SOUTHERN AFRICA
PROGRAMME

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# REGULATORY REVIEW OF THE ELECTRICITY MARKET IN SOUTH AFRICA

## Update

RES4AFRICA
FOUNDATION

# Regulatory Review of the Electricity Market in South Africa

*2024 update*

## About RES4Africa

RES4Africa Foundation's (Renewable Energy Solutions for Africa) mission is to create an enabling environment for scaling up investments to accelerate a just energy transition and transformation. It gathers a member network from across the clean energy value chain and supports the creation of an enabling environment for renewable energy investments and strategic partnerships. See more: www.res4africa.org

## About the Southern Africa Programme

RES4Africa's Southern Africa Programme works to support the region to maximize its green energy potential, creating an enabling environment for the implementation of RE projects to drive the just energy transformation of southern African countries. Building a regulatory and legislative environment which favours RES projects and attracts private investments is key in driving the regional energy transition: to achieve these goals, R4A continuously works to address the key issues of the area, adapting and developing its actions to suit local needs through advocacy, reports, studies and training programmes. With a permanent presence in Johannesburg, the Programme gives special attention to South Africa. RES4Africa aims to contribute to the roadmap design for an effective and just energy transition in the country. The programme dedicates conferences and studies to breaking down key issues and discussing options for the sustainable development of the power sector. In partnership with local partners and stakeholders, the Foundation also carries out as three showcase initiatives: AM-Powering Connexions, Re-Skilling Lab and Executive seminars.

**Authors**: Dario Garofalo, Lorenzo Vilona, Mohau Nei

**Project Management Team**: Marianna Petrosillo, Lorenzo Vilona

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# Contents

List of Abbreviations ..... 3
Introduction ..... 4
The Electricity Regulation Amendment Bill ..... 6
*Transmission System Operator (TSO) and trading platform* ..... *7*
*Powers of the Regulator* ..... *8*
*Security of supply and investments* ..... *9*
*Remarks on the amendment to the ERA Bill* ..... *10*
Electricity Pricing Policy review ..... 11
*Remarks on the review of the Electricity Pricing Policy* ..... *14*
Electricity Pricing Determination Rules ..... 15
*Remarks on the Electricity Pricing Determination Rules* ..... *16*
Conclusions and Recommendations ..... 17
*Openness* ..... *17*
*Attractiveness* ..... *18*
*Readiness* ..... *19*

## List of Abbreviations

ABC – Activity Based Costing

CPA – Central Purchasing Agency

EAP – Energy Action Plan

EPDM – Electricity Pricing Determination Rules

EPP – Electricity Pricing Policy

ERA – Energy Regulation Act

IRP – Integrated Resource Plan

ITP – Independent Transmission Project

MO – Market Operator

MYPD – Multi-Year Pricing Determination

NECOM – National Energy Crisis Committee

NERSA – National Energy Regulator of South Africa

NTCSA – National Transmission Company of South Africa

RCA – Regulatory Clearing Account

REIPPPP – Renewable Energy Independent Power Producers Procurement Programme

TSO – Transmission System Operator

UNECA – United Nations Economic Commission for Africa

## Introduction

The electricity sector of South Africa is the largest and one of the most advanced in sub-Saharan Africa, with an energy access rate close to 90 percent in 2021, according to the World Bank[1]. At the same time, since several years the electric infrastructure of South Africa is experiencing system failures and power shortages that result in poor service quality and ultimately in a reduction of the country's economic sustainability.

To address the long-standing criticalities affecting the electricity system both on generation and grids in a context of significant demand growth, the government and related institutions are continuously working to open the market, promote efficiency and transparency, with a view

of attracting private investors along the entire value chain.

In 2011, with the promulgation of the Integrated Resources Plan (IRP) 2010 – 2030 and the subsequent determination of the Minister of Mineral Resources and Energy, the generation sector was opened to private investors. Independent Power Producers (IPPs) started entering the local market, mainly to support the development of renewable generation in the country. On the network side much less has been achieved, because of a tariff system in need of improvement and a structural lack of investments as well as no framework to introduce private sector participation on the network side.

The unbundling of Eskom's transmission segment is ongoing, with the National Transmission Company of South Africa (NTCSA) owning and operating a large share of generation, the transmission network and roughly 40 percent of distribution and supply market, with the rest being complemented by a significant number of municipalities across the country. On pricing side, current end-user tariffs are not cost-reflective, and difficult to compare, since there is not a standardized tariff methodology, with each municipality characterized by a specific cost structure and tariff. Moreover, current tariffs include significant subsidies including ones necessary to assist electrification and free basic electricity, cross subsidies, and losses, both technical and commercial.

In this context, Eskom and the municipalities are responsible for a substantial share of South Africa's electricity infrastructure, but also partially unable to timely implement the significant amount of the investments needed to maintain and upgrade the network, because of insufficient revenue streams and not transparent cost management, that very often lead to a critical financial position.

Consequently, while South Africa has successfully attracted private investors to support the expansion of its generation fleet and namely a sound and growing renewable sector, progress is much slower on grid capacity, resilience and development, supply reliability, and quality of service. The bottlenecks on physical infrastructure, coupled with several restrictions and boundaries on trading and supply market, still result in the system's partial unreliability and inadequacy to successfully cope with the increasing share of generation on one side and the growing demand on the other.

In 2021, in the framework of the *Missing Link Strategic Initiative*, Res4Africa Foundation in partnership with the United Nations Economic Commission for Africa (UNECA) released the report *Regulatory Review of the Electricity Sector in Africa: Towards Crowding-in Private Sector Investment*, to provide an analysis of South Africa's electricity sector policies and regulations and pave the way towards facilitating private sector investments in national electricity infrastructures.

