ESRG

ENERGY SYSTEMS RESEARCH GROUP
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Decarbonisation in the Balance:
Assessing South Africa's Energy Transition and the implementation of the Integrated Resource Plan

Part of a series on energy transition policies supported by the Climate Emergency Collaboration Group

CLIMATE EMERGENCY
COLLABORATION GROUP

Climate
Transparency

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About this series

Science demands urgent focus on effective, fair, and fast implementation of climate policies, to keep the global temperature limit of 1.5°C. The UNFCCC's Global Stocktake has clearly shown that the current ambition and implementation of climate policies and measures will not suffice to reach that goal.

This paper is one in a series of national papers that analyse various aspects in the implementation of energy transition policies in India, South Africa, Indonesia, Colombia and Germany. With support by the Climate Emergency Collaboration Group, the papers seek to activate political dialogues in and between countries, and with engaged civil society organisations on energy transition policies and pathways.

Contents

Executive Summary

The Climate Policy Implementation Check was developed as part of the 2022 Climate Transparency series[1]. The Implementation Check is designed to assess countries' implementation of policies that aim to achieve or support decarbonisation, and has previously been applied in an evaluation countries' transport policies[2]. The aim of this work is to evaluate implementation of just energy transition policies by another set of countries, using the Implementation Check as a tool for this analysis. **Specifically, this report series examines progress made in the transition from coal to clean energy in the power sectors of selected countries from the Global South as well as Germany.**

The Global South countries chosen were Colombia, India, Indonesia, and South Africa. These countries were chosen because of the significant role coal plays either in their domestic energy supply, or their export trade, or both, and because they each have various plans to transition away from coal. Indonesia and South Africa have established Just Energy Transition Partnerships (JETPs) with Global North countries for the provision of financial support for their energy transitions, with another similar partnership under consideration for India. Meanwhile, in the wake of the conflict in Ukraine, Germany has increased its imports of coal, particularly from Colombia and other southern producers[3].

This paper focuses on South Africa, and on its Integrated Resource Plan (IRP) –the policy instrument which gives effect to South African electricity policy. At the time of writing, the current IRP – IRP2019 – includes some 30% of existing coal capacity being retired by 2030 and nearly 80% by 2050, along with a combined new-build of 26 GW of wind and solar PV by 2030[4]. Coal power still accounts for more than 80% of South Africa's electricity supply, and around 45% of its annual greenhouse gas (GHG) emissions. Transitioning the power sector away from coal is thus critical for South Africa to meet its mitigation targets, including the 2030 NDC and the pledge to move towards carbon neutrality by 2050[5]. The IRP therefore plays a key role in reaching these goals.

The Implementation Check shows that, whilst the IRP has a secure legal status in South African law, as per the Electricity Regulation Act of 2006, there are challenges with the institutions and resources for its governance and implementation, and a lack of oversight and monitoring of progress, which has fallen behind the IRP2019 timeline.

POLICY INSTRUMENT

Integrated Resource Plan 2019

RATING

MEDIUM

KEY

- Frontrunner
- Medium
- Strong
- Weak
- NR = Not rated yet or NA = Not applicable

Since the release of IRP2019, several developments have transpired that have both enhanced and hindered South Africa's decarbonisation journey. These include:

- **South Africa updating its first NDC**, with a revised target emissions range for 2030 that is considerably more ambitious than its original NDC[6]
- **The establishment of the JETP at COP 26**[7] and subsequent Just Energy Transition Investment Plan (JET-IP), which have together outlined and provided some support for South Africa's investment plans and priorities for the energy transition, including the earlier retirement of some coal units compared to the IRP2019 timeline[8]
- **South Africa's load shedding crisis** (whereby Eskom, South Africa's national electricity utility, has insufficient capacity available on the grid to meet demand) has deepened to such an extent that South Africans have experienced rolling blackouts almost every day in 2023[9]
- **Eskom's debt remains unsustainably high**, restricting its ability to invest in the new generation and transmission capacity desperately needed to resolve load shedding[10,11]

Furthermore, **local developments and narratives surrounding the just energy transition have begun to diverge**. On the one hand, government has introduced a set of reforms to accelerate liberalisation of the electricity market and allow easier access for private developers to commission new generation capacity. This has led to a significant increase in the pipeline and rollout for private off-grid and wheeling projects, the vast majority of which are based on PV and wind technology[13]. On the other hand tensions have begun to emerge in the public discourse about the pace at which coal decommissioning should occur, given the current load shedding crisis and uncertainty about the 'just' elements of the just transition[14].

