



ELECTRICITY PRICE DETERMINATION METHODOLOGY (EPDM) RULES

CONSULTATION PAPER

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Abbreviations and Acronyms

AR	Allowable Revenue
β	Beta
DSLI	Distribution Supply Loss Index
dP	Debt Premium
E	Expenses
EPP	The South African Electricity Pricing Policy
GWh	Giga Watt hours
IPP	Independent Power Producer
IRP	Integrated Resource Plan
ITSMO	Independent Transmission System and Market Operator
JSE ALSI	Johannesburg Stock Exchange All Share Index
K_d	Cost of debt
K_e	Cost of equity
M&V	Measurement and Verification
MEAV	Modern Equivalent Asset Value
MRP	Market Risk Premium
MWh	Mega Watt hours
MYPD	Multi-Year Price Determination
NERA	National Energy Regulator Act, No. 40 of 2004
O&M	Operating and Maintenance
OCGT	Open Cycle Gas Turbine
PBR	Performance Based Regulation
PPA	Power Purchase Agreement
R_f	Risk free rate of interest
RAB	Regulatory Asset Base
RAV	Revaluation Asset Value
RCA	Regulatory Clearing Account
SO	System Operator
SSEG	Small Scale Embedded generators
TD	Tariff Design
TNC	Transmission and Network Costs
TO	Transmission Operator
TOC	Trended Original Cost
UCT	Unit Capability Factor
WACC	Weighted Average Cost of Capital
WAT	Weighted Average Tariff
WEPS	Wholesale Electricity Pricing System

Keywords

Activity-Based Costing
Benchmarking
Capacity Charges
Capital Expenditure
Consumer Price Discovery
Cost Functionalisation
Cost Reflective Tariffs
Data comparisons
Electricity Price Determination Methodology
Energy Charges
System Operator
Installed capacity
Load profile
Merit Order Dispatch
Operational capacity
Operational Expenditure
Revenue Requirement
Tariff methodologies
Tariff Structures
Type of Use
Unbundled tariffs
Weighted Average Tariff

Definitions

Act	Means the Electricity Regulation Act, 2006 (Act No. 4 of 2006), including any amendments thereto, and includes any regulation or rule made or issued in terms thereof and includes the codes made thereunder.
Activity	Means an activity inherent to or directly associated with the import, export, generation, transmission, distribution and trading of electricity, and includes any service associated therewith.
Administration charge	Means the daily fixed charge payable per point of delivery/point of supply/service agreement to recover administration-related costs such as meter reading, billing and meter capital. It is based on the monthly utilised capacity or monthly maximum exported capacity per POD/point of supply/service agreement.
Affordability subsidy charge	Means the transparent charge indicating socio-economic subsidies related to the supply of electricity to residential tariffs and is payable on licensees' related active energy sales to non-local authority tariffs.
Ancillary Service charge	Means the charge that recovers the cost of providing ancillary services by the System Operator
Availability charge	Means the charge associated with the costs of keeping a generation plant, transmission and distribution facilities available, irrespective of whether the plant has produced a single megawatt, or whether transmission and distribution have transmitted or distributed a single megawatt. In the case of generation plants, this charge does not apply to non-dispatchable or 'self-dispatching' plants.
Capacity Charge	Same as Availability Charge
Charge	Means any charges forming part of a tariff not otherwise forming part of the rates component of a tariff.
Code	Means the Distribution Code, the South African Grid Code, the Grid Connection Code for Renewable Power Plants or any other code made by the Regulator under the Act.
Consumer	Means a person supplied with a service or activity by a licensee.
Consumer Demand Analysis	Means the role of electricity in the activities of a consumer and the load profile of consumers, as set out in in Rule 9.
Consumer groups	Consumer groups reflect clusters of consumers that share similar load profiles and therefore may be used as a proxy for consumers that do not have smart metering to determine the cost-to-serve and subsequent tariffs for the such consumer groups.
Consumption	Consumption is the total electricity consumed in a given period and is generally expressed in MWh.