Based on the assumption that private capital may successfully contribute to overcome the structural lack of investments in the electric

[1] The Energy Progress Report. World Bank, 2023

sector in the country – as already proven in the renewable energy sector, the scope of that report was to underscore the main strengths and areas of improvement of the policy and regulatory framework in force at that time, with a specific focus on private sector participation in the entire electricity value chain. Moreover, the report included in its final chapter specific recommendations to accelerate the transition towards security of supply, sustainability, and an open, competitive, and efficient electricity market.

The recommendations were categorized into three main dimensions: the electricity market *openness* to private investments; the market's *attractiveness* to private investors based on sector regulation and economics; and local market's *readiness* to accommodate investments in network infrastructure, considering permits, authorizations, and technical regulations.

The main recommendations delivered in 2021 Missing Link report may be summarized as follows:

To increase the *openness* of the market:

- Implement the unbundling and the creation of a national independent transmission company with a view to enhancing the system's efficiency;
- Open new segments of the electricity supply industry to private sector participation, from commercialization and retail to distribution and transmission asset development;
- Review business models, such as corporate PPAs market and self-generation/consumption models, to facilitate and develop decentralized solutions for industrial and commercial players;
- Improve the wheeling regulation with a view of optimizing the connection process for new facilities, improving efficiency while reducing the lead time;
- Enhance market opening and trading, also facilitating the use of bilateral contracts between large consumers, generators, and traders.

To increase the *attractiveness* of the market:

- Pursue cost-reflectiveness and tariffs' transparency through tariffs system unbundling;
- Continue to promote private sector participation in the renewable sector through Renewable Energy Independent Power Producer Procurement (REIPPP) programs;
- Facilitate the access to credit enhancement instruments, including incentives and guarantees for distribution, mini grids, and off-grid investors.

To facilitate the *readiness* of the market:

- Ease and streamline the procedures to obtain permits and authorizations, with a view to facilitating investments and accelerate approvals;
- Implement dedicated regulation for mini-grids development with a view to improving system reliability and stability while unlocking mini grids market potential.

However, since the publication of the *Missing Link* report in 2021, thanks to local institutions' continuous commitment to reducing the structural deficiencies of the electrical system in the country, several policy and regulatory changes have been introduced, or are in the approval phase.

In July 2022, the President of South Africa announced the Energy Action Plan (EAP), which primarily focuses on eliminating load shedding and improving energy security through the directives of the National Energy Crisis Committee (NECOM) that is responsible for overseeing the implementation of the EAP. The Energy Action Plan outlines five key intervention areas aimed at restructuring Eskom and adding new generation

capacity to bridge the electricity supply gap. The five pillars of the EAP are:

1. Restructure Eskom and improve the availability of existing supply;
2. Enable and accelerate private investment in generation capacity;
3. Accelerate the procurement of new generation capacity from renewables, gas, and battery storage;
4. Promote investments in rooftop solar;
5. Transform the electricity sector to achieve long-term energy security.

As of today, the EAP promoted several initiatives to boost investments, such as new tenders in generation and storage for more than 7000 MW of additional generation capacity and specific programs to release additional capacity in the grid, also to reduce the network constraints that limit or delay the connection to the grid of new installations.

In this context, scope of the current analysis is to update the *Missing Link* report on South Africa regulation, considering the main policy and regulatory changes introduced from 2021 onwards. Rather than on detailed regulations that address a specific issue or technical topics, the focus will mainly be on those measures that represent a significant step forward in modernizing and opening the electricity market to private players.

More specifically, this report will assess few specific regulatory measures that are going to change the market structure and the tariff system, namely the *Electricity Regulation Amendment Bill (ERA)*, and two specific regulations on tariffs and pricing, the *Electricity Pricing Policy Review* – published by the Minister of Mineral Resources and Energy - and the *Electricity Price Determination Rules*, a technical methodology for tariff setting, issued by NERSA.

From the regulatory perspective, these measures have different importance and hierarchical level, but move along the same strategic line of market opening: while the ERA Bill is a law that is passing through several institutional steps, including the approval of the National Assembly, and it is focused on the architecture and functioning of the electricity market, the Electricity Pricing Policy Review of South Africa and the Electricity Price Determination Rules are aimed at setting tariff and pricing methodology based on principles such as cost-reflectivity, unbundling and transparency in line with the new market structure.

These guidelines jointly represent a significant stride towards transparency, efficiency, and market opening. Their timely and effective implementation has the potential to attract new investments and increase private participation to South African electricity market.

Furthermore, the report will also include a new set of recommendations, with a view of underlining the progress made since the 2021 report and outline the potential next steps forward.

## The Electricity Regulation Amendment Bill

After a comprehensive discussion in Parliament, on March 14th, 2024, the General Assembly of South African Parliament approved the Electricity Regulation Amendment Bill (ERA) and then signed by the President, signifying a pivotal milestone in the legislative process.

The Bill will amend the Electricity Regulation Act of 2006 introducing many significant changes to the current structure of the electricity market, and it is recognized as a significant contribution to overcome some of the current criticalities of South African electricity system.

The new piece of legislation will accelerate the transition from a vertically integrated electricity market to a competitive multi-market structure, supervised and managed by a Transmission and Market System Operator (TSO). The ERA Bill will also set up a regulatory framework for the

electricity supply and will enforce specific powers to the NERSA.

The following paragraphs provide a detailed description of some key provisions of the ERA Bill encompassing various aspects, such as the allocation of new responsibilities to the TSO, the market platform definition, and the enhanced powers of the national Regulator.

