

Navigating the regulatory aspects of an Energy Transition from a climate change perspective

Analysing the regulatory challenges and opportunities of South Africa's energy transition

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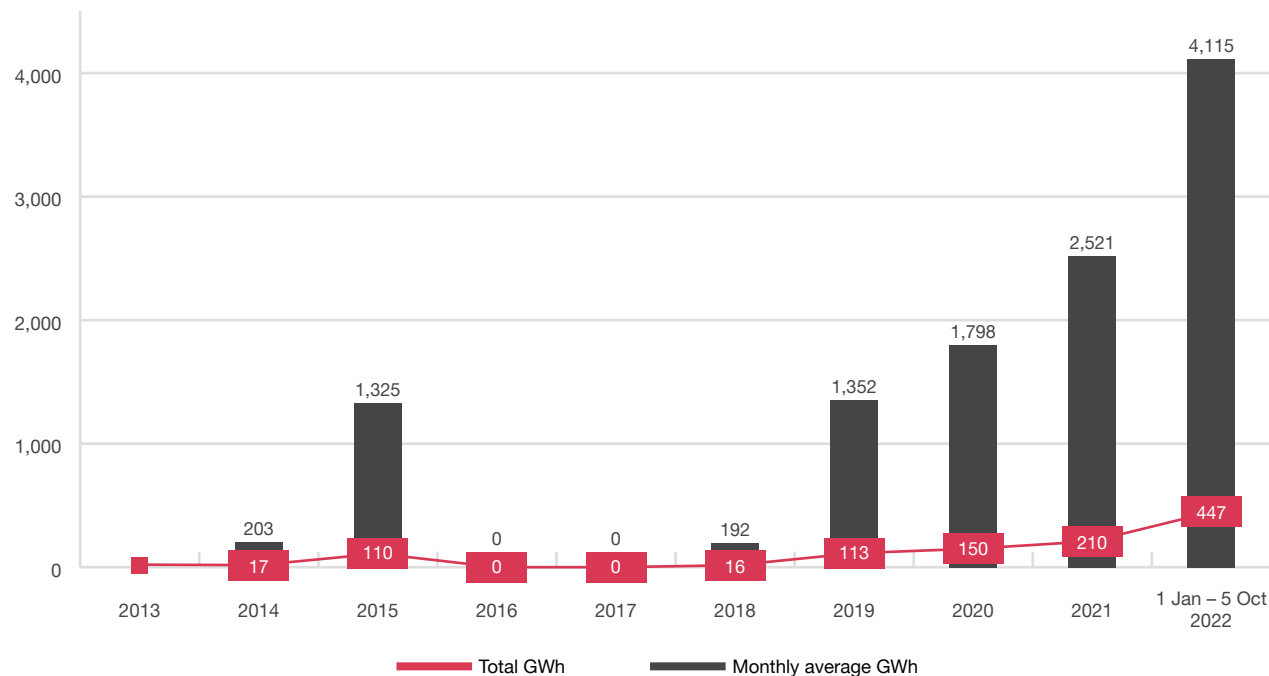


Understanding South Africa's energy landscape

In order to understand how the regulatory landscape surrounding energy may impact South Africa's future, it's important to understand the context of South Africa's energy circumstances.

South Africa is Africa's largest user of coal-fired-power on the continent and ranked 12th in terms of global emissions. It is commonly acknowledged by government and key institutions such as Eskom that South Africa has a shortfall of around 4,000 MW to 6,000MW of reliable electricity generation, which is negatively impacting the economy, businesses and jobs. The country has faced exponential decreases in electricity reliability through both load shedding owing to unreliable power facilities as well as growing levels of breakdowns in municipal distribution networks.

In 2021, South Africa experienced 1,169 hours of load shedding, a 40% increase from 2020 with 2022 well on track to exceed the 2021 levels, as shown in the diagram below. PwC has estimated the adverse impact of load-shedding in 2021 was a reduction in real GDP growth of up to 3.1 percentage points, costing the economy up to 400,000 potential jobs.



Source: Council for Scientific and Industrial Research (CSIR)

In addition, South Africa is experiencing pressure to reduce its emissions in alignment with climate change commitments made at COP 26. These decarbonisation targets, along with the increasing electricity generation challenges, require an expedited roll out of renewable energy technologies and the necessary market reform to address the growing electricity supply deficit.