Demand	Means the rate at which electricity is consumed, generally in MWh, and informs the capacity required to meet demand at any point in time.
Distribution	Means the conveyance of electricity through a Distribution Power System, and includes the ownership and operation thereof and any activity directly associated therewith.
Distribution connected	Means connected to the Distribution system.
Distribution losses charge	Means the production-based (energy) incentive to generators. The losses charge is based on the approved loss factors, the load factor, the amount of energy produced seasonally, and the time of use and the WEPS energy rate (excluding losses).
Distribution network capacity charge	(Previously known as the Distribution network access charge) Means the R/kVA or R/POD fixed network charge raised to recover Distribution network costs and, depending on the tariff that is charged on the annual utilised capacity or maximum export capacity, where maximum demand is measured, or the NMD where maximum demand is not measured. The charge will also include costs associated with technical losses.
Distribution Power System	Means a power grid operating at or below 132kV.
Electricity Supply Industry	Means the electricity value chain subject to the Act, being the import, export, generation, transmission, distribution and trading of electricity and all activities related thereto, from both a vertical as well as a horizontal perspective.
EPDM Rules	Means these EPDM Rules and includes the Annexures.
Export	Means the export of electricity from the Republic of South Africa.
Generation	Means the generation of electricity through any means and includes any service or activity associated therewith.
Import	Means the import of electricity into the Republic of South Africa.
Load (electrical circuit)	An electrical load is simply any component of a circuit that consumes power or energy and converts electrical energy into light, heat, or useful motion, which constitutes a load on the circuit.
Load (electricity system)	Means the demand, expressed as the MW that a consumer brings to the electricity system as a result of the various loads consuming energy and that must be balanced by the System Operator at any point in time.
Load Type	Means the load categorised as Load 1, Load 2, Load 3 and Load 4, for the purposes of this rule.
Licence	Means a licence issued by the Energy Regulator under the Act.
Licensee	Means the holder of a licence.
Merit Order Dispatch	Means the manner in which available sources of energy, especially electrical generation, are ranked based on an ascending order of tariffs or prices. The purpose of merit order

	dispatch is to enable the lowest net cost electricity to be dispatched first.
Price	In terms of the Act, 'price' means a charge for electricity, but for the purposes of this document, 'price' means the charge for electricity to a customer or consumer that can be one-part or multi-part, which is a culmination of summing of all relevant Tariffs of services consumed by a consumer or customer.
Price Stability	In terms of this document, price stability means prices that are based on a predictable methodology that yield predictable prices in the long term and that facilitate investments by both the electricity supply industry as well as electricity consumers. Price stability facilitates the affordability of electricity and competitiveness of industries. Price stability does not mean a fixed, low price, but prices that are predictable and cost-reflective.
Qualifying Generators	Means generators that have a tariff determined by the Energy Regulator that qualifies the Generator to submit binding offers of available capacity to the System Operator for dispatch of power when called upon to do so.
Rate	Means the total charge for electricity, including capacity charge, energy charge and other charges forming part of an unbundled and cost reflective tariff.
Regulator	Means the National Energy Regulator established by section 3 of the National Energy Regulator Act, 2004 (Act No. 40 of 2004).
Revenue Requirement	Means the revenue requirement resulting from the revenue requirement formula set out in rule 7.
Service	Means any service provided by a licensee as part of an activity.
Service and Pricing Model	Means the service and pricing model adopted and used by the Regulator for the purposes of the Rules.
System Operator	Means a transmission or a distribution system operator.
Standard Set of Regulatory Accounts	Means a set of regulatory accounts specified by the Regulator to which licensees must adhere and which is used to functionalise the costs of such a licensee.
Tariff	Tariff means the sum of rates, charges, taxes and subsidies charged for any activity that is the subject to Tariff Regulation under the EPDM Rules.
Tariff Application	An application for the setting, amendment or withdrawal of a tariff.
Tariff Regulation	Means the economic regulation of any activity performed by a licensee through the setting of unbundled and cost reflective tariffs, in accordance with the EPDM Rules.
Tariff Setting Methodology	The methodology is the detailed set of steps and modelling required to apply the principles to actually set the tariffs, including the types of data that will be analysed and the format

	that must be applied, as well as the benchmarks that must be used and indices that will be used.
Trading	Trading refers to the buying and selling of power between participants in the energy industry, and includes the buying and selling of financial instruments and derivatives.
Transmission	Means the conveyance of electricity through a Transmission Power System, and includes the ownership and operation thereof and any activity directly associated therewith, excluding trading, and 'transmit' and 'transmitting' have corresponding meanings.
Transmission Power System	Means transmission infrastructure that operates above 132kV.
Unbundling	Depending on the context, it refers to either the physical or financial separation of regulatory activities or their associated costs.
Weighted Average Tariff	The tariff that represents the proportion of power dispatched at the related tariff that takes account of the relative amount of power supplied by each generator and for the purposes of these Rules.