## Transmission System Operator (TSO) and trading platform

As part of the transition towards a competitive and open market the ERA Bill marks a step forward in Eskom unbundling process – already ongoing -by establishing a Transmission System Operator legally separated and wholly owned by Eskom for a maximum period of 5 years. It is still unclear how the newly constituted TSO will become completely independent by Eskom, nonetheless the formal creation of a separated entity with an explicit time limit to the current governance structure, surely marks a significant development towards market liberalization.

According to the Bill, the Transmission System Operator is responsible for the following main activities:

1) Transmission Operator: the TSO is responsible for the physical operation, maintaining, and expanding the transmission electricity network – from a technical standpoint the portion of the electricity network operated above a nominal voltage of 132 kV – and for granting fair and non-discriminatory access to the grid to every market player;
2) System Operator: the TSO is responsible to balance and operate in real time the national power system safely and efficiently, dispatching and allocating generation resources and ancillary services to demand patterns, always granting optimal balance and secure functioning of the entire system, with a view of minimizing service failures, interruptions, and other operating risks;
3) Market Operator: the TSO will set up a trading platform, subject to the Regulator's approval, able to grant fair and transparent electricity trades among market players. Moreover, under NERSA supervision, the market operator will define market rules, codes and qualification criteria for market participants and will ensure the proper functioning of the market;
4) Central Purchasing Agency (CPA): the CPA is responsible for ensuring reliable supply of electricity by buying power from different generators as the demand develops. The CPA may buy and trade electricity from Independent Power Producers (IPPs) as well as from Eskom generation plants, also using long-term power purchase agreements (PPAs). During the transition to an open market, the CPA will also manage the 'legacy', pre-existing PPAs.

The structure of the TSO envisaged by the legislation merge diverse activities. The TSO will be responsible of two technical functions such as transmission and system operator, but it will also undertake and supervise two different functions – market operator and central purchasing agency – this last function being like a single buyer concept observed in other markets. Moreover, the TSO will be responsible for developing and implementing a transmission expansion plan, in line with the expected electricity demand and with the Integrated Resource Plan (IRP). Finally, the TSO will ensure equitable access to network infrastructures and market platform to all eligible operators. In some other jurisdictions, all these functions are allocated to and managed by different entities, since network operation, plant

dispatching, real-time market operation, or energy procurement activities are very different in nature and scope and - maintaining them under the same entity - may potentially lead to conflict of interests and management inefficiencies.

However, in the complex process of transitioning from a regulated vertically integrated system to a competitive market, such as in South Africa, the TSO's activities encompass a comprehensive mix that appears to leverage the existing expertise and capabilities within the workforce of the national utility, Eskom.

The priority seems to ensure a smooth market transition through the start-up of the trading platform, minimizing the risk of inefficiencies and delays, because of too many different actors intervening on the design and initial roll-out of the new market structure.

At the same time, also given the systemic and high-level approach of the ERA Bill, many details on TSO responsibilities, primarily related to Market Operator function, such as detailed market structuring, costs, guarantees, and participation criteria, are still missing and should be further developed. A draft wholesale market code is in consultation and further analysis will be required once published.

In any case, the launch of the trading platform is a significant improvement from the point of view of market opening, both for operators and customers, improving the overall transparency and efficiency of the system. The trading platform will complement the ways in which electricity can be bought and sold, adding real time and short-term options to longer term commercial agreements or regulated contracts. Once the trading platform will be operational, it will be possible to buy and sell electricity in three ways:

- through regulated contracts between generators and the Central Purchasing Agency of the TSO;
- through physical bilateral contracts, in the form of Private Purchase Agreements between generators and direct customers or traders;
- through real time or short-term contracts – hourly or daily – in a day-ahead market, a dedicated platform open to buyers and sellers.

This multi-market structure, managed by the TSO, is a key pillar in the transition from South Africa's monopolistic and vertically integrated electricity model to an open market. At the same time and as already mentioned, a comprehensive understanding of the actual impact on the South African market requires awaiting additional legislation and technical regulations. Equally significant is the timeline for implementing the proposed structural changes.

## Powers of the Regulator

With respect to the current version of the Electricity Regulation Act (Act No. 4 of 2006), the ERA Bill clarifies and reinforces the responsibilities and powers of the national Regulator, such as on licensing process and tariffs setting, also transferring some of the current responsibilities of the Ministry of Mineral Resources and Energy to NERSA.

In coherence with the new market structure, the ERA Bill incorporates the regulation of Market Operator and System Operator within the responsibilities of NERSA. Even if some operative details are still to be clarified, the Bill strengthens the role of the Regulator, as the supervisor of the market, the responsible for licensing process and tariffs setting and approval in certain instances. Moreover, the Bill grants NERSA the authority not only to mediate but also to provide binding

decisions in disputes among licensees and between licensees and customers. The Bill introduces seven activities for which NERSA can issue licenses, including the newly defined activities of market and system operator, updating the existing list of the current version of the Act. Moreover, it clarifies and shortens the time frames needed to complete the license application procedure, increasing the overall efficiency of the process.

The Bill confirms the role of the Regulator in tariff setting for any licensed activity. In case of vertically integrated operators, there is a specific provision that prescribes the Regulator to approve separate tariffs for each licensed activity, thus making a significant step towards transparency and unbundling.