The growing direct and indirect cost of energy disruptions to users and the economy is forcing the private sector to rapidly deflect from the national grid. Although it is clear that renewable energy offers the lowest cost of new generation, this increasing separation of private vs public sector generation without the supporting holistic policy and market reform is not in the interest of all South Africans. An enabling regulatory environment is therefore critical to addressing our energy crisis as well as ensuring a sustainable and equitable energy future.

However climate change pressures, and the rapid innovation in clean technologies, is increasing the complexity of the regulatory reform required to facilitate the energy transition and the regulatory environment will remain in a dynamic state of flux for the foreseeable future. All stakeholders will have to understand and work within this uncertainty in order to improve energy security, grow opportunities as well as address decarbonisation pressures.

This paper will outline the relationship between South Africa's increasing climate change pressures and the deployment of renewable energy from a regulatory perspective. The paper also outlines the key regulatory challenges that the private sector and municipalities currently face from an energy perspective and the possible regulatory changes that will alleviate these challenges.

Climate change as a driver of South Africa's energy transition

The design of South Africa's energy legal framework must be informed by the need to address our energy crisis, facilitate a just transition and realise our climate change commitments.

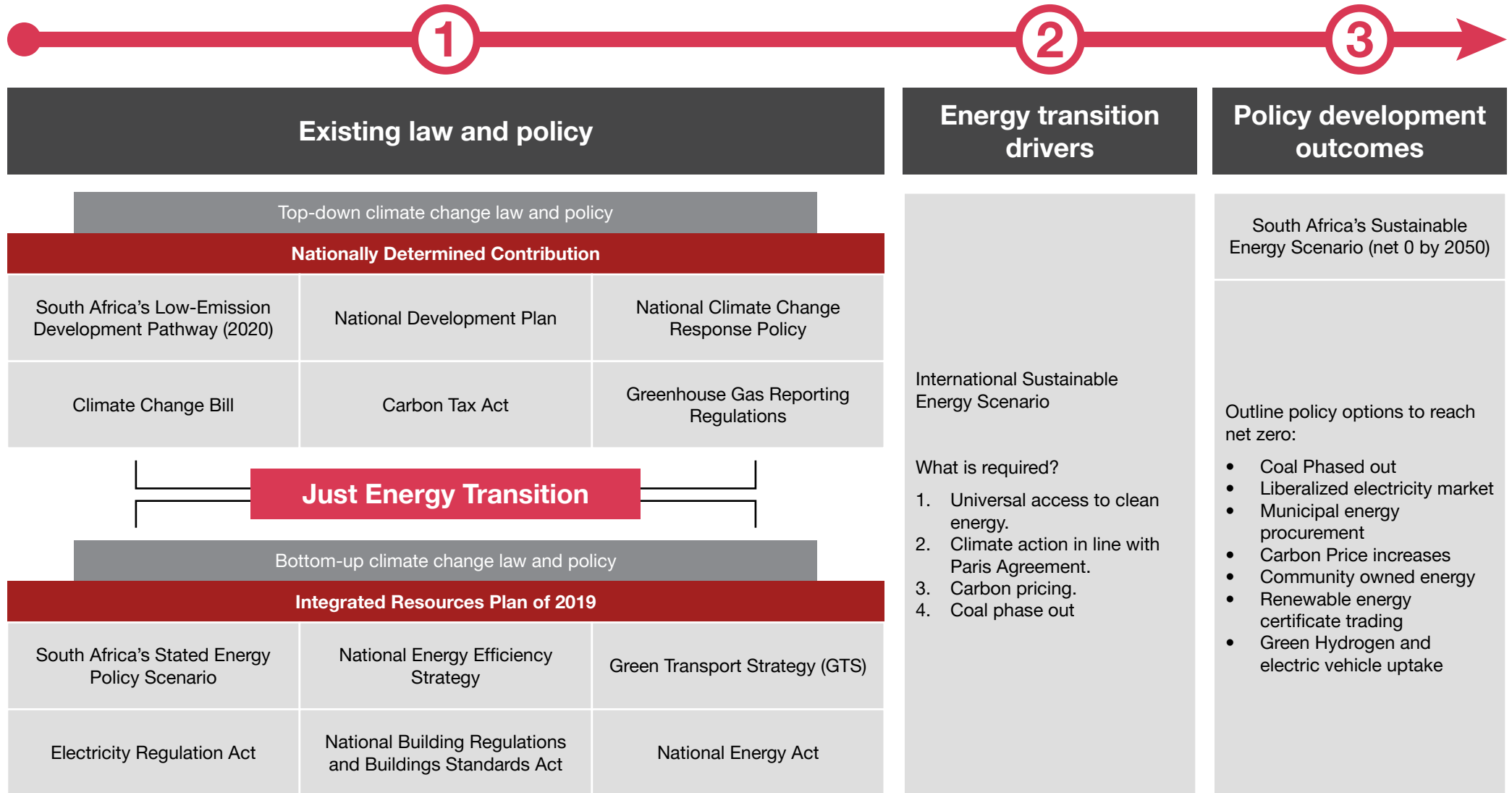


According to South Africa's latest Biennial Update Report to the UNFCCC, the Energy sector is the largest contributor to the country's total emissions, contributing 80.1% in 2017 which is up from a 77.8% contribution in 2000. Energy sector emissions increased from 349,100 Gg CO₂e in 2000 to 410,685 Gg CO₂e in 2017. Renewable energy provides developing economies like South Africa with a partial solution to not only relieve our energy supply gap, but also leads to other areas of growth and contributes to our decarbonisation efforts.

