed with nuclear procurement. The DoE will have to ensure that it does not repeat the mistakes of the past by avoiding delays in gazetting and getting concurrence from NERSA, and ensuring that NERSA runs a robust decision-making process which includes public participation. Public participation is the biggest stumbling block for the DoE because it is time consuming and would almost certainly be met with significant pushback.

Any section 34 determination has to be based on a particular energy plan, which lays out the amount and types of energy to be procured, and when. The DoE makes use of the IRP, which involves a rigorous process of modelling the country's energy needs (and concurrent objectives such as maximising job creation, reducing carbon emissions, etc.) against various scenarios. Of course, as with any modelling exercise, the process is vulnerable to subjectivity, if not outright manipulation to achieve a particular outcome.

In late 2017, it appeared that Minister Mahlobo was preparing to base the new procurement plans on the old IRP2016, which was really just an updated version of the IRP2010.¹⁶ This process was marred by various peculiarities.

- The forecast electricity demand levels at the time of the IRP2010 had been much higher. The DoE addressed this in the 2016 version by adjusting the demand to reflect the lower levels, and in turn lowering the proportion allocated to each energy technology.
- The reason for using the IRP2010 seems to be because it had already gone through a round of public consultations. Thus the DoE could claim that no further consultation was required because this condition had already been met.
- While there may have been public consultation before, it did not mean it had been particularly meaningful, as the strong public objections to the inclusion of nuclear power were never incorporated into the final IRP2010. **There is potential to challenge the public participation process on the grounds that public consultation was conducted more than eight years ago under very different conditions and the feedback was in fact not incorporated.**

¹⁶ At a media briefing at the Energy Indaba in December 2017, Minister Mahlobo stated that Cabinet had approved an updated IRP and that the updated plan had retained the relative contributions of the generation technologies included in the IRP2010. (Engineering News. 7 December 2017. *No further IRP consultation as Cabinet approves plan and 27 renewable projects*).

- The IRP2010 produced a range of scenarios, but the one chosen by the DoE was not the least-cost scenario. It appeared that nuclear energy was hard-wired into the inputs, and thus the outcomes too.
- Procedurally, public consultation is required to take place at the point when NERSA is required to concur with the section 34 determination. Should NERSA fail to do so, the entire determination would be invalid, as has been demonstrated through the legal challenge in the High Court in 2016. The question then arises as to whether the previous round of public consultations for the IRP2010 can still be considered valid in 2018. The Western Cape High Court has indicated that substantial delays from when consultation was conducted and the point at which finalisation occurs invalidate the consultation and thus the legality of the determination/agreement by the time it is made official.

There appears to be significant room for challenging the legality of the public participation process. If a legal challenge results in a new round of public participation, the public should prepare for this. The public would do well to put forward very clear, well-substantiated arguments, and show that there is strong support for them. If NERSA ignores this and does not set out a clear, logical set of counterarguments to support its stance, there may be grounds – not least on the grounds of administrative fairness – to legally challenge this.

Renegotiating the nuclear IGAs with all countries

The finding of the High Court that the tabling in Parliament of the IGAs with Russia, South Korea and the USA had been unlawful and unconstitutional and had to be set aside, was a major setback for the DoE. Intergovernmental agreements are particularly difficult and time consuming to negotiate.

Following the court case, the DoE's new strategy appeared to be to replace all the IGAs with a standardised IGA to expedite the process. However, this strategy would appear unlikely to succeed. Few countries are likely to accept a standardised IGA: each country is different, with different nuclear capabilities, objectives and agendas. What would make sense to one would not make sense to another. In addition, the stakes are now high in the competition for nuclear markets. Countries are aware that the IGAs underpin the intergovernmental relationship accompanying any bid by their vendors for South Africa's nuclear build contract.

Furthermore, with so much publicity around the favouring of Russia, other countries will be conscious not to miss out on any advantages they could gain in the new IGAs. There will therefore be strong pressure to negotiate each term of every IGA. This process could tie the DoE up for years, which will lead to significant delays. Furthermore, the DoE cannot proceed without an IGA because as a member of the International Atomic Energy Agency (IAEA) it is required to have IGAs in place before nuclear procurement can proceed.