The emerging policy confusion and potential discontinuity creates uncertainty regarding the future of South Africa's decarbonisation journey. This is likely to manifest further in two forthcoming processes:

1. **New IRP:** The Integrated Resource Plan is described as a "living document"[4] that should be regularly updated every few years to reflect new developments in global and domestic energy markets, reflect on progress made in the preceding plan, and adjust forward-looking plans accordingly. The current uncertainty makes it unclear whether and to what extent the next IRP will represent a shift in policy, for example through delayed coal closures.
2. **New NDC:** South Africa is also about to enter the cycle of preparation for the second NDC, covering the period up to 2035. The extent to which South Africa can maintain and ratchet up its ambition for the 2035 NDC cycle will depend largely on the new IRP.

The analysis shows that a rigorous institutional framework on paper is not enough on its own to ensure implementation of policy, if it is not coupled with transparent oversight and accountability. The South African experience further shows that decarbonisation policy objectives remain constantly susceptible to the transient nature of ongoing developments, as shown for example by the unforeseen COVID19 pandemic or the rapid deterioration of Eskom's ability to supply electricity.

Integrated policy planning, in which multiple objectives are identified and appraised, is essential to enable effective decarbonisation strategy development, without which a lack of consensus on policy may emerge which could have the potential to undermine national mitigation progress. The evidence of what has transpired, and may transpire, in South Africa can and should provide lessons to other countries – both developed and developing – in coordinating and supporting just energy transitions.

Introduction

The Climate Policy Implementation Check

The eighth edition of the Climate Transparency Report was published in 2022[15] and, as is custom, included profiles of climate performance and progress for all G20 members. The 2022 G20 profiles included an **Ambition Check**, based on outcome and impact indicators as well as nine sectoral policy indicators, including emissions intensity and direction of travel, and final energy mix.

In addition to ambition, it was felt that, especially in light of the UNFCCC Global Stocktake in 2023, an **Implementation Check** was needed to evaluate not just policies but also the implementation of policies.

ABOUT THE CLIMATE POLICY IMPLEMENTATION CHECK

To meet the challenges of climate change, policies need to be both ambitious and implemented in a way that realises that ambition as a matter of urgency. To assess the status and quality of implementation, Climate Transparency has developed the Climate Policy Implementation Check. It assesses the implementation of policy instruments along several basic questions:

- Does the instrument have a basis in law?
- Has a suitable organisation been given the responsibility to implement the instrument?
- Has the institution been given the resources to implement the instrument?
- Is implementation being appropriately monitored to ensure success?

Accordingly, the assessment is grouped into four categories: legal status, institutions and governance, resourcing, and oversight. The framework can be applied to any policy in any country. This early check is important as policy outcomes and impacts on greenhouse gas (GHG) emissions are typically only measurable several years after implementation, leaving little time for course correction if implementation of the policy is weak.

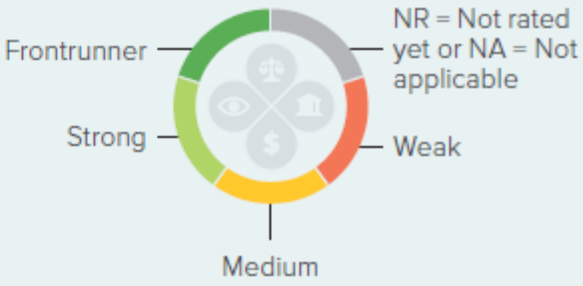
For each of these categories, the framework includes specific questions that are designed so that the results are comparable across different countries. Depending on answers to the specific questions, the implementation of the relevant policy instrument in each category is rated as Weak, Medium, Strong or Frontrunner. These ratings are combined to produce an overall rating for the policy implementation. For more information, please visit our website: www.climate-transparency.org/implementation-check

The four categories

Frontrunner Strong Medium Weak

NR = Not rated yet or NA = Not applicable

Policy assessment rating (overall)



The Implementation Check has already been applied in a study assessing implementation of transport policies in Argentina, Brazil, Colombia, Mexico and the European Union[2]. The framework provided an accessible means to evaluate and compare the transport policies in each of these countries, despite their having considerable differences in design, approach, and institutional set up, and enabled findings to be drawn on enhanced policy design and implementation that can apply universally.

OVERVIEW OF POLICIES ASSESSED, OVERALL AND CATEGORY RATINGS

Coal transitions and JETPs

The aim of this work is to apply the Implementation Check in the context of energy transition policies in developing countries with a large reliance on coal, with a specific focus on the power sector. Three countries selected for this analysis – **India, Indonesia, and South Africa** – have coal supplying more than half of their annual electricity, and CO_2 intensity of generation above the world average.

South Africa and Indonesia have established Just Energy Transition Partnerships (JETPs) with partner countries from the Global North, with initial pledges of USD 8.5 billion and USD 20 billion respectively for support in transitioning away from fossil fuels, including the closure of coal power plants and switch to clean power sources[17]. South Africa's JETP was announced at COP26 in 2021 and a year later Indonesia's JET Partnership was announced at COP27 in Sharm-el-Sheikh.