1. INTRODUCTION

- 1.1 On 22 September 2021, the National Energy Regulator of South Africa (NERSA) approved the publication of the consultation paper on principles to determine prices in the electricity supply industry. A consultation paper on the new principles to determine electricity prices was published on 24 September 2021 for stakeholder comments and the Energy Regulator (ER) (board) approved the revised principles to frame the Multi-Year Price Determination Methodology (MYPDM) on 6 December 2021 after the consideration of input from stakeholders. The approved decision on the principles to determine electricity prices was published on the NERSA website in 12 January 2022.
- 1.2 In June 2022, NERSA published the Electricity Price Determination Methodology (EPDM) Consultation Paper for stakeholder consultation. NERSA held workshops with industry stakeholders, as well as a webinar, in November 2022. A diverse set of comments was received on the EPDM. Input from the public hearings suggested that an intense advocacy programme would be required to ensure a common understanding of the EPDM.
- 1.3 The process to review the price determination methodology started with an assessment of the NERSA operating environment and a stakeholder consultation process that provided evidence and guidance on the need to change the then existing price review process. Instead, the approved pricing principles target a migration from a revenue-based approach, focussing only on Eskom, to a cost-to-serve approach, focussing on the broader electricity industry, while complying with the tariff principles in section 15(1) of the Electricity Regulation Act, 2006 (Act No. 4 of 2006) ('ERA').
- 1.4 The Electricity Supply Industry (ESI) is facing dynamic changes that require the Energy Regulatory to review/change its regulatory tools. It is therefore important that NERSA must develop a pricing methodology that takes into account legislative change, the unbundling of Eskom and, inter alia, new investments in the generation business. The overhaul must also consider the fundamental paradigm shift towards a more consumer-focused approach that balances the needs and drivers of demand to ensure rational and sustainable supply-side investments and is central to role of an economic regulator.

2. ELECTRICITY INDUSTRY REFORMS

2.1. Regulatory Approaches

- 2.1.1. A basic approach followed by many regulators in electricity regulation is that a price regulated company must be given the opportunity to recover its costs, plus a reasonable return, which underlies all forms of economic regulation, and it is recognised as the revenue requirement standard in the

economic literature. This revenue requirement is the amount of revenues allowed for a regulated company in the calculation of regulated rates and, depending on the regulatory regime adopted, it is allocated to different customer classes to set those regulated rates.

- 2.1.2. Regardless of the methodology used or what regulatory regime is adopted, the allowed revenue presents a regulated company with an opportunity to collect the revenue necessary, but is not a guarantee to collect or that the allowed amounts will be collected. Factors that represent normal business risk, such as actual consumption by the various customers and bill payment and collection rates of the regulated company, will, in conjunction with the regulated rates, determine how much revenue is actually received by the company.
- 2.1.3. Different sets of rules are adopted to conform to the regulatory framework for the electricity industry, as regulation does not apply to just one company in the industry – it applies equally to all the companies participating in the industry. These practices should comply with three key regulatory principles, namely (1) prudence and prudent management; (2) they must be used and useful; and (3) they must be known and measurable. These principles play an integrated role in the foundation of any conventional regulatory approach and could be considered mutually inclusive.
- 2.1.4. Implementing a more balanced customer-focused approach may seem profound or even counter intuitive after one and a half decades of using the MYPDM, however, it is an overdue correction in the role of NERSA in regulating the full spectrum of the electricity industry. The Essential Services Commission (ESC) (the Victoria State Regulator), for example, observed that ‘Independent economic regulation is a powerful tool in policy-makers tool kit in promoting the long terms interests of consumers. It does so by creating incentives — rather than directives — for service providers to engage fairly with customers and to operate their businesses efficiently.’

2.2. **Unbundling the ESI**

- 2.2.1. The unbundling of the electricity supply industry; change in legislation and the introduction of independent power market participants, have imposed a need to review and change the existing pricing methodology. The reviewers remain cognisant that a new price approach must seek to enable greater transparency, efficiency and cost reflectivity, and recognise that services might be provided by different service providers who must have clear unbundled and cost reflective tariffs to compensate them for their costs.
- 2.2.2. Unbundling takes numerous forms and results in various end states, some being hybrid models. However, the meaningful unbundling of a vertically-integrated utility (VIU), to separate the transmission/system operation from generation and distribution, involves (1) establishment of an unbundled

transmission and system operator (LTSO), or (2) a legally fully independent transmission and system operator (ITSO), or (3) the TSO can be further unbundled into separate independent system operators (ISOs); or (4) an Independent Transmission Operator (ITO):