From a theoretical perspective, the power of the Regulator to set or approve tariffs or tariff levels should not extend to sectors open to competition, such as private bilateral contracts, PPAs or offtake deals where prices or tariffs have been set by a competitive procurement process. In line with this principle, the ERA Bill foresees the possibility for a licensee to charge tariffs not set or approved by NERSA in specific cases, for instance when tariffs or prices result from competitive mechanisms. While it is reasonable to maintain forms of regulated prices and tariffs control to protect specific customers' segments during the transition from a regulated monopolistic market to a liberalized one, it becomes increasingly important to gradually rely on market dynamics to govern prices as activities like generation or trading open to competition. This approach allows efficient price signals to reflect resource value and scarcity in any given moment.

## Security of supply and investments

Together with the provisions focused on accelerating Eskom unbundling and market opening, the amendment to the ERA Bill enforces specific measures to promote security of supply, granting specific powers to the Minister of Mineral Resources and Energy on planning infrastructure needs and investments.

Starting from the power to issue a revised Integrated Resources Plan (IRP) every three years, to the power to determine if new infrastructure is needed, to the power to deviate from the transmission development plan in case of national interest, the ERA Bill focus on security of supply and infrastructure upgrading is very high.

For the sake of completeness, as outlined in the ERA Bill, the Ministry may use this specific power and intervene only in case of market failure, emergency, or national interest, and after consultation with the Regulator, nonetheless, since the occurrence of some of these conditions seem quite generic, this provision may increase uncertainty on future potential conflicts between market functioning and government direct intervention, with the result of increasing investment risks. Fair competition among investors and correct price-signals are the most effective tool to boost private investments and set up efficient procurement processes. To this end, and as demonstrated by the tenders for new renewable generation capacity under the REIPPP programs, a fair and transparent competition methodology should be always preferred to a regulatory direct intervention.

On the other hand, since the same provision on security of supply amends the previous version of the Act including also new transmission capacity needs, the Bill has paved the way for private investments in transmission network and open the door for independent transmission projects (ITPs) as per the recently announced pilot ITP project by the National Treasury and Ministry, hopefully contributing to removing current grid bottlenecks and reducing the average lead time to connect new generation plants.

## Remarks on the amendment to the ERA Bill

With the ERA published on 20th August 2024, it is possible to outline some general remarks on the text of the ERA Bill approved by the Parliament:

1. The amendments of the Electricity Regulation Act represent a significant step forward towards a more competitive and open market. The proposed changes of the ERA Bill are consistent with the transition to liberalization process already experienced in more mature markets. The ERA Bill will potentially bring more efficiency, transparency, and cost-reflective tariffs, while promoting investments in the South African power sector;

2. The incorporation of a legal entity with the function of Transmission System Operator (TSO), even if temporarily under Eskom organization umbrella, is a structural move in the unbundling process of the vertically integrated monopolist.

3. The creation of a trading platform and a multi-market structure is the most effective single change to unlock competition, leading to a more efficient market, with potential advantages both for operators and customers. However, since many details are still missing, such as on operative functioning, admission criteria, costs, guarantees, it is difficult to completely figure out how the platform will work in detail.

4. The transfer of some powers from the Ministry to NERSA is a positive change of the ERA Bill, it strengthens the role of NERSA and is a move towards the full recognition of NERSA as the unique, independent sector regulator and supervisor;

5. The additional responsibilities of NERSA will imply a significant supplementary workload for the Regulator, to be properly and timely addressed to avoid implementation delays or execution failures;

6. In sectors progressively open to competition, such as generation, NERSA powers on tariff setting should be carefully assessed, to avoid the risk of limiting or overlapping market dynamics. As the experience in more mature electricity markets demonstrates, transparent and cost-reflective price-signals, coming out of open competition, serve as the most efficient mechanism for making informed decisions regarding operation and investments, while ensuring the most efficient price to customers;

7. The extension of powers of the Ministry of Electricity and Energy on additional generation and transmission capacity may risk limiting or conflicting with TSO's specific responsibilities on transmission resources planification and Integrated Resource Plan implementation. In generation, any additional capacity procurement process should always preserve fair competition among investors and transparent market dynamics;

8. Given its nature of structural and high-level measure, many operational details and especially binding implementation timelines are missing in the ERA Bill. To allow customers and operators to quickly take advantage of the new multi-market structure, it is essential to define as soon as possible detailed and binding implementation schedule, testing and operational launch timelines of the

trading platform and the other relevant market structures.

## Electricity Pricing Policy review

In parallel with the changes of the ERA Bill, an equally important initiative is underway on electricity pricing determination, with a view of adapting the pricing methodology towards a tariff system standardized, transparent, and in line with the evolving market structure.

The review of the Electricity pricing Policy (EPP) was published by the Minister of Mineral Resources and Energy in 2022, as a consultation document open to local operators and interested stakeholders. To a certain extent, the updated Electricity Pricing Policy acts as a complementary regulatory measure alongside the ERA Bill amendment. It ensures that the pricing guidelines harmonize with the principles introduced by the Bill to the new market structure and the ongoing Eskom unbundling process.

The Electricity Pricing Policy aims to achieve the main objectives set by the White Paper (1998) for South Africa's electricity sector: to improve efficiency and competitiveness of the sector; to promote fair competition and private sector participation in the industry; to ensure environmental sustainability and vulnerable customers' protection.

More specifically, the EPP acts as a guiding instrument to NERSA, the authority responsible for defining tariffs, rules, and methodologies, as well as for licensees. It encourages to adopt a standardized pricing approach and contribute solving some of the issues that limit the efficiency and transparency of the current system:

- Numerous disparate tariffs for comparable customers' segments, with no standardized approach;
- Inadequate tariff structures and levels;
- Lack of tariff transparency, significant subsidies, and cross-subsidies among different customers' segments;
- Funding limitations and investments backlog faced by operators, especially on networks;
- Insufficient network infrastructures maintenance and upgrading, resulting in poor service quality, system failures and high prices for consumers;
- Lack of competition, inefficiencies, and bottlenecks along the entire value chain, especially in network infrastructures.