POTENTIAL POINTS OF INTERVENTION

The DoE's 2017 strategy to address the High Court's findings as expediently as possible revealed a number of shortcomings. **Going forward, the poor quality of procurement documents that may be produced, as well as the legality of what is attempted concerning ownership would warrant thorough interrogation.**

Table 4 (on the next page) presents a list of considerations to be aware of and potential points of intervention to look out for if the government is to pursue the nuclear new-build programme going forward.

Table 4: Considerations and potential interventions if the new-build programme is to be pursued going forward

Scenario	Potential interventions
Future intergovernmental agreements (IGAs)	<ul style="list-style-type: none"> • Check if the correct procedure has been followed with the tabling of IGAs. IGAs that are not merely technical, administrative or executive in nature must be tabled in Parliament for approval and not merely for noting. • Check if the Parliamentary approval process allows for public participation and whether the public has the right to request that Parliament insists on a public participation process when IGAs are tabled. • When a new IGA is signed, check if there is already an IGA in existence that has not been retracted. This could result in two IGAs that are mutually inconsistent, which the courts would not look favourably on. Check, for example, if the 2004 IGA with Russia is still officially in place. • Although not tested in court, it is potentially possible to challenge the actual substance of the IGA on the grounds that it is unfair, unreasonable or unjustified.
Section 34 determinations	<ul style="list-style-type: none"> • NERSA has a statutory duty to act in the public interest and make decisions in a justifiable and transparent manner. Where decisions are not transparent or do not appear to be justifiable, this could be subject to a legal challenge. Therefore, if and when NERSA concurs on any new determinations, check that it has applied its mind. For example, consider the amount of time taken by NERSA to issue its response; examine the content of its meeting minutes to see if it properly engaged with the subject matter and that a rational argument for concurrence has been given. • Check that NERSA has undertaken a process of public participation and that a reasonable amount of time was given for the public to give inputs. If no new public participation process is held, and NERSA or the DoE argue that previous public participation processes suffice, this could potentially be subject to a legal challenge. As with the High Court judgement, courts may find that too much time has passed and significant changes have taken place over this period for such public participation to count as adequate engagement.
Designation of procurer	<ul style="list-style-type: none"> • Check who the determination says the procurer should be. If the DoE is procuring on behalf of another public entity, check that it is legally permitted to do so. • Check what the legal implications are for the DoE and the receiving entity and what they would be accountable for – from commencement to procurement to final sign-off. Check for compliance with these requirements at each stage.
Where only 2.4 GW appears to be agreed on	<ul style="list-style-type: none"> • Bear in mind potential commitments that may have been given to vendors for the full 9.6 GW but that may not be apparent at face value. • Scrutinise the industrialisation potential as this may elucidate the actual intended scale.
Public participation in the IRP	<ul style="list-style-type: none"> • Relying on the IRP2010 in order to circumvent public participation is unlikely to pass legal muster. Based on the High Court decision it is possible that a court would find that too long a period had passed for such consultation to be considered adequate.
The contracting model	<ul style="list-style-type: none"> • If only one vendor is prepared to provide South Africa with nuclear plants on a BOO or BOOT basis, this could indicate that it is not commercially viable and that the vendor is expecting compensation in other ways.