Two additional countries have been included in this project, namely **Colombia and Germany**. Whilst Colombia has a relatively small share of coal in its electricity supply, it exports more than 50 Mt of thermal coal annually, equivalent to roughly 5% of global exports – the fifth largest exporter of thermal coal in the world[18]. Significant trade in hard coal has also grown between Colombia and Germany since 2022, largely caused by recent disruptions to European and global energy markets[19].

This paper forms part of a series of Implementation Check analyses for each country (Colombia, India, Indonesia, Germany, and South Africa), and focuses specifically on South Africa's electricity transition, one of the main policy instruments for which is, currently, the 2019 Integrated Resource Plan (IRP2019).

South Africa's reliance on coal

Coal continues to dominate South Africa's energy and electricity systems and is the main cause of the high emissions intensity of the economy. Coal power presently accounts for 85% of electricity produced in South Africa (excluding imports) and around 185 $MtCO_2$ emissions (around 45% of national greenhouse gas emissions) in 2022[21].

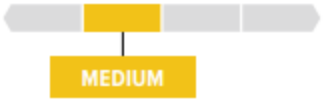
The coal sector still plays a significant role in South Africa's economy. The coal value chain employs some 200 thousand formal workers and is the main source of livelihoods in rural areas in South Africa's coal regions. A study undertaken by South Africa's Trade and Industrial Policy Strategies (TIPS) research group has shown that in the event of a large-scale transition away from coal, most of the workers and small businesses in these areas would lack the capacity and funds to find new livelihoods without support, despite the broader economic benefits that the energy transition could bring nationally[22].

The Integrated Resource Plan 2019

South Africa's Integrated Resource Plan 2019 (IRP2019) was published by the Department of Minerals and Energy (DMRE) in October 2019, and serves as the country's roadmap for new electricity generation capacity and procurement up to 2030. It replaced the previous 2010 IRP, which at the time called for the build of 17.8 GW of wind and solar technologies by 2030[23]. This led to the launch of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), a programme that employs a competitive tender process to facilitate private sector investment for grid-connected renewable energy generation capacity[24].

POLICY ASSESSMENT

Renewable energy in the power sector



South Africa's IRP2019 proposes an expansion of renewable energy capacity from about 6,600 MW (excluding large hydro) to 26,700 MW (plus a projected 6,000 MW in distributed PV) in 2030. As part of the President's energy crisis plan, the capacity of wind and solar procured in bid rounds of the REIPPPP will double from 2,600 MW to 5,200 MW. The licensing threshold for embedded generation, previously increased from 1 MW to 100 MW, will also be removed under the plan, which is expected to lead to increased private investment in renewables. There is no 2050 renewables target.

Department of Energy, 2019; The Presidency of the Republic of South Africa, 2022

Coal phase-out in the power sector

South Africa's IRP2019 outlines the decommissioning of 12 GW of older coal plants by 2030, but also includes 1.5 GW of new coal capacity by 2030, in addition to the mostly completed 8.5 GW coal capacity. Much of the coal fleet will be retired in the 2030s and 2040s, with a few plants potentially still operational in 2050 or later.

While the JETP envisions an "accelerated decarbonisation" of the power system with a focus on coal, there is still no detailed phase-out plan – although work is ongoing in consultation with Eskom and other relevant stakeholders.

Department of Energy, 2019; The Presidency of the Republic of South Africa, 2021

IRP2019 provided an update on the progress of renewable capacity commissioned to date and provided revised targets for new renewable build by 2030. It also provided a provisional schedule for decommissioning of Eskom's coal power units up to 2050, including prioritising closing Eskom's oldest coal plants before 2030.

It should be noted that the IRP was envisaged as a "living document" that would be regularly updated and published. However, to date only IRP2010 and IRP2019 have been promulgated by government. It is understood that, at the time of writing, DMRE will soon publish a draft of a new IRP, which may include significant revisions to the coal closure timetable amongst other changes from IRP2019.

Implementation Check

POLICY INSTRUMENT
Integrated Resource Plan 2019

RATING
MEDIUM

KEY
- Frontrunner
- Medium
- Strong
- Weak
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  NA = Not applicable

LEGAL STATUS
STRONG

The IRP is established under the Electricity Regulation Act of 2006 (ERA) and regulations on new build generation capacity pursuant to the ERA. The regulations empower the Minister of Mineral Resources and Energy to develop and publish the IRP. When the Minister makes subsequent determinations about the country's electricity capacity, which include decisions about the mix of technologies and the sources of generation (such as IPPs or Eskom), these typically reference the applicable section of the most recently issued IRP.