The review of the EPP is intended to reflect the most recent policies and legislation, such as the amendment of the ERA Bill, but also to align the tariff system to the structural changes that the electricity sector of South Africa is already experiencing. One significant aspect highlighted in the EPP is the emergence of "partial self-generators" who utilize intermittent renewables. The document acknowledges the challenge of appropriately charging these users for their utilization of network infrastructure within the existing tariff system. It emphasizes the need to avoid imposing undue costs, potential revenue losses for the network operator, or cross-subsidies with other customer' segments, especially if not self-generating.

Under the framework of EPP, the general principles of the tariff system consider the different interests of customers and the utilities, plus some general concerns of the State. While - on customer's side - affordability, non-discrimination, predictability, and transparency are mentioned, on utility's side the focus is on revenue recovery and protection, efficient resources' use, and cost reflectivity. General concerns from the institutional perspective mainly relate to social support to vulnerable

customers, environmental sustainability, and security of supply.

From a more general perspective, framing the interests of customers' and utilities' as separate entities can be misleading and inappropriate in the long run. It is worth underlining that operators and customers of the electric system share the same long-term objective: the efficient, sustainable, and secure production and supply of electricity to all customers.

As an example, while the affordability principle on customer's side may be understandable as a stand-alone, short-term, theoretic concern, it is crucial to recognize its connection, if considered from a wider perspective, with the cost-reflectivity principle on utility's side. In the longer term, when the market will be fully open to competition, both concepts will become redundant and inappropriate since efficient price signals emerging from fair competition are the most effective tool both for customers and operators. In fact, price signals because of competitive dynamics ensure at the same time cost-reflectivity and the most efficient use of resources and infrastructures, among many other advantages.

While the electricity sector is progressively transitioning from a purely regulated system to a competitive market, role of the regulator is to set up methodologies that temporarily simulate competitive circumstances, with the goal of ensuring efficiency and moving regulated prices towards cost-reflective levels. Sufficient returns on investments, transparency, predictability, and stability of regulatory frameworks and subsequently market rules, are essential factors to attract private financial resources in the South African electricity sector since they significantly contribute to reducing long term investment risks.

When defining all pricing interfaces along the unbundled value chain, ranging from generation to consumption, the EPP aligns with the market structure defined by the amendment of the ERA Bill. This structure encompasses various existing operators, including generators, transmission operators, distributors, and municipalities, while also incorporating key functions anticipated in the future competitive wholesale market, namely the Market Operator and the Central Purchasing Agency.

In generation pricing, the most relevant change is the definition of wholesale pricing comprising wholesale energy and capacity charges, transmission charges, and single buyer own cost charges. As occurred in other jurisdictions during the transitory phase from a regulated to a competitive market, the review of the EPP mandates NERSA to define regulated tariffs, until the market is in place and competitive price signals are available to market operators and consumers.

Since the future wholesale market will include competitive transactions, regulated and physical bilateral contracts also through long-term PPAs, the various tariff structures should reflect the real values and costs of the different products, services, and tools used by operators, plus some common fees to be included in tariffs, such as the capacity charges to ensure system adequacy and available reserves.

In line with the ongoing Eskom unbundling process and with a view of increasing tariffs transparency, the review of the EPP strengthens the provision for unbundled transmission tariffs. These tariffs encompass charges for network connection and use, losses, ancillary services, and other relevant factors. Moreover, to ensure transmission infrastructure adequacy over time, the tariff structure is expected to also include components to guarantee the implementation of maintenance and investment programs, in accordance with the Transmission Development Plan.

Under the reviewed EPP, the transmission tariff will also be based on a zonal pricing

methodology to send correct price signals on infrastructure bottlenecks, to promote the efficient use of the grid and favor effective investment decisions. In fact, the zonal methodology, based on the network current topology and future load-flow simulations, may offer an efficient price signal to be considered when taking investment decisions on network upgrading, bottlenecks removal or new generation facilities installation.

Before analyzing the main changes introduced by the review of the Electricity Pricing Policy in distribution and retail, it is worth underlining that currently in South Africa distribution and retail market are bundled together, with distributors acting not only as network operators but also as retailers for the connected customers.

This condition, joined with the significant number of municipal distributors operating in the Country and the lack of a common distribution tariffs framework, entails the concurrent existence of many different, not transparent tariff structures and levels, including subsidies and cross-subsidies among different customers' segments.

The Electricity Pricing Policy review mandates NERSA to develop a national tariff framework to be used to progressively standardize and align the various tariff structures of different distributors and municipalities. The new distribution tariff methodology will be defined according to the guiding principles of cost-reflectivity and transparency and based on appropriate Cost of Supply studies (COS) that each distributor must prepare as a basis to tariff structure updating.

The EPP introduces more stringent principles for Cost of Supply studies to stimulate distributors to propose efficient, cost-reflective tariffs, based on both historical and projected costs and timely updated according to the evolving market structure, customer base and sales volumes changes.

Moreover, to further increase tariffs transparency and efficiency, within three years from EPP approval, Cost of Supply studies should be unbundled to reflect the different cost components, such as energy purchase costs, transmission and distribution network charges, losses, retail costs, administrative and others.