- 2.2.2.1. An LTSO is a company that independently (*via* ring-fencing or licensing) operates the transmission grid and system operator, but is a subsidiary of a parent company that owns other parts of electricity supply chain such as generation, distribution and retail.
- 2.2.2.2. In the case of an ITSO, an independent company is responsible for the ownership, operation and maintenance of the transmission grid and is independent from any other players in the electricity market. The state may still be the owner of an ITSO.
- 2.2.2.3. An ISO, on the other hand, is responsible only for system operation (i.e. balancing demand and supply in real time) with system ownership, maintenance and planning sitting elsewhere.
- 2.2.2.4. An ITO is a separate transmission company that owns, operates and maintains the transmission grid and is also responsible for system planning. The core elements of each are outlined in Table 1

Table 1: Selected categories of unbundling

LTSO	ITSO	ISO	ITO
Legal separation	Ownership unbundling	System operator	Transmission operator
Transmission and system operator in separate subsidiary company of VIU*	Transmission Operator and System Operator in separately owned company	System operator in separate company	Transmission Operator in separate company

VIU = Vertically Integrated Utility

2.3. Unbundling of tariffs

- 2.3.1. While the unbundling of the ESI has been welcomed, from a pricing perspective, the underlying principle that has guided the development of the EPDM Rules is the necessity for accompanying unbundled tariffs, if there is to be transparency, cost reflectivity and consumer prices that signal the underlying costs consumers incur with their demand.
- 2.3.2. The Consultation Paper delves deeper into the issues of tariff unbundling with the various steps to functionalise, classify, and allocate costs as a critical underlying enabler for the merit order of dispatch and subsequent consumer price discovery. Three fundamentals of the proposed price determination are:
 - 2.3.2.1. Revenue requirement (cost to serve & reasonable return) underpins future pricing.

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- 2.3.2.2. Capacity charges and energy charges underpin cost to serve/cost recovery.
 - 2.3.2.3. Merit order of dispatch underpins cost recovery/efficiency and price discovery/competitiveness.
 - 2.3.3. In short, ESI unbundling and tariff unbundling are not mutually exclusive, however, without unbundled tariffs, the full benefit of ESI unbundling would be difficult to achieve. However, as discussed in the Consultation Paper, there are key enablers to address when considering the EPDM, namely data collection, the installation of meters – preferably smart meters – all driven by the need to move beyond the MYPDM, which was exclusively designed for Eskom, when it was the only *de facto* supplier of power, to determine a bundled tariff for Eskom which is not applicable to an industry.
 - 2.3.4. Following the Consultation Paper, NERSA internally developed the Draft Electricity Price Determination Methodology Rules ('EPDM Rules'), which is the subject of this consultation paper and for which comments are now elicited. The EPDM Rules are available on the NERSA website at www.nersa.org.za.

3. BACKGROUND

- 3.1. It is against the background of reforms in the Electricity Industry, such as the unbundling of Eskom to establish an independent Transmission System Operator that, in September 2021, NERSA published the underlying principles for the Electricity Pricing Framework Review. During the public consultation process, it became apparent, that it was necessary to revise the use of terminology and clarify how the pricing principles would be used in the new pricing methodology.
- 3.2. In June 2022, NERSA published the follow-up Electricity Price Determination Methodology (EPDM) Consultation Paper (CP) as the initiation of the public consultation process. The EPDM CP principles were developed as follows:
 - 3.2.1. Cost reflective tariffs will be set for electric industry service providers and prices will be set for consumers that reflect the cost to serve;
 - 3.2.2. For the unbundled value chain activities, cost allocation rules will be used to set unbundled cost reflective supply side tariffs using the revenue requirement approach;
 - 3.2.3. The collection of data to understand the drivers of demand and the demand profiles over time to ensure consumers pay for the services they actually consume; and
 - 3.2.4. The dispatch of power will be based on a merit order basis to enable the discovery of weighted average generation tariffs as the base cost for

discovering cost-reflective consumer prices.

3.3. The EPDM was received with more diverse and focused comments and inputs to the public hearings that suggested an intense advocacy programme would be required. The advocacy programme would seek to nurture a common understanding of the EPDM – one outcome was the widely publicised and well received NERSA Pricing Webinar in November 2022.

3.4. In September 2022, consultants were brought in to provide technical, economic and legal services to review the EPDM and subsequently draft it into a legal document, namely the EPDM Rules, and the subject of this Consultation Paper. The Methodology (Rules) have ascended the passage of being a delegated law and has an immediate binding effect on approval. There is an identifiable distinction between a methodology in the format it used to be and Rules as advocated in the current regulatory instrument.