RESOURCES
MEDIUM

DMRE is funded by the national budget, from which it makes budgetary allocations for activities and entities like IRP development. While DMRE provides the mandate for the IPP Office, which manages the entirety of the REIPPPP, it does not provide funding. The IPP Office is instead self-funded based on a proportion of total costs for all IPP projects it procures and signs[27]. Initially funding was provided as a loan recoverable once an IPP project reached its financial close stage, however the office is now funded directly from IPP project fees[28].

INSTITUTIONS & GOVERNANCE
MEDIUM

The DMRE Minister makes new capacity determinations as per the legal status. Ministerial determinations are made in consultation with the National Energy Regulator of South Africa (NERSA) and the system operator (Eskom) and specify the purchaser and technology source of the capacity, and whether it should be procured from Eskom or IPPs. For the REIPPPP, the DMRE set up an IPP Office to manage procurement, contracts, and monitoring and evaluation of IPP projects.

The development of the IRP has been criticised for its lack of transparency[25], with underlying data and rationales for decisions not always publicly disclosed[26].

OVERSIGHT
WEAK

DMRE updates the Parliamentary Portfolio Committee on Mineral Resources and Energy on the progress of its programmes, including the IRP and REIPPPP. However, their most recent reporting indicates that the IPP programmes are behind schedule regarding the commissioning of new renewable energy capacity, while there is no public reporting on the status or progress of coal power decommissioning. Reporting frequency is regular, and usually lacks substantive detail on reasons for delays and plans for recourse.

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See Annex A for more details

Analysis of implementation progress

Eskom made initial progress in its coal power transition with the closure of the last remaining unit at the Komati Power Station in October 2022. Eskom noted in its announcement at the time that "no Eskom employees will lose their jobs as a result of the closure"[29].

Progress with decommissioning other coal plants has been slow. Recently it has emerged that government is considering plans to delay the decommissioning of some of these units, beyond the IRP2019 schedule (contrary to the recommendations from the Just Energy Transition Investment Plan that some plants should be considered for early retirement).

Utility-scale renewable capacity additions have not kept pace with the targets established in IRP2019. The IRP2019 indicated some 3.3 GW of solar PV and 4.9 GW of wind should have been commissioned by the end of 2022, however as of July 2023 total capacity stood at 2.3 GW and 3.4 GW respectively[9]. DMRE responded by accelerating ERA determinations for the REIPPPP to account for the remaining IRP2019 capacity pipeline. However, new rounds of the REIPPPP are currently also being affected by a lack of available transmission capacity, as Eskom's grid development has not kept pace with IPP generation capacity developments[30]. It is therefore likely that there will be further delays to utility-scale renewable rollout, increasing the gap between IRP2019 targets and implementation on the ground.

Developments subsequent to IRP2019

Mitigation policy and support

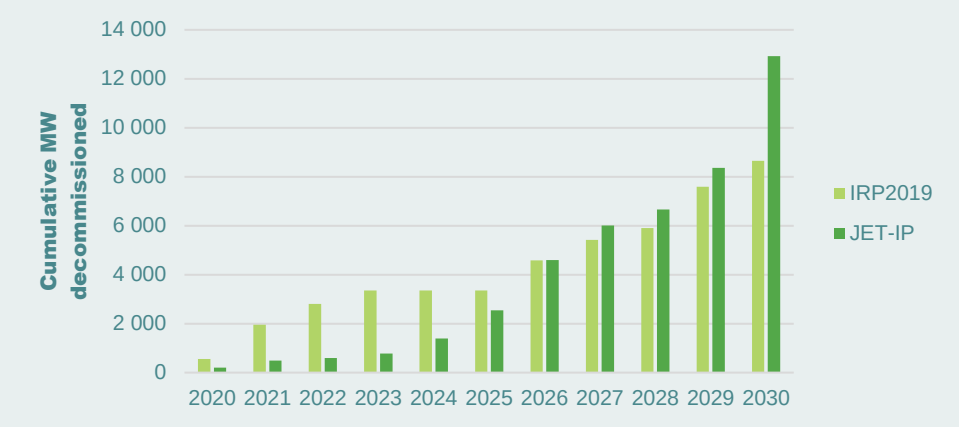
South Africa communicated an update to its first (2030) NDC in 2021, in which it enhanced the ambition of its target GHG emission range for the years 2025 and 2030[6]. The updated NDC also echoed a pledge first made in South Africa's long-term low-emission development strategy (SA-LEDS) to "move towards the goal of achieving a carbon neutral economy by 2050"[5].

Target emissions ranges [$MtCO_2$-eq incl. LULUCF] for South Africa's updated first NDC.

Annual GHG emissions	2025	2030
Upper bound	510	420
Lower bound	398	350

As mentioned above, the inaugural JETP was established between South Africa and partner countries including France, Germany, the United Kingdom, the United States, and the European Union, in 2021. The essence of the JETP is that the partner countries pledged financial support to South Africa, predominantly in the form of financial loans at below-market rates, of up to USD 8.5 billion to support the just energy transition, and specifically the transitional impacts of closure of South Africa's oldest coal power plants.