Amidst the global pressure to address climate change, South Africa has positioned itself as a global climate change leader with its updated Nationally Determined Contribution (NDC). The updated NDC increases the country's climate change mitigation and adaptation ambition, strengthens clarity, transparency and understanding, and outlines its just transition approach to implement the NDC. However, implementing the revised version of the NDC will require a significantly more ambitious RE investment programme than has been the case to date.

Given South Africa's increasingly ambitious climate change mitigation goals, the country has adopted a number of climate change oriented laws and policies over the last five years. The majority of these laws and policies impose top-down climate change commitments to both public and private sectors. For example, the Draft Climate Change Bill will impose sectoral emission targets which will most likely have an impact on the energy sector. Additionally, punitive measures have been introduced in the form of the Carbon Tax Act aimed at businesses and companies that emit a high level of carbon,

with the national utility, Eskom, being the greatest source of emissions. However, given the fact that the energy sector is the largest contributor to the country's emissions profile, the question must be asked whether the country has the enabling bottom-up energy regulatory framework to enable the achievement of top-down climate change commitments. Without the necessary energy laws and policies in place to support the decarbonisation of the energy sector, South Africa will not achieve its envisioned just energy transition.



International climate change law and policy as drivers to accelerate RE uptake

International law and policy development have played an important role in governing unified action and sharing effective policies and investment frameworks in order to reduce barriers and risks of investment in RE.