In addition to enhancing efficiency and transparency, the progressive unbundling of tariffs serves the purpose of providing a clear view of subsidies and cross-subsidies allocation, compared to the existing tariffs. On this specific issue, the Energy Pricing Policy assigns to NERSA the responsibility to develop a national subsidy framework to be applied in tariffs structures. The framework aims to progressively reduce subsidies' amount also identifying vulnerable customers' segments, while ensuring a balanced impact on electricity prices both for recipients and contributors.

To ensure revenue protection to network operators, facilitating the implementation of long-term investment plans and reducing backlog, network tariffs will also gradually change their structure from a variable charges base to a fixed costs focus. In fact, by aligning network tariffs more closely with fixed costs, distribution revenues become independent of demand, better correlated with investments and maintenance needs, and more tailored to the specific network usage of customers' segments, including prosumers and self-producers. Within distributed tariffs, retail charges will recover supply and administrative costs, such as metering, billing, and other customer services. These charges will be based on appropriate segmentation of the customer base.

NERSA is also mandated to develop a standard methodology to quantify and establish technical and non-technical losses, as well as incorporating provisions for bad debt within tariffs. Finally, the national Regulator is also requested to define a specific methodology –

such as penalty-reward or profit-sharing mechanisms – to improve over time the quality of services provided to all network customers.

## Remarks on the review of the Electricity Pricing Policy

Considering the existing pricing and tariff system, the review of the Electricity Pricing Policy defines a framework in line with the ongoing market structural changes aimed at promoting competition among multiple participants, as envisioned in the ERA Bill and the Eskom unbundling process. Some general remarks to this policy measure are:

1. The Electricity Pricing Policy review defines a pricing and tariff framework coherent with the market design outlined by the amendment to the ERA Bill and, in this sense, both documents reinforce the architecture of the upcoming competitive market while preparing for the transition from a regulated, vertically integrated system;
2. The principles underlined as the basis of the updated tariff system is grounded in several fundamental principles, such as cost-reflectivity, unbundling, standardization, predictability, and stability. These principles will promote transparency and the efficient use of resources. At the same time, a transparent tariff system will prepare for the transition to full market opening, when efficient price-signals will support operators and customers to make informed choices on electricity production and use, as well as on investments;
3. While the Electricity Pricing Policy review sets an encouraging pricing and tariff framework, it doesn't set a clear and binding implementation timeline. In fact, the review does not contain an explicit implementation plan, nor the recommendations are associated with a binding time schedule. The only timeline included in the document – cost reflective tariffs within three years – is probably not sufficient to ensure the timely implementation of the whole framework. On this specific point and as discussed later in this document, it is worth also underlining that NERSA approved its updated Electricity Pricing Determination Rules at the end of 2023, to be finally adopted starting from years 2025/2026; thus, in line with the three years prescription of the EPP review;
4. The Electricity Pricing Policy review makes little or no reference to the energy transition or to technological changes that are already occurring and that will influence the electricity sector and the market, such as battery storage, smart grids, electric mobility, vehicle to grid, just to name a few. Given the strategic and long-term nature of the EPP, it would have probably been worth mentioning and including at least some new technologies already present or upcoming in the South African context;
5. While the wholesale market is being established, the EPP mandates NERSA to define generation tariffs for specific contracts. In this respect, it is essential that the criteria set by the Regulator consider not only the different cost structures of the various generation technologies, such as the relevance of variable cost for conventional generation or the prevalence of capital costs for renewables, but also ensure minimal interference with price signals emerging from initial market dynamics;

6. Zonal pricing for transmission is a tool that may increase efficiency of transmission tariffs while sending correct signals to investors. At the same time on transmission connection and access, the EPP should always reinforce the need for fair and non-discriminatory access to all network users, with a specific focus on removing transmission network bottlenecks as soon as possible. In fact, network constraints imply inefficiencies, extra-costs, and delays for new generation plants and other operators to access the market.

## Electricity Pricing Determination Rules

After a consultation process with all stakeholders and interested parties, at the end of 2023 NERSA approved the Electricity Pricing Determination Rules (EPDM), outlining the new methodology for tariff determination. The EPDM is a significant shift from the current methodology and appears as the technical implementation of principles and market structure as stated by the ERA Bill and the Electricity Pricing Policy review. In fact, the EPDM outlines the transition from a purely regulated, vertically integrated system to a transparent, competitive market.

In this context, NERSA explicitly states the need to transition from a tariffs system based on a vertically integrated utility and multiple tariffs tailored to each municipality, to a new methodology applicable to the entire industry and instrumental to a competitive market with multiple operators.

The Regulator reinforces another principle of the new methodology: the new tariffs will be based on ring-fenced and unbundled costs of the various activities, as per the market definition of the ERA Bill, namely generation, transmission, distribution, and trading.

Both assumptions will significantly change the current tariff system in South Africa. In fact, and in line with the goals stated by NERSA, the new pricing framework will be applicable to all the operators of the same category, promoting standardization of tariffs. Moreover, unbundled, and granular costs for each activity, as building blocks of tariff definition, will ensure cost-reflectivity and transparency of final tariffs.

With a view of further promoting tariff standardization and efficiency, NERSA adopts a methodology that utilizes historical data and projected assumptions to define benchmarks for efficient generators, transmission infrastructure operators, distributors, and traders. This approach enables a comparative analysis of the performances, activities, and services of comparable operators.