The following year, the Presidency of South Africa published the first Just Energy Transition Investment Plan (JET-IP), with the primary purpose of giving effect to the objectives of the JETP[8]. The JET-IP outlines the financial investment requirements over an initial five-year cycle (of which, the JETP pledges represent a small fraction of the total investment envisaged) towards meeting South Africa's decarbonisation objectives – in particular the 2030 NDC. The JET-IP encompasses various sectors, including the electricity sector, the new energy vehicle (NEV) sector, and the green hydrogen sector, and includes an updated schedule for coal decommissioning, with accelerated closure of some plants (relative to IRP2019) by 2030.

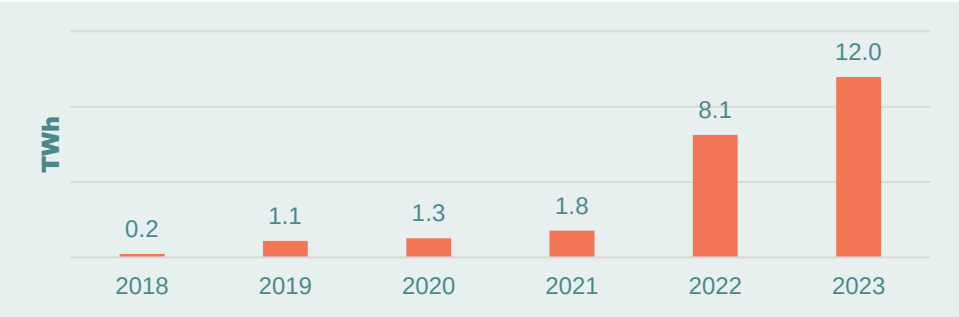


Economic and electricity crises

Like most countries, the South African economy was severely impacted by the COVID19 pandemic. Real GDP per capita contracted by 14% between 2019 and 2020 and has recovered slowly since. As of Q2 2023 the number of employed persons had not yet reached pre-pandemic levels, and the official unemployment rate had grown to 32.6% (excluding more than 3 million discouraged work seekers)[12].

South Africa has also had its own energy crisis – load shedding. South Africa has endured persistent challenges with ensuring adequate electricity supply to meet demand since the late 2000s, but the shortfall has deepened significantly since 2019 resulting in record-levels of load shedding (a process of shedding load to large areas of consumers at a time, implemented in a controlled system by Eskom) and unserved energy in 2022 and 2023.

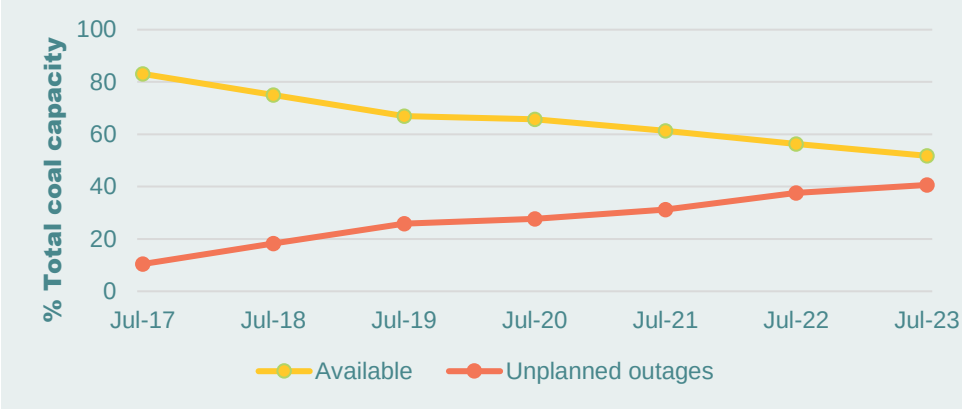
Annual energy load shed since 2018 (only partial data for 2023) (source: Eskom[9])



The current load shedding crisis is exacerbated by two factors:

1. **Deteriorating performance of Eskom's coal fleet**: the average age of Eskom's operational coal units is 41 years. In recent years the number of unplanned outages have greatly increased in frequency and duration, such that the average Energy Availability Factor for the coal fleet has dwindled to below 60% (whereas IRP2019 expected it to stabilise at 75%)[30].

Average availability and unplanned outages of Eskom's coal fleet (source: Eskom[9])



2. **Severe constraints and on Eskom's balance sheet**: Eskom currently has aggregate liabilities of around ZAR 423 billion (EUR 21 billion), which has severely curtailed its ability to invest in new generation and transmission capacity and perform vital maintenance on its existing infrastructure (further contributing to the poor EAF performance). As part of the 2023/24 budget, the National Treasury announced a debt-relief arrangement to cover 60% of Eskom's debt, subject to a set of strict conditions, including a ban on Eskom funding any new generation projects (the implication being that all new build capacity has to be privately funded for the foreseeable future)[10].