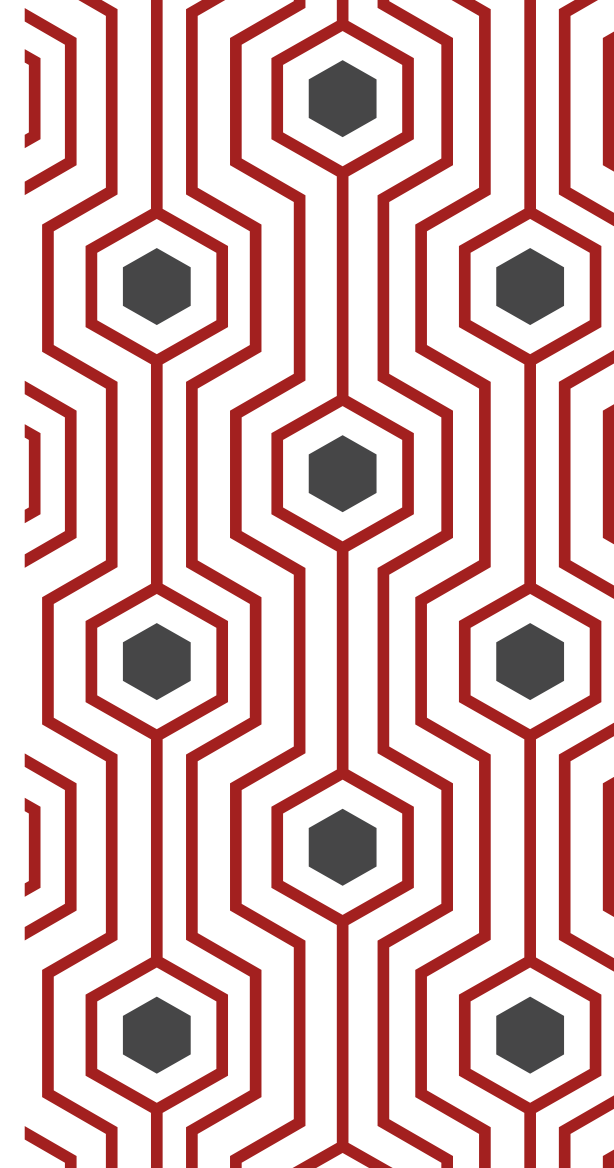


As the RE sector grows, it is becoming clearer that RE has an international dimension that drives its development on a domestic level, especially in developing economies. Developing and emerging economies overtook developed countries in RE investment for the first time in 2015 and extended their lead in 2017, accounting for a record 63% of the global total, due largely to China. Principles and requirements set out in international environmental law have recognised the importance of RE. In turn this has influenced domestic law and policy and also informed the design and roll-out of corporate strategies in the private sector.

From an international perspective, the primary driver behind the increased uptake of RE technologies has been the need to decarbonise the world's energy sector in an effort to curb the impacts of climate change. Various policies have been

designed in foreign jurisdictions to address every stage of the RE development chain involving research and development, testing, deployment, commercialisation, market preparation, market penetration, maintenance and monitoring, as well as integration into existing systems. However, the majority of these policies were not designed in line with international energy policy, but rather on the back of climate change related international treaties seeking to mitigate the effects of climate change and reduce the amount of GHGs in the earth's atmosphere. Apart from the International Renewable Energy Agency Statute, there is no specific treaty governing the RE sector per se. Within the South African context, the following international law instruments are considered to have implicitly influenced the design of domestic laws and policies related to the development of RE.

International law instrument	Relation to renewable energy development
International Renewable Energy Agency Statute	IRENA provides practical advice and support for both industrialised and developing countries to help them improve their regulatory frameworks and build capacity. IRENA has no express capacity or implied power to negotiate or establish international legal obligations with respect to RE targets.
United Nations Framework Convention on Climate Change	UNFCCC does not mandate energy-related obligations for states, nor does it expressly mention RE. The most that the UNFCCC does within the context of RE promotion is encouraging global cooperation in an effort to promote new technologies. See article 4(c).
The Paris Agreement	The Paris Agreement does not contain a single reference to RE or its potential to assist in the fight against climate change. However, Article 4(2) requires each Party to prepare, communicate and maintain successive Nationally Determined Contributions that it intends to achieve, which generally includes RE commitments.
European Carbon Border Adjustment Mechanism	The initial scope of the CBAM includes products from the iron and steel, cement, fertiliser, aluminium, and electricity generation sectors. As a start, the CBAM will apply only to direct emissions (emissions released from the production process and are in the control of producers). However, in the long term, the scope of the CBAM could be expanded to include indirect emissions associated with electricity supply. Similar CBAM mechanisms are also being considered in other jurisdictions such as Asia and the United States.



The call for an international renewable energy treaty

It is clear that climate change-oriented international laws have informed and driven the uptake of domestic climate change laws and policies. Given the need to introduce domestic energy-oriented laws and policies which are able to respond to domestic climate change laws and policies, it may be time for the international community to consider the introduction of an international treaty creating obligations for countries to increase RE uptake. Such an international mechanism could follow similar characteristics applied in international climate change laws, such as the Paris Agreement.