Moreover, NERSA plans to shift from using sales as the primary rate determinant to capacity. This is a fundamental change compared to current situation, since it will promote efficiency improvement, also removing the need for the Regulatory Clearing Account (RCA) under the current tariff system, the Multi Year Price Determination (MYPD) rule. In fact, the largely questioned RCA component – a tracking mechanism designed to compare some uncontrollable costs and revenues assumed in the tariff against actual costs and revenues incurred by Eskom – has two fundamental disadvantages:

- the RCA ensures a certain level of revenue guarantee to utilities regardless of external scenario's changes. Consequently, the utility has a limited incentive to increase efficiency under evolving market conditions, for instance a reduction of sales;

- given Eskom's ongoing financial distress, in recent years the RCA component worked only in one way, implying frequent and significant price increases for all customers to contribute repaying the extra-costs of the utility.

From a technical perspective the new methodology is based on Activity Based Costing (ABC) and the widely recognized 5-step approach:

1. Ring-fencing of the different activities of the value chain;
2. Supply-side data collection;
3. Cost allocation to the building blocks of unbundled tariffs;
4. Inclusion of consumer data analysis in tariff determination;
5. Translation of cost-reflective tariffs and subsidies into consumer prices.

The first three steps are in line with ERA Bill and EPP prescriptions, with the objective of connecting the final tariffs with the costs of the various services, to ensure unbundled, transparent, and cost-reflective pricing.

The fourth step includes consumer demand data in the process, to analyze price impact on consumers demand and to identify the subsidies framework that needs to be included in the tariff determination process.

The fifth step concludes the process, with the final determination of cost-reflective consumer prices. In this final step the subsidies components are allocated on top of the cost-reflective tariffs, to be visible and not to affect the overall transparency of the tariffs.

As mentioned, the new methodology has been developed by the Regulator to prepare the South African electricity industry to an efficient, transparent, and open market and represents a significant change from the current tariff system, based on the Multi Year Price Determination rule (MYPD).

With a view of ensuring a smooth transition from the current MYPD system to the new methodology, also considering the operators' need to prepare and adapt to the new mechanism while ensuring price stability, NERSA foresees an adequate implementation time providing two possible alternatives.

The first option envisaged by NERSA is to plan the application of the revised methodology from years 2025/2026 onwards, with a view of favoring all the involved stakeholders to prepare for the change during the interim period. The same plan foresees also to continue defining tariffs in line with the current MYPD rule for the years preceding the application of the new tariff system.

Should the first option fail, the second possibility proposed by the Regulator is to continue using the MYPD methodology over the medium to long term, but introducing specific changes compared to the current version. The explicit goal is to overcome two distinct issues that in the past led to significant price distortions and reduced system efficiency and transparency, namely Eskom bundled tariffs and the use of the Regulatory Clearing Account (RCA) component.

Moreover, based on NERSA priority to define a standard tariff methodology applicable to the entire industry and considering the ongoing market opening with the increasing presence of Independent Power Producers (IPPs), should the second option be implemented, the idea is to apply a revised MYPD to all the relevant operators in the South African electricity sector.

## Remarks on the Electricity Pricing Determination Rules

The Electricity Pricing Determination Rules serves as a comprehensive technical implementation of the market structure and assumptions outlined in the amendment of the ERA Bill and according to the review of the Electricity Pricing Policy. Moreover, to ensure a smooth transition, the new methodology determines a link between the current structure and tariff system to the new unbundled, open market. Some general remarks are the following:

1. The Electricity Pricing Determination Rules is a significant shift from the current tariff system, and it is functional to the new market structure as per the ERA Bill and the Eskom unbundling process. As any other tariff system, it should be considered as a transitory tool in sectors that will be progressively open to competition, such as generation, or limited to the parts of the value chain that are natural monopolies, such as transmission and distribution management;
2. The proposed tariff system is in line with several international experiences and will contribute to increase system efficiency through tariffs transparency. Moreover, unbundled tariffs and efficient price signals will support accurate investment decisions and fair consumer choices on the use of electricity and related infrastructures;
3. Among the various changes introduced by the new methodology to the current MYPD system, the elimination of the Regulatory Clearing Account (RCA) is probably the single most significant amendment, since it will contribute to limit recent spike prices experienced in South Africa while pushing for costs efficiency at the same time;
4. While the elimination of the RCA may pose a theoretical risk of short-term price increases due to a potentially more volatile tariff forecasting scenario, its removal is expected to lead to increased overall system efficiency and more transparent prices for consumers in the medium to long term;
5. Given the significant change from the current methodology to the new system, it seems reasonable to plan for and adequate implementation time. On the same page, it seems preferable to implement a complete transition from the MYPD to the new system, namely the first option proposed by NERSA, instead of moving to review and correct the MYPD methodology, thus accepting a mixed solution that risks creating unexpected price distortions while jeopardizing the transition to market dynamics and efficient price signals.

# Conclusions and Recommendations

## Openness

The 2021 Missing Link regulatory analysis of South Africa's openness focused primarily on unbundling and the necessity to finalise the process which had already been announced. Further to this, three key recommendations were made: improve the wheeling regulation, simplify procedures for accessing authorizations and speed up the licensing process, and to open the transmission segment to private participation.

Since 2021 and in 2024 in particular, significant steps forward where made in the unbundling of Eskom's transmission segment. The first was the appointment of the board of directors of the National Transmission Company of South Africa

(NTCSA) in January 2024. Though at the time of writing in late 2024, the unbundling has not fully occurred, operational and logistical changes within Eskom have occurred and most notably, the Electricity Regulation Amendment (ERA) bill was approved by parliament. This foresaw the establishment of a Transmission System Operator legally separated and wholly owned by Eskom for a maximum period of 5 years - evidence that the unbundling process is well underway.

Regarding the remaining recommendations, the NECOM developed a wheeling framework, the licensing cap for private generation projects was removed, and the National Treasury announced the launch of an independent power transmission pilot project. Regarding the first, NECOM was created to manage key issues arising from the energy crisis South Africa has been going through and among these issues was that of wheeling. The wheeling framework produced was well received, however, was created for consideration by NERSA, and have not yet been approved.