4. LEGISLATIVE MANDATE FOR DETERMINATION OF TARIFFS

4.1. The development of the methodology is a process positioned on achieving fair evaluation, efficient and effective administrative process and rationality from a marsh of information. The general nature of the powers mandated to NERSA by section 4 of the Electricity Regulation Act, 2006 shall, without related regulatory instruments, result in abstract and arbitrary conclusions.

4.2. This methodology is a regulatory instrument aimed at achieving what has been alluded to in paragraph 4.1 above, and has taken the format of being a subordinate law by deriving its effect from section 35 of the Electricity Regulation Act. The Methodology (Rules) have ascended the passage of being a delegated law and has an immediate binding effect on approval. There is an identifiable distinction between a methodology in the format it used to be and Rules as advocated in the current regulatory instrument.

4.3. The development of the EPDM and resultant Draft EPDM Rules is a process aimed at achieving fair evaluation, efficient and effective administrative process¹ and rationality from a multitude of information. The general nature of the powers mandated to NERSA by section 4 of the Electricity Regulation Act, 2006 would, without related regulatory instruments to guide regulatory decision making, result in abstract and arbitrary conclusions.

4.4. NERSA shall hence apply the EPDM Rules to determine the tariffs charged by licensees².

¹ Taking into account the best interest of the electricity Industry, the overall South African economy and the public.

² That is, Licensees that are subject to price regulation.

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- 4.5. A licensee holding a licence that is subject to the setting or approval of a tariff may not charge a customer any tariff other than that determined or approved by NERSA from time to time as part of its licensing conditions.
- 4.6. A tariff shall be valid for the period for which it is approved by NERSA and may be amended or withdrawn:
- a) upon application by the Licensee that is subject thereto; or
 - b) unilaterally by NERSA if there are objective grounds for such tariff amendment or withdrawal, provided that a tariff shall not be amended or withdrawn without due consideration of any written presentations made by the licensee concerned.
- 4.7. The reverse side of the power to set tariffs and prices and which are the only tariff or price that may be charged by a Licensee, and needs to be stated, is that the Regulator may only set prices or tariffs for Licensees, noting the following:
- 4.7.1. Only licensed activities can be made subject to licence conditions regarding rates, charges or tariffs; however,
 - 4.7.2. Not all electricity related activities are licensed e.g. not requiring a Licence or registration (eg. <100kW), registered generation, consumers - hence not subject to price regulation; and,
 - 4.7.3. NERSA has a choice to set or approve tariffs - even if licensed, not all activities are necessarily price regulated!
 - 4.7.4. Licence conditions must be correctly worded to allow for EPDM tariff setting; and,
 - 4.7.5. NERSA needs to take a position on what elements of ESI should be subject to rice regulation market structure considerations
- 4.8. In the past, the MYPD was a methodology with not legal status, beyond the precedent set by its usage, however the EPDM will be set via Rules, noting the following considerations in the is change:
- 4.8.1. Section 35(3)(k) mandates rules made by NERSA as may be necessary for the proper administration of the Act, i.e. there seems to be a possibility rules can expand on the key principles in respect of tariffs, as long as it remain within the ambit of the Act. The Regulator, cannot for example include in tariff regulation unlicensed activities; and,
 - 4.8.2. The EPDM is hence issued as Rules under section 35 as Rules, namely the EPDM Rules,
 - 4.8.3. Issuing a tariff methodology by means of a Rule may have certain
-

advantages:

- 4.8.3.1. The rules have the status of legislation
- 4.8.3.2. Uniform application for all similar licensees and all similar activities – ie. moving from regulating one company (Eskom) to regulating the Electricity Industry; and,
- 4.8.3.3. Non-discriminatory ie. applies to all player equally
- 4.8.3.4. Rule then sets out the principles which are then applied in tariff application,

4.9. Finally, it is sufficing to say, licensing forms the cornerstone or foundation of price regulation under the ERA. Currently there are the licences for Generation, Transmission, Distribution, Trading, Import and Export. Noting that *activities* are licensed under section 7:

- 4.9.1. the *operation* of generation, transmission and distribution *facilities*;
- 4.9.2. import or export; and
- 4.9.3. *involvement* in trading.

4.10. Each licence is constituted of licensed activities and the EPDM Rules identifies which of these activities should be price regulated. The Regulator has a choice to price regulate (or not), which depends on licence conditions.

4.11. The question as to what to price regulate (and what not) is tied into Electricity Industry structure. Consequently, whilst the EPDM Rules does not define market structure, they indirectly recognise it (see section 5 below) and the decisions on price regulated activities can be anticipated to of that can change as industry changes

Stakeholder Question Cluster #1

A licensee may not charge a customer any tariff other than that determined or approved by NERSA from time to time as part of its licensing conditions.