Understanding South Africa's energy regulatory framework

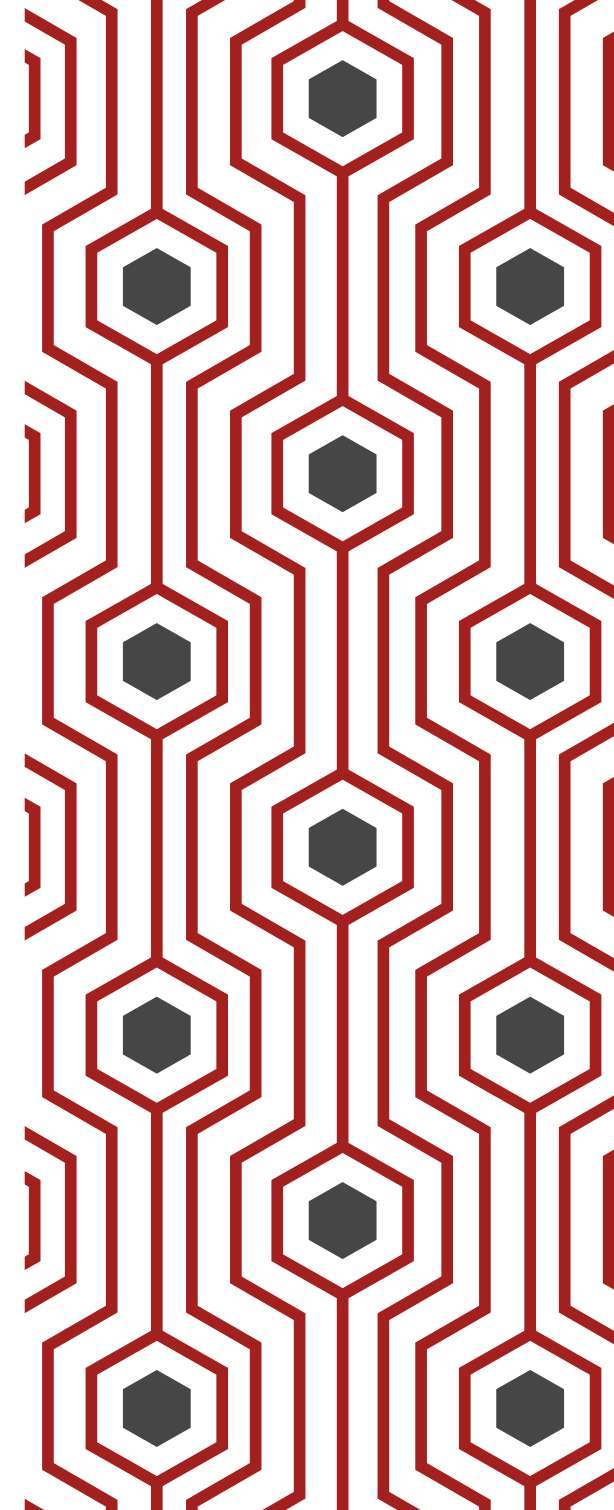
In addition to technology and market forces, overarching policies and regulations inform decarbonisation requirements. South Africa's overarching energy policies have informed the design and development of specific regulatory measures that drive energy transitions. However, there are no policies which explicitly aim to increase the amount of RE to levels sufficient to meet top-down climate change commitments.

The following are some of the overarching policy documents informing South Africa's energy laws:

Overarching Policy	Relevance to renewable energy development
White Paper on Renewable Energy of 2003	The white paper proposed a RE target for South Africa and envisaged a strategic programme of action to develop the country's RE resources, particularly for power generation or reducing the need for coal-based power generation.
South Africa's Low-Emission Development Strategy (2050)	The SA LEDS 2050 aims to build upon the foundation of the white paper and articulate the path going forward in order to place the country on a low-carbon trajectory, while at the same time ensuring broader socio-economic development. The strategy recognised the integral role that RE will play towards putting South Africa on a low emissions development pathway.
National Development Plan	In order to improve environmental sustainability and resilience, the NDP envisages the introduction of municipal regulations to achieve scale in stimulating renewable energy, waste recycling and the retrofitting of buildings.
National Climate Change Response Policy	As part of the country's climate change response, the policy led to the introduction of regulatory measures to support renewable energy investments (for example, depreciation allowances for renewable electricity generation and biofuels production)
Integrated Resources Plan	The IRP makes provision for the procurement of 14.4GW of wind and 6GW of solar energy from 2022 to 2030. However the government's planned electricity procurement for wind and solar is inadequate for addressing South Africa's electricity supply gap and a ramp up of renewable energy procurement is needed.