In parallel with the Eskom debt-relief arrangement, National Treasury announced it had also commissioned an independent review of Eskom's 14 remaining coal power stations to determine the technical feasibility for each plant to improve its availability performance, and whether older plants could have their technical life extended beyond their scheduled retirement date. At the time of writing, November 2023, their findings have not yet been released publicly.

Electricity market reform

In response to the load shedding crisis, the Presidency has announced and begun to implement several reforms to the electricity sector over the last 18 months. These have included[17]:

- **Removing licensing thresholds for embedded generation** to enable private developers to invest in off-grid or wheeling projects of any size.
- **Providing incentives for rooftop solar PV investments**, primarily through tax credits with the added possibility of residential feed-in-tariffs introduced in future.

These reforms have thus far resulted in rapid growth in the pipeline of private renewable capacity, mainly using solar PV. For example, NERSA registered some 1.8 GW of new projects in 2022 alone, and it is likely that a similar amount has been developed that are not yet NERSA-registered[32]. Meanwhile more than 600 MW rooftop PV was added in 2022, and is estimated to grow to 10 GW by 2035[33]. A 2023 survey conducted by Eskom and two local renewable energy associations found that some 60 GW of wind and solar projects are at various stages of development in South Africa, including some 18 GW at 'advanced' stages[13].

Coal life extension

Another, contrasting, effect of load shedding has been to call into greater public scrutiny the decision to pursue the electricity transition and commit to closure of coal plants before 2030. The narrative increasingly expounded by a selection of public officials is that it does not make sense to decommission coal power plants – however old or unreliable they may be – at a time when the country does not have

adequate electricity supply, and that it would be more prudent to extend the life of these plants and try to improve and restore their EAF performance above current levels.

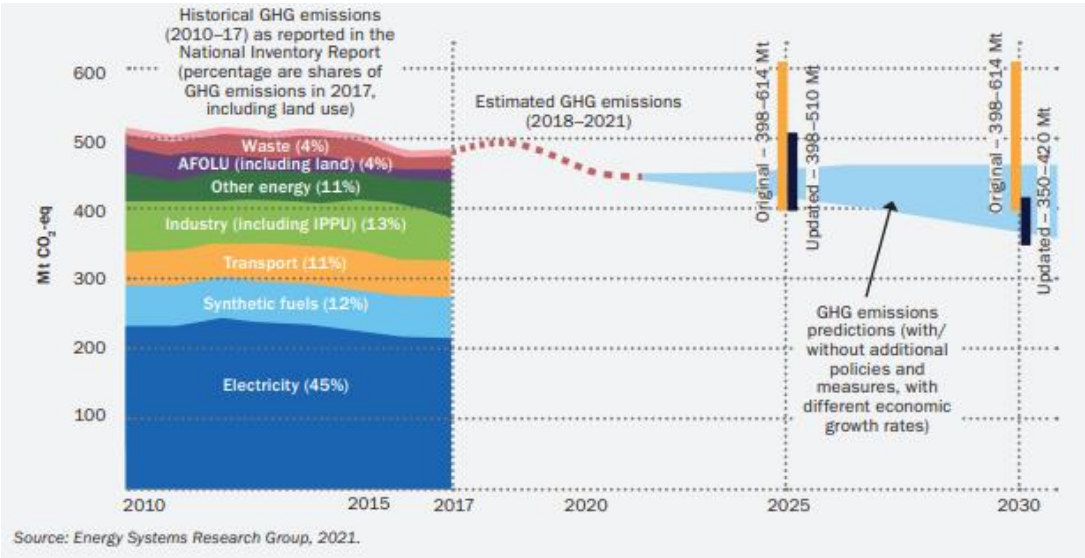
The foundation of the arguments underpinning these narratives centres on the long-contested issue of equity in the international climate regime, especially the narrative that it is unfair and unjust to expect developing countries not to use their fossil fuel resources for development, when developed countries were previously able to build their economies and aggregate global wealth in this way. Additionally, concerns are repeatedly raised by South African labour unions and coal lobbyists alike about the 'just' element of the just energy transition, where the suspicion is held that the rhetoric surrounding the JETP, and any actual money that arises, will not result in material support or protection for coal workers and communities on the ground[14].

The extent to which these claims can be supported by actual evidence is not explored here. However, it is evident that these concerns cannot be ignored, and have to date not been sufficiently addressed in energy transition planning. Such policymaking needs to be as inclusive as is reasonably possible, to avoid alienating communities and stakeholders, and allow broad consensus on the way forward.