- a) Stakeholders are requested to comment on the legislative mandate for the determination of tariffs.
- b) Stakeholders are requested to also comment on the reverse (ie. unlicensed or registered activities) and how this might impact the application of the EPDM Rules.
- c) Stakeholders are also requested to comment on the legal status and fairness of the EPDM Rules and applicability to types of:
 - i. Licenced activities; and
 - ii. Unlicensed activities.

5. ELECTRICITY SUPPLY INDUSTRY STRUCTURE, EPDM RULES AND OBJECTIVES

- 5.1. The Electricity Supply Industry value chain with respect to import, export, generation, transmission, distribution and trading³ for the purposes of the EPDM Rules is broken down into its constituent activities, both 'vertically' and 'horizontally'.
- 5.2. The EPDM then breaks down these activities (aligned to the market structure) in order to promote competition, achieve cost efficiency and ensure that the costs associated with each such activity are prudent and efficient.
- 5.3. The developers of the EPDM Rules are cognisant of the fact that in more developed electricity markets, there may be more unbundled and licensable activities, such as, inter alia, the Independent Transmission Operations, Independent System Operations and Independent Market Operators.
- 5.4. In terms of the current legislative and regulatory environment, these activities are not currently licensable. However, the EPDM Rules have been designed to enable easy application to changing market conditions and structure.

Stakeholder Question Cluster #2

- d) Stakeholders are requested to comment on Table 1 p8 (of the EPDM Rules), which describes the ESI structure and proposes areas of tariff regulation of licenced activities. Are there other activities that should be tariff regulated? Or, conversely, activities that should not be tariff regulated?
- e) Comment on the EPDM Rule's objectives.

6. EPDM PRINCIPLES

- 6.1. A fundamental EPDM principle is the efficient use (utilisation) of rated operating capacities in the determination of all tariffs, as opposed to the use of sales or revenues to calculate tariffs.
- 6.2. Transforming the level of permissible revenues into an unbundled and cost reflective tariff structure involves a model that incorporates all of the elements

³ The licensing categories provided for in the ERA

that are considered desirable in a regulated pricing regime. The tariff structure contains the economic signals that are intended to encourage efficient levels of usage within the constraint represented by the opportunity for the projected tariffs to collect the level of permissible revenues at the time.

Stakeholder Question Cluster #3

- f) Comment on the fundamental principle of EPDM of mainly using the efficiency of rated operating capacities in the determination of all tariffs, as opposed to the use of sales or revenues to calculate tariffs.
- g) Would you consider this migration to efficiency centred tariffs to be fair and transparent?
- h) What challenges do you anticipate in this approach?
- i) Comment on whether unbundling of the electricity industry structure is mutually exclusive from unbundling of tariff structure (or not) and why?

7. EPDM PRICE SETTING PROCESS: FIVE-STEP METHODOLOGY

7.1. NERSA is proposing a five-step methodology (which is the same five-step methodology used to calculate regulated rates in the past)⁴, although the emphasis by NERSA is now on regulated rates by *segments* in the industry, while the Regulatory Economics literature emphasises the process, *regardless* of for which specific segment (supply, transmission, distribution, retailing or other activities) the regulated rate is being calculated.

7.2. The general methodology is applied by the Regulator to all segments and activities in the industry (when a company that participates does so in a regulated activity and/or licensed activity):

7.2.1. First, all expenses and capital costs that conform the revenue requirement are identified.

7.2.2. The second step entails identifying the different activities and functionalising the costs into the different price regulated activities and price unregulated activities.

7.2.3. The third step identifies, within each activity functionalised in the previous step, the costs that are classified to different cost categories, namely: fixed,

⁴ In the past the Regulator set the Eskom Revenue Requirement and Eskom translated this into retail tariffs and thereafter the and the Municipalities translated the Eskom municipal 'bulk price' into municipal tariffs – both of which were approved, but not set, by the Regulator.