South Africa has a plethora of national laws which regulate the country's energy sector. The key laws and their relation to the development of the RE sector are outlined below:

National law	Relevance to renewable energy development
The Constitution of the Republic of South Africa	The Constitution explicitly requires government to establish national law and policy to ensure electricity reticulation and that national energy resources are adequately tapped and delivered to cater for the electricity needs of the nation.
National Energy Act	Section 19 of the Act allows the minister of mineral resources and energy to make regulations regarding minimum contributions to national energy supply from renewable energy sources and measures and incentives designed to promote the renewable energy sector. To date, South Africa is yet to see regulations as contemplated above, which are specifically aimed at promoting the uptake of RE in the country.
Electricity Regulation Act	The Electricity Regulation Act (ERA) establishes a national regulatory framework for the generation, transmission and supply of electricity in South Africa. Although the promotion of RE is not explicitly mentioned in the objects of the Act, there are implicit references that can support the argument for increased renewables in the country's energy mix. This is evident when considering the references to sustainability and the acknowledgement that the interests of future electricity customers must be considered. The Act also implicitly supports the private use of RE sources when considering section 7(2) read together with schedule II, that exempt certain electricity generation facilities from registering with NERSA and/or holding an electricity generation licence in terms of section 7 of the Act.
Electricity Regulation Amendment Bill	The aim of the Bill is to establish a wholesale electricity market in line with international best practice. The proposed amendments form part of several steps the country is taking to reform the electricity sector towards achieving a stable and secure supply of energy.



Navigating energy law and policy from a municipal perspective

South Africa's Constitution empowers municipalities with executive authority and the right to administer electricity reticulation. Furthermore, it is also the responsibility of municipalities to ensure the provision of services to communities in a sustainable manner and to also promote economic and social development.



Municipalities are facing an array of electricity related problems. Steeply increasing electricity prices and persistent load shedding over the past years have resulted in many consumers opting for cost competitive alternative energy solutions such as embedded photovoltaic generation and solar water heating. Energy efficiency is also becoming increasingly viable with reduced payback periods. This will result in a loss of municipal income from customers who pay the highest electricity rates, and who cross subsidise other areas of the municipality which allows them to function effectively.

Given the challenges above, municipalities are looking towards greater integration of energy efficiency and renewable energy into the energy mix. However, there are certain regulatory hurdles which prevent them from accessing RE resources to the extent necessary to improve municipal energy security. The key regulatory challenges faced by municipalities are outlined in the section below:

Applicable Regulatory measure	Impact and relevance of regulatory measure
Electricity Regulation Act	<p>In October 2020, minister of mineral resources and energy, Gwede Mantashe, gazetted amendments to the electricity regulations for new Electricity Regulations on New Generation Capacity. The amendments extend the procurement of new renewables, co-generation, baseload, mid-merit, peak load, energy storage and cross-border generation capacity to organs of state “active in the energy sector”, which includes municipalities. This means that municipalities can procure or buy new generation capacity. However, a municipality must apply to the minister to procure or buy new generation capacity in accordance with the Integrated Resource Plan (IRP), as well as the municipality’s own Integrated Development Plan (IDP). Furthermore, a feasibility study must be submitted in instances where a project is being funded internally, while a municipality must submit proof that it has complied with the provisions of Section 120 of the Municipal Finance Management Act and the Municipal Public-Private Partnership Regulations in those instances where the electricity is being procured from an IPP.</p>
Municipal Systems Act	<p>The Act allows municipalities to either procure energy by means of an internal mechanism, or by means of an external mechanism. Where a municipality plans to procure energy from an internal municipal division for purposes of providing municipal services the function of the procurement must sit within a department, business unit or other administrative unit within its administration. Where the municipality aims to procure energy by means of an external mechanism through a service level agreement, the opportunity exists to procure electricity from either another municipality, organ of state, a traditional authority, a community based organisation or a private entity.</p>
Municipal Finance Management Act	<p>Multi-year contracts, such as a Power Purchase Agreement (PPA) are regulated by section 33 of the MFMA which stipulates that a municipality can only enter a contract imposing financial obligations on the municipality beyond a three-year period if:</p> <ul style="list-style-type: none"> • A draft of the contract is publicly advertised for comment 60 days prior to the municipal council meeting at which the contract will be considered for approval. • The municipal council has considered the financial implications of the contract and any comments received on the proposed contract. • The municipal council has adopted a resolution on the financial benefits of the contract and authorised the municipal manager to sign the contract on behalf of the municipality. <p>The MFMA also outlines the requirements for municipalities to set tariffs for service provision, including electricity tariffs.</p>
Municipal Public-Private Partnership Regulations	<p>An important aspect of PPPs is that they give municipalities access to specialist skills that are not available within the municipality staffing structure. However, many of the concerns around the poor take-up of PPPs revolve around difficulties with the policy and legislative framework. These are seen by many to be complex and time-consuming.</p>