Implications for South African decarbonisation

The lack of policy clarity, and the potential for discontinuity has significant implications for South Africa's decarbonisation journey in the short- and long-term. Recent analysis by the Energy Systems Research Group (ESRG)[35] has shown that, even if South Africa sticks to the coal decommissioning schedule provided in the JET-IP, GHG emissions will likely exceed the upper NDC target in 2030 without additional measures. Extending the use of coal would only exacerbate this gap.

Climate Transparency 2022 evaluation of South African emissions pathways[35]



Source: Energy Systems Research Group, 2021.

These developments cast doubt over whether, and to what extent, South Africa's 2035 NDC will further ratchet ambition relative to its 2030 contribution. The preparatory cycle for the 2035 NDC is about to begin, with countries required to communicate their NDCs for the period up to 2035 in early 2025. The current uncertainty regarding the just energy transition suggests it will not be a trivial process to address intranational and international equity concerns whilst also committing to further emission reductions, with further implications for the long-term pledge of moving towards net zero CO_2 emissions.

It is also unclear to what extent the private renewable market will continue expanding, and whether the existing electricity market reforms will persist and continue to enable this expansion. There is the potential for private renewable energy to form a much larger share of national electricity supply than was previously thought possible, and this would take significant pressure off the national grid and allow space for expedited retirement of coal power plants where they are no longer needed. However, such scenarios have not yet been analysed or quantified in detail, and there would be additional factors to consider, such as the potential perpetuation of inequality that already exists between rich households, who can afford rooftop solar, and poor households, who cannot.

What is clear is that there is a growing need for climate and energy policy to be undertaken together, rather than in separate silos. Only through integrated policymaking, that considers and balances multiple climate and development objectives and provides space for the inclusion of multiple stakeholders that represent all sectors of society, will it be possible to reach broad support for decarbonisation and just energy transition strategy, and ensure effective implementation thereof.

Conclusion

South Africa's journey towards decarbonisation and meeting its 2030 NDC and long-term net-zero CO_2 pledge faces critical challenges. The uncertainty in policy clarity and market reforms, coupled with the possibility of extending the life of the ageing coal fleet, presents mixed signals about the direction of South Africa's climate strategy. Effective decarbonisation necessitates integrated policy planning that balances environmental goals with social and economic considerations, especially for coal-reliant communities. Transparency, public engagement, and addressing the socio-economic imbalances, are vital to securing support for energy transition policies. These insights from South Africa's experience are instructive for both developed and developing nations in tackling just energy transitions.

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Annex A: Climate Policy Implementation Check – IRP2019

Overview of South African energy policy

In South Africa, the Department of Mineral Resources and Energy (DMRE) leads the planning and development of energy policy, with final decisions made at the cabinet level. Important players include the Minister of Electricity, tasked with solving the load shedding crisis, and the state-owned Eskom, responsible for electricity generation, transmission, and distribution. The Independent Power Producer (IPP) office manages procurement programs for IPPs to supply energy, primarily renewable.

The foundational document for post-apartheid energy policy is the 1998 White Paper on Energy Policy, which encouraged diversification and the introduction of IPPs into the market. Legal frameworks like the Electricity Regulation Act of 2006 and the Integrated Resource Plan (IRP) guide these policies. The IRP2010 led to the Renewable Independent Power Producers Procurement Programme (REIPPPP), aiming for 17.8 GW of renewable energy by 2030. Despite initial delays, the REIPPPP has been successful, with several bid windows and projects now contributing to the grid.

IRP2019, launched amid an electricity crisis and governmental restructuring, revitalised the REIPPPP and proposed decommissioning coal power plants. Concurrently, the National Development Plan (NDP) 2030 and the National Climate Change Response White Paper (NCCRWP) 2011 outlined a low-carbon economy and a diversified energy mix. These documents, along with South Africa's first Nationally Determined Contribution (NDC) to the Paris Agreement, emphasise renewable energy as a core part of the country's mitigation strategy. The updated NDC in 2021 set a more ambitious emissions trajectory and highlighted the shift from coal mandated by IRP2019. This study selects IRP2019 as the primary policy instrument for South Africa's electricity sector transformation toward renewable energy integration over the last decade.

Policy instrument: IRP2019

Overview

The Integrated Resource Plan of 2019 (IRP2019), which replaced and succeeded the IRP2010, provides the policy-adjusted electricity plan for South Africa, including specifying the technology mix and capacity of new-build generation for the country, up to 2030.

It is the central policy instrument for electricity planning in South Africa, and thus is the key lever for implementing electricity sector reform and transition, including diversifying the energy mix away from coal and towards cleaner sources (mainly renewables). IRP2019 calls for the extension of the REIPPPP and new build of 14.4 GW of renewable capacity, over and above RE capacity that had already been “committed” through previous REIPPPP bid windows, and the decommissioning of 11 GW of old coal capacity, by the end of 2030.