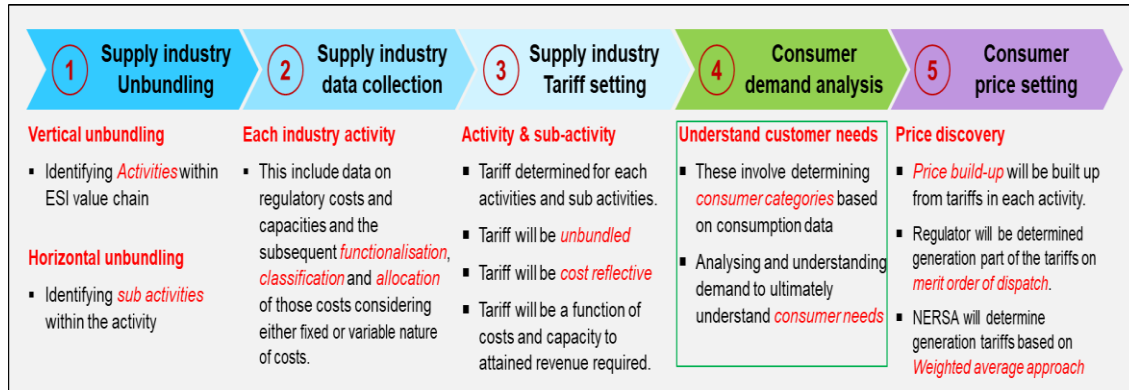
When Eskom was de facto the only supplier of electricity this approach had merits (mainly practicality), however with the unbundling of the electricity industry, this approach will not provide universal, transparent and non-discriminatory tariffs and prices for all stakeholders.

variable and customer specific.

7.2.4. The fourth step allocates the classified costs to specific customer classes.

7.2.5. Finally, once all the costs have been allocated to customer classes, using billing requirements, rates for each customer class are calculated.

Figure 1: 5-Step Price Setting Diagram



Stakeholder Question Cluster #4

- j) Stakeholder are requested to comment on each of the five steps identified under rule 8.
- k) Also comment on whether these steps can be expected to set prices that will incorporate of the EPDM principles.

8. EPDM REVENUE REQUIREMENT METHODOLOGY

8.1. The Revenue Requirement Methodology forms a key component of the EPDM tariff setting Rules. The Revenue Requirement Methodology does not guarantee cost recovery. An activity's costs from NERSA's perspective:

- must be known and measurable;
- must be prudent;
- must be just and reasonable; and
- in respect of capital investment, must be used and useful.

8.2. Operating expenses under the Revenue Requirement equation are non-capitalised costs and include:

- maintenance;
- administration;
- depreciation;
- taxes;
- billing expenses; and
- such other items as determined by the Regulator from time to time.

Stakeholder Question Cluster #5

- l) Comment on the Revenue Requirement Methodology as a key component of the EPDM tariff setting methodology.
- m) Comment on the proposed formula under rule 9(2).

9. KEY ELEMENTS OF EPDM REVENUE REQUIREMENT METHODOLOGY

7.1 The key elements of the Revenue Requirement Methodology are as follows:

- 7.1.1 Regulatory Asset Base
- 7.1.2 Weighted Average Cost of Capital
- 7.1.3 Expenses (operating and maintenance costs)
- 7.1.4 Primary energy costs
- 7.1.5 Depreciation
- 7.1.6 Levies
- 7.1.7 Profit considerations

Stakeholder Question Cluster #7

- n) Comment on each key elements of the Revenue Requirement Methodology being a key component of the EPDM tariff setting methodology.
- o) Comment on the regulatory cost principles outlined in rule 9(4) (a) – (d).

10. CONSUMER DEMAND ANALYSIS

10.1. Consumer Demand Analysis enables NERSA to anticipate the impact of electricity prices on consumers in terms of affordability, profitability and competitiveness. NERSA will use Consumer Demand Analysis as part of its EPDM Tariff setting. Consumer load analysis will be divided into Load 1, Load 2, Load 3 and Load 4. The consumer demand analysis is also essential to ensuring that unbundled tariffs effect those costs attributable to each type of consumers' demand.

Stakeholder Question Cluster #8

- p) Comment on the consumer data analysis under rule 11.
- q) Comment on the use of smart meters.
- r) Comment in the collection of consumer demand data for setting tariffs.
- s) Comment on how to deal with consumers without smart meters.

11. MERIT ORDER DISPATCH

- 11.1. Determination of fair and transparent consumer pricing requires adherence to the Merit Order Dispatch of power. Fundamental in the Merit Order Dispatch approach is that not only are the power plants dispatched on merit order, but only those plants that are dispatched will be included in the resultant consumer prices determination.
- 11.2. Notwithstanding the above, in a constrained energy system these underlying principles can be challenging to implement, especially as non-commercial elements may also drive such generation that are otherwise not accounted for in the pricing model?
- 11.3. For example, security of supply considerations/international obligations may cause a customer to choose an option that is then not covered under merit order dispatch, or climate considerations may play a role in determining less efficient generation options. Put differently, 'fair and transparent customer pricing' has other important elements that are not necessarily part of 'pure' merit order dispatch.