Possible regulatory reformation solutions based on international best practice:

- Introduce a mandatory municipal renewable energy targeting model similar to renewable energy targeting models in foreign jurisdictions to drive renewable energy investment. This will entail municipalities being required to procure a certain percentage of their energy needs from renewable energy sources.
- Provide clear RE procurement guidelines and allow municipalities to more easily secure long-term Power Purchase Agreements.
- Remove the requirement for municipalities to obtain a section 34 determination in terms of the Electricity Regulation Amendment Act prior to procuring energy.



Navigating energy law and policy from a private sector perspective

For several years prior to 2019, lack of activity in the South African renewable energy sector had dampened investor sentiment and led to an erosion in local manufacturing. However, recent developments have shown government's renewed commitment to the procurement and development of renewable energy and the inclusion of private sector participants.

Currently, the South African electricity supply industry is dominated by the state-owned utility company, Eskom. As mentioned above, the utility owns and operates over 90% of the national generation capacity, all the transmission assets, and distributes electricity to about 40% of South African customers. Along with the Eskom distribution department, municipalities are responsible for electricity reticulation to about 60% of national customers. The electricity market works around a single-buyer model, with Eskom being the only authorised off-taker of electricity at the wholesale level, as well as ensuring system operation and transmission network management.

However, recently there have been significant policy and legislative shifts in South Africa's electricity market design which will lead to increased private sector participation in the energy sector and the gradual liberalisation of the electricity market. Two of the most significant legislative developments to date have been the amendment to Schedule 2 of the Electricity Regulation Act in 2021 and the publication of the Electricity Regulation Amendment Bill.



Applicable Regulatory measure	Electricity Regulation Amendment Bill	Schedule II of Electricity Regulation Act	Carbon Tax Act
Impact of regulatory measure	<p>On 10 February 2022, the South African government published the proposed Electricity Regulation Amendment Bill. The proposed amendments form part of several steps the country is taking to reform the electricity sector towards achieving a stable and secure supply of energy. The Bill is yet to be finalised and promulgated, but its provisions will result in a significant paradigm shift for the country's energy sector. The key amendments of the Bill include:</p> <ul style="list-style-type: none"> • The movement away from a mostly single-buyer power market to a competitive multi-market • The establishment of a separate Transmission System Operator (TSO) responsible for transmission planning, investments and operation, system and market operation (effectively an ITSMO) – making it difficult to reverse the unbundling process • Establishment of a day ahead and balancing market, coupled with direct agreements between willing buyers and sellers, and physical contracts <p>The private sector will be able to participate in a non-discriminatory trading platform where willing buyers and willing sellers are able to trade with each other on an hourly and daily basis.</p>	<p>The latest amendment, published on 5 October 2021, exempts any generation facility with a capacity of no more than 100MW from obtaining a generation licence. Such generation facilities would only need to register with the national regulator, NERSA - a shorter and far less onerous process which would assist in fast-tracking independent electricity generation. Under this amendment, IPPs will be able to sell electricity directly to a single end-use customer for their own consumption, including where such electricity is distributed over a multiple user transmission or distribution grid. This development has been welcomed by the private sector, and in particular by stakeholders in those industries most affected by the uncertainty caused by Eskom's load-shedding woes. In response to a renewed commitment by President Cyril Ramaphosa to unlock more opportunities for private players in the electricity sector, government published a draft amendment to Schedule II in September 2022 which will lead to the removal of the 100MW threshold. This will enable the private sector to build large scale renewable energy capacity to ease the country's electricity crisis.</p>	<p>Carbon tax is South Africa's main mechanism to ensure that the country lowers its greenhouse emissions. To cushion the potential adverse impacts on energy intensive sectors such as mining and iron and steel, the introduction of the carbon tax for the first phase will not have an impact on the price of electricity. Although the ambit of the carbon tax act currently excludes emissions associated with electricity consumption (scope 2 emissions). However, from 2026 onwards, Eskom will be liable to pay carbon tax, which will lead to significant electricity price increases for consumers. As such, energy intensive consumers will look to alternative energy sources to reduce their exposure to Eskom's carbon tax passthrough. Additionally, and to further incentivise the uptake of embedded renewable energy solutions, the Act makes provision for taxpayers conducting electricity generation activities to offset the costs of purchasing additional renewable electricity against their carbon tax liability for the first phase of the carbon tax.</p>