IRP2019 was promulgated in 2019, with a planning horizon up to 2030. It is anticipated that a draft new IRP will be published by the DMRE before the end of 2023.

Legal status

Q1: Is there a legal basis for the implementation?

Yes

The legal basis for the IRP lies in the Electricity Regulation Act (No. 4 of 2006), and more specifically in the Electricity Regulations on New Generation Capacity made in 2011 and amended in 2016. The Electricity Regulations on New Generation Capacity stipulate that the Minister of Energy shall develop and publish the IRP in the government gazette. Subsequent determinations of electricity capacity, including technology mix and source (e.g., IPP or Eskom) are made by the Minister and published in the gazette, and typically draw direct reference to the relevant section of the applicable and most recently promulgated IRP for the determination.

Institutions & governance

Q2: Are there institutional bodies tasked with the implementation of the policy instrument and its laws and regulations?

Yes

DMRE is the custodian of the Integrated Resource Plan, and the Minister makes determinations for new build capacity in line with the regulations as described above. The Minister makes their determination in consultation with the National Energy Regulator of South Africa (NERSA). The Minister also consults with the national transmission company and system operator when making their determinations; currently both these functions are performed by Eskom (the national state-owned electricity utility of South Africa).

The new generation regulations empower the Minister to determine the off taker for new generation projects (Eskom or another entity) and from whom the capacity should be procured (whether Eskom or an IPP). In the case of the REIPPPP, DMRE established the IPP Office to assist with procurement management, contract management, monitoring and evaluation of renewable (and non-renewable) IPPs and IPP programmes.

Q3: Are the rules and regulations clear and credible to meet the policy objective?

No

Development of the IRP has historically not been a transparent process. The data, assumptions and modelling analysis that underpins the IRP process is invariably not made publicly available. The final IRP generation build plans are also decided after certain “policy-adjustments” are made to the initial findings and recommendations of the modelling analysis, and the rationale for these adjustments is not always evident or provided.

Prior to the recent reforms to the electricity market, including amendments to the electricity regulation act as discussed in the main text, the process for implementation of the IRP was not always clear and credible, and on occasion implementation was hindered by other factors that lay outside of the IRP process.

Resourcing

Q4: If the policy instrument has budgetary implications, does budget include it and /or is the cost recovery mechanism clear?

Yes

The DMRE receives budget every year from the National Treasury as part of South Africa's national budget, most recently the 2023/24 budget, from which it funds its activities and subsidiaries including the IPP Office and the IRP development.

IRP implementation is exercised through the new generation capacity regulations and in consultation with NERSA, part of which ensures providing a process for allowing the entity from which capacity is to be procured to receive a fair and cost-reflective tariff that covers their capital and operations costs. In the REIPPPP, fairness is ensured by means of an auction system for the allocation of new capacity to prospective IPP developers at prices they bid.

Q5: Are the implementing bodies well-resourced and existing at the appropriate level?

No

While DMRE provides the mandate for the IPP Office, which manages the entirety of the REIPPPP, it does not provide funding. The IPP Office is instead self-funded based on a proportion of total costs for all IPP projects it procures and signs[27]. Initially funding was provided as a loan recoverable once an IPP project reached its financial close stage, however the office is now funded directly from IPP project [28]. This model has made the financial stability of the IPP Office a lot less certain.

Oversight

Q6: Have any monitoring results been made public?

Yes, but not consistently

DMRE reports to Parliament, via the Portfolio Committee on Mineral Resources and Energy, on progress on the implementation of programmes, such as the REIPPPP, that it sets up to implement the IRP. The most recent presentation was made in February 2023 and is publicly available. However, these presentations are irregularly scheduled, and the underlying data that supports the results presentations is not routinely published.

Q7: Does the latest monitoring report indicate that the policy's goal will be achieved on time?

No

DMRE's most recent report to the Portfolio Committee suggest its IPP programmes have fallen behind in terms of the timelines for new renewable capacity to be commissioned onto the grid (not just procured and contracted, but fully constructed and synchronised). Furthermore, DMRE has not reported publicly on coal power decommissioning, and anecdotal evidence shows this has not kept pace with the IRP2019 timeline either.

Q8: Is there a process of evaluation to assess the quantitative outcome of the policy instrument?

No

There are limited feedback processes, beyond an official response from the Parliamentary Portfolio Committee, to provide evaluation of progress made on the IRP, and therefore limited to no recourse to correct or expedite IRP implementation when this falls off track. The only mechanism by which this happens is through an update of the IRP, whereby the forthcoming IRP 2023/24 will replace IRP2019, but it remains to be seen how the new IRP will address the progress and gaps in progress made with IRP2019, and whether the policy goals are explicitly or implicitly changed.