Stakeholder Question Cluster #9

- t) Stakeholders are requested to comment on rule 12 regarding the merit order dispatch, specifically the steps applicable in terms of dispatch by the System Operator under 12(2).
- u) Comment on any alternative mechanisms to derive efficiency by compensating only for power delivered to the grid based on least cost dispatch.
- v) Comment on non-dispatchable generation/non-merit order dispatched generation (e.g. renewable IPPs, rooftop solar) – how should this be accommodated in the model (or not)? –

12. CONSUMER PRICE BUILD-UP

- 12.1. Electricity prices have a profound impact on households in terms of affordability and quality of life, as well as on competitiveness and reliability of
-

business, respectively. Determining the rates to charge customers can be a contentious issue, with serious social and economic consequences. Consumer prices will be set using the formula outlined under rule 13(1).

Stakeholder Question Cluster #10

- w) Comment on the consumer tariff build-up shown under rule 13(1).
- x) Stakeholders are also requested to comment on the proposed application of the formula under rules 13(2)–13(12).
- y) Comment on the back-up options where application cannot be optimally achieved, such as outlined in 13(3) (f).

13. DATA COLLECTION

13.1. Financial and non-financial information required to be generated by Licensees or consumers must be in a format or by means of a data collection tool made available by the Regulator from time to time. The submission thereof may be made compulsory.

Stakeholder Question Cluster #11

- z) Stakeholders are requested to comment on the data collection rules in rules 14(1)–14(5).

14. TARIFF APPLICATION PROCESS

14.1. Licensees are required to ensure that they submit their tariff applications in time to allow for the licence conditions, legislative requirements and timeframes to be met.

Stakeholder Question Cluster #12

- aa) Stakeholders are requested to comment on the tariff application process under rules 15(1)–15(3).
- bb) Comment on the content of the tariff application under rule 16.
- cc) Comment on tariff consideration and approval under rule 17 to 19.
- dd) Comment on the rule regarding non-compliance with the tariff setting procedure under rule 20.
- ee) Comment on the rule on the public register of approved tariffs under rules 20 and 21.

15. CONCLUSION

15.1. The Energy Regulator will conduct a review of the Electricity Price Determination Methodology as and when required to ensure that the contents of the Methodology reflect current regulatory circumstances. NERSA also recognises that special circumstances may arise that may necessitate changes to be effected to the Methodology. Accordingly, NERSA will continuously incorporate justifiable changes that are considered necessary to immediately capture clarity, transparency and regulatory efficiency benefits immediately.

16. THE CONSULTATION PROCESS

16.1. Stakeholders are requested to comment, in writing, on the Draft Electricity Price Determination Methodology Rules as highlighted in this paper, although general comments on aspects not highlighted are also welcome. Written comments must be sent to epdm@nersa.org.za; hand-delivered to Kulawula House, 526 Madiba Street, Arcadia, Pretoria, or posted to PO Box 40343, Arcadia, 0083, Pretoria, South Africa. The closing date for the submission of comments is **14 September 2023 at 16:00**.

16.2. NERSA will collate all comments received, and they will be taken into consideration when the decision is made. In addition, public hearings will be held using MS Teams; where interested and affected parties may make presentations as follows:

PROVINCE	CITY	DATE
National, including all provinces	Virtual meeting	15 September 2023
National, including all provinces	Virtual meeting	18 September 2023

Indicative timelines

16.3. The process for consultation and decision-making is outlined in the table below.

Table 2: EPDM Rules consultation and approval indicative timelines

Task Name	Duration	Start	Finish
Development of Consultation Paper	44 days	Tue 23/06/06	Fri 23/08/04
Development of EPDM rules consultation paper	21 days	Tue 23/06/06	Tue 23/07/04
Cover submission and final consultation paper	5 days	Wed 23/07/05	Tue 23/07/11
Submission to the HOD and EM	2 days	Wed 23/07/12	Thu 23/07/13
Submission to the CEO and FTRM	2 days	Fri 23/07/14	Mon 23/07/17
Submission to RSU	10 days	Tue 23/07/18	Mon 23/07/31

Task Name	Duration	Start	Finish
Approval of the consultation paper by ELS	1 day	Tue 23/08/01	Tue 23/08/01
Publication of the consultation paper	2 days	Wed 23/08/02	Thu 23/08/03
Closing of date: Written stakeholder comments	30 days	Fri 23/