In terms of speeding up authorizations and the licensing process for small generators, the removal of the generation licensing cap was a powerful boost to small generators. Indeed, South Africa has seen a boom in commercial and industrial private generation projects due to this change. However, this change brought to the surface other issues related to grid access which has negatively impacted the country's regulatory readiness. Lastly, in early 2024 the National Treasury of South Africa announced a pilot project for an independent transmission line. This was in response to the glaring need for greater grid capacity in South Africa. The government hopes that this pilot project will open up the possibility of private financing for transmission projects, greatly speeding up much needed expansions of the country's grid.

Unbundling as a precursor for the creation of a competitive market and the involvement of the private sector in the transmission segment, necessitates a series of changes in particular with regards to the presence of a TSO and MO. As it stands, the three segments of Eskom still belong to the Eskom holding company and the law foresees for the TSO and MO roles to be carried out by the NTCSA. Increased private sector presence will bring demand for the NTCSA to be a fully independent entity with regulatory oversight before considering the unbundling process complete.

Overall, significant steps forward have occurred in South Africa since the first regulatory assessment which have shown that South Africa is more open, particularly in the generation and transmission segments. Openness in the distribution segment could be further improved with advancements in the wheeling regulation.

### Attractiveness

The attractiveness segment recommendations were primarily focused on the issues of tariffs and charges related to electricity provision. Specifically, recommendations were focused on achieving cost-reflectiveness in tariffs – though as a long-term goal, the unbundling of the tariff system as a natural outcome of transmission unbundling, and greater transparency in the cost of wheeling services and charges.

Two main actions have taken place in this regard in South Africa since 2021. The first was the review of the Electricity Pricing Policy published as a consultation document in 2022. The document encourages the adoption of a standardized pricing approach and strengthens the provision for unbundles transmission tariffs. These tariffs encompass charges for network connection and use, losses, ancillary services, and other relevant factors. The changes outlined in the EPP are coherent with the market design

changes outlined in the amendment to the ERA bill, reinforcing the regulatory framework for an upcoming competitive and unbundled market. A drawback of the EPP is that it does not set out a clear implementation plan. The only reference to a timeframe mentioned was a 3-year goal for achieving cost-reflective tariffs, which is also in line with what has been stated in the Electricity Pricing Determination Rules.

The Electricity Pricing Determination Rules where approved by NERSA at the end of 2023 outlined the new methodology for tariff determination. These rules are the second significant action taken by South Africa taking which impact the attractiveness dimension of this regulatory analysis. In these rules, NERSA makes specific mention of the need to transition from a tariff system based on a vertically integrated utility and multiple tariffs tailored to each municipality. EPDM is a significant shift from the current tariff system, and is functional to the new market structure as per the ERA bill and Eskom unbundling process. Furthermore, the proposed tariff system is in line with several international experiences and will contribute to increased system efficiency and support accurate investment decisions and fairer consumer choices on the use of electricity.

The most significant change to the old rules is the elimination of the Regulatory Clearing Account (RCA). This removal will contribute to limiting the recent price spikes experienced in South Africa while at the same time pushing for cost efficiency. In addition, the theoretical risk of a short-term price increase cause by this removal is outweighed by increased overall system efficiency and more transparent prices for consumers in the medium and long term.

These two actions showed clear intent to increase the attractiveness dimension for South Africa. However, the EPP is still out for consultation while the EPDM was withdrawn as it was not accepted by industry; deemed to be too radical. The complementarity of the EPP and EPDM to each other and their clear alignment with the stated goals of the ERA amendment bill shows conviction in achieving the goals and a unified and clear approach in where the market wants to go. However, prior to setting up the rules for a competitive market, particularly the tariff aspects, there needs to be a clear overarching framework such as the EPP to set robust foundations. Ones this has been achieved, following consultation, then rules such as the EPDM can be worked upon.

## Readiness

Regarding the readiness dimension of South Africa wherein the recommendations focused on permitting, less progress has been made. The principle recommendation made in the 2021 report was to streamline authorization requirements and issuing rules for investors and market operators through the implementation of a one-stop-shop for authorizations and permit application and issuance. The need for this change was underlined by bid window six of the REIPPPP which saw public projects, particularly wind, lose out massively to private projects due to a lack of grid capacity and lack of a formal system for granting access to the grid. Interim grid capacity rules where set out by Eskom but caused some controversy as NERSA had not approved them and at time of writing, have not yet done so. A one-stop shop was put in place as one of the initiatives of President Ramaphosa's Energy Action Plan in 2022. The one stop shop is the single access point for energy projects and provides information on authorizations and general project-related information.

A second recommendation made referred to the off-grid segment. The suggestion made was that to adopt clear rules on commercial options for mini-grid operators and asset owners in case of main grid arrival. The updated draft Integrated Resource Plan (IRP) 2023 acknowledges the role of mini-grids in achieving energy access and outlines policies to support their development and their

part in the wider electrification strategy. NERSA has introduced regulations specifically aimed at governing the operation and development of mini-grid. These regulations are designed to simplify the licensing process and provide a clear framework for mini-grid operators. However, no specific mention is made to management of absorption of mini-grids in to the main grid.

For the reasons above, the readiness score for South Africa would improve in terms of authorizations and permits though would not shift in any manner in the other sub-categories as no significant changes have been made. The readiness aspect looks at the sector maturity, showing that South Africa is still within a rapid development phase and requires time to reach full maturity.

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