REFERENCES

- Bischof-Niemz, T et al. 24 November 2016. *Least-cost electricity mix for South Africa until 2014*. Pretoria: CSIR.
- Bischof-Niemz, T et al. 4 April 2017. *Formal comments on the Integrated Resource Plan (IRP) Update Assumptions, Base Case and Observations 2016*. Pretoria: CSIR.
- Carnie, T. 4 December 2017. *Engineers want Mahlobo to cancel 'nukes indaba'*. Times Live. [Online] Available at: timeslive.co.za/sunday-times/business/2017-12-04-engineers-want-mahlobo-to-cancel-nukes-indaba
- Cornish, JJ. December 2017. *It's likely Russia will interfere in ANC elective conference*. EWN. [Online] Available at: ewn.co.za/2017/12/13/it-s-likely-russia-will-interfere-in-anc-elective-conference?utm_source=dlvr.it&utm_medium=twitter
- De Vos, D. 5 May 2017. *Can any South African Nuclear Energy Procurement ever succeed?* Daily Maverick. [Online] Available at: dailymaverick.co.za/article/2017-05-05-op-ed-can-any-south-african-nuclear-energy-procurement-ever-succeed/#.WtC7zi5ubIU
- EE Publishers. 31 May 2017. *Nuclear energy – The best option for South Africa?* EE Publishers. [Online] Available at: mybroadband.co.za/news/energy/213272-nuclear-energy-the-best-option-for-south-africa.html
- Electricity Regulation Act 4 of 2006.
- Energy Portfolio Committee Meeting. 10 October 2017. Parliament of the Republic of South Africa.
- Engineering News. 7 December 2017. *No further IRP consultation as Cabinet approves plan and 27 renewable projects*.
- ESI Africa. 1 November 2017. *Energy security: nuclear highlighted as a viable option*. ESI Africa. [Online] Available at: esi-africa.com/energy-security-nuclear-highlighted-as-a-viable-option/
- EWN. 7 December 2017. *SA to scale down nuclear expansion plan – energy minister*. Eye Witness News.
- Grootes, S. 26 June 2017. *Cosatu and BLSA agree to tackle state capture*. EWN. [Online] Available at: ewn.co.za/2017/06/26/cosatu-and-blsa-agree-to-tackle-state-capture
- Herman, P. 2 November 2016. *Save SA asks Cabinet to scrap special Eskom nuclear talks*. Fin24. [online] Available at: fin24.com/Economy/save-sa-asks-cabinet-to-scrap-special-eskom-nuclear-talks-20161102
- High Court of South Africa, Western Cape Division. 26 April 2017. *Judgment: In the review application between: Earthlife Africa (et al) and the Minister of Energy (et al)*. South Africa: Department of Justice.
- ISS. 10 November 2017. *Is Zuma's nuclear gamble still in play?* Polity [Online] Available at: polity.org.za/article/is-zumas-nuclear-gamble-still-in-play-2017-11-01
- Jacaranda FM. 13 May 2017. *SACP calls for decisive action to reverse Brian Molefe's Eskom return*. Jacaranda FM. [Online] Available at: jacarandafm.com/news/news/sacp-calls-decisive-action-reverse-brian-molefes-eskom-return/
- Jim, I. 30 November 2017. *Eskom attempting to hold economy hostage – NUMSA & UF*. Politicsweb. [Online] Available at: politicsweb.co.za/politics/eskom-attempting-to-hold-economy-hostage--numsa-an
- Khumalo, S. 4 April 2018. *Jeff Radebe signs R56bn contract with renewable power producers*. Fin24. [Online] Available at: fin24.com/Economy/Eskom/jeff-radebe-signs-long-delayed-renewable-power-deals-20180404
- Legalbrief. 12 April 2018. *Nukes 'deal' between SA and Russia sparks controversy*. [Online] Available at: legalbrief.co.za/diary/legalbrief-environmental/story/nukes-deal-between.../pdf
- Lovins, A & Eberhard, A. 2018. 'South Africa's electricity choice'. *Occasional Paper Series*. Cape Town: University of Cape Town.
- Mabasa, K. 31 July 2015. *Our concerns over govt's nuclear build plans – COSATU*. Politicsweb. [Online] Available at: politicsweb.co.za/news-and-analysis/our-concerns-over-govts-nuclear-build-plans--cosat
- Mathunjwa, J. 7 November 2017. *Op-Ed: A just transition from climate change and unemployment – a trade union perspective*. Daily Maverick. [Online] Available at: dailymaverick.co.za/article/2017-11-07-op-ed-a-just-transition-from-climate-change-and-unemployment-a-trade-union-perspective/#.WtTGAmPubIV
- Msebenzi, K. 6 March 2017. *Anti-nuclear, pro-renewable advocates mistake 'intermittent' supply for 'variable' supply*. Business Day. [Online] Available at: businesslive.co.za/bd/opinion/letters/2017-03-06-letter-anti-nuclear-pro-renewable-advocates-mistake-intermittent-supply-for-variable-supply