An emerging opportunity for the private sector to reduce its emissions:

The reality of load shedding has led companies to explore alternative energy solutions. In addition to the procurement of the electricity itself, companies want to be able to report on the green attribute associated with the renewable energy being procured. The necessity to claim the green attributes associated with renewable energy has created a new market in South Africa where Renewable Energy Certificates can be traded and the green attributes can be claimed by a company to reduce its carbon footprint (scope 2 emissions). Although this is a nascent market in South Africa, increased decarbonisation efforts may lead to the expansion of the REC market.



What to expect going forward?

The investment in renewables at the scale necessary to address South Africa's decarbonisation commitments and the growing energy shortfall will only be achieved if supported by an enabling regulatory framework. As such, the country's energy landscape will undoubtedly be undergoing regulatory and structural changes going forward.

South Africa's slow progress to deploy large scale renewables is directly related to the degree of regulatory uncertainty and lack of market reform. Since the promulgation of IRP 2019, South Africa has seen a range of regulatory amendments and proposals for reform which are considered very positive. However the lack of certainty on timing and execution of the proposed changes is undermining the benefits and ability to close the referenced electricity supply gap.

From the assessment above, it is clear that more holistic and detailed regulatory reforms are therefore necessary to rid existing electricity laws of their inertia and achieve a low-carbon economy while ensuring access to affordable, reliable and environmentally sustainable energy. Given the publication of the Draft Electricity Regulation Amendment Bill in February 2022, numerous new opportunities and challenges will manifest themselves in the energy sector over the next few years. The following key developments can be expected from a business perspective:

- New business models based on the ability to partake in peer-to-peer electricity trading – Companies will be able to buy and sell electricity on a newly established electricity trading platform, creating commercial opportunities for the private sector to generate and/or trade with electricity.
- With greater ease of access to clean energy via wholesale and retail electricity markets, companies will face increasing pressure to reduce their Scope 2 emissions (emissions associated with electricity consumption) and to transition away from fossil-fuel based energy.
- With the expected increase of renewables in the energy market, more stringent regulations aimed at environmental regulation can be expected. This will include rules and standards related to permitting, waste management and regulations aimed at improving the circularity of materials used in the energy sector.
- As part of South Africa's just energy transition, it can be expected that innovative small-scale community-owned renewable energy projects will become a part of CSR requirements.
- Increased participation of municipalities in the procurement of energy - This will also include voluntary renewable energy targets which will drive the increased deployment of renewables on a municipal level.
- Improved harmonisation and implementation of laws and policies where legislative climate change commitments will be achieved by leveraging renewable energy solutions.
- Increased demand for green skills and expertise to navigate low-carbon energy markets.

Managing disruption through the energy transition

- Develop Energy Transition strategy
- Assess Market opportunities & threats.
- Emissions base-lining
- “Green” SWOT

Energy sustainability and resilience

- Reliability vs demand modelling
- Energy risk scenario's.
- Model cost and efficiency

Energy investments

- Clean Tech energy pathways
- RE project options/ development
- Investment & finance modeling.
- Procurement & implementation



Regulations and related exposure

- Regulatory scenarios
- Reporting and disclosure.
- Carbon taxes.
- Climate Change bill, REC's, Credits.

Business transformation: change culture and innovation

- Leading from the Top
- Skills and innovation.
- Change management.
- Culture.

Defining your ESG landscape

- ESG planning
- Reporting: SBT's; TCFD's etc
- Scope Emissions & data

PwC Strategy& Energy expertise:

PwC's Purpose-Led Growth team understands the impact of the energy transition on business sustainability, strategy and investment. Together, the multi faceted team can advise on multiple aspects of the energy transition. This includes the impact of energy laws and policies on your business and advice on identifying and navigating the risks and opportunities associated with South Africa's just energy transition.

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