- Naidoo, J. 11 December 2017. *Mahlobo's Nuclear Farce will implode our future*. Daily Maverick. [Online] Available at: dailymaverick.co.za/opinionista/2017-12-11-mahlobos-nuclear-farce-will-implode-our-future/#.WtCeoS5ubIU
- Ndlozi, M. 26 April 2017. *EFF welcomes court judgement declaring South Africa's nuclear deal unconstitutional as victory over corruption*. EFF. [Online] Available at: effonline.org/single-post/2017/04/26/EFF-WELCOMES-COURT-JUDGEMENT-DECLARING-SOUTH-AFRICA'S-NUCLEAR-DEAL-UNCONSTITUTIONAL-AS-VICTORY-OVER-CORRUPTION
- NUMSA & UF. 1 December 2017. *NUMSA and United Front Joint Memorandum on the Eskom tariff increase*. NUMSA. [Online] Available at: numsa.org.za/article/numsa-united-front-joint-memorandum-eskom-tariff-increase
- Payne, S. 23 November 2017. *Energy minister insists on nuclear: committee demands clarity on costs but gets none*. GroundUp. [Online] Available at: groundup.org.za/article/energy-minister-insists-nuclear
- Presentation by former Minister of Energy, David Mahlobo, to Energy Portfolio Committee. 21 November 2017. Parliament of the Republic of South Africa.
- Pressly, P. 4 October 2017. *Warning! Beware the Russians wading into SA's IEC election body – Mohale*. BIZNews. [Online] Available at: biznews.com/thought-leaders/2017/10/04/russians-iec-election-body-mohale
- Public Finance Management Act 29 of 1999.
- Reuters. 21 June 2017. *South Africa to review nuclear plans in response to recession*. Reuters.
- SAFTU. 26 April 2017. *SAFTU welcomes nuclear deal court ruling*. Polity. [Online] Available at: polity.org.za/article/saftu-saftu-welcomes-nuclear-deal-court-ruling-2017-04-26
- Slabbert, A. 12 May 2017. *Save South Africa vows to stop Molefe return*. Moneyweb. [Online] Available at: moneyweb.co.za/news/south-africa/save-south-africa-vows-to-stop-molefe-return
- Smith, C. 11 November 2017. *SA's problem not resources but leadership – Mohale*. News24. [Online] Available at: fin24.com/Economy/sas-problem-not-resources-but-leadership-mohale-20171111-2
- The Citizen. 18 October 2017. *SA cannot afford more nuclear power, says former Eskom CEO*. [Online] Available at: citizen.co.za/news/south-africa/1694285/sa-cannot-afford-more-nuclear-power-says-former-eskom-ceo/
- UK Government. September 2016. *Hinkley Point C: Contract for Difference*. [Online] Available at: gov.uk/government/publications/hinkley-point-c-documents
- Van Onselen, G. August 2017. *Political musical chairs: Turnover in the National Executive and Administration since 2009*. Johannesburg: South African Institute of Race Relations. [Online] Available at: irr.org.za/reports-and-publications/occasional-reports/files/irr-political-musical-chairs.pdf
- Van Staden, P. 20 April 2017. *EIUG: No nuclear needed anytime soon*. EE Publishers. [Online] Available at: ee.co.za/article/eiug-no-nuclear-needed-anytime-soon.html
- Winkler, H. 9 November 2017. *Zuma's last ditch effort to ram through a nuclear power deal*. Mail&Guardian. [Online] Available at: mg.co.za/article/2017-11-09-zumas-last-ditch-effort-to-ram-through-a-nuclear-power-deal
- WNN. 30 November 2015. *Nuclear key to South African economic growth, panel finds*. World Nuclear News. [Online] Available at: world-nuclear-news.org/NN-Nuclear-key-to-South-African-economic-growth-panel-finds-3011158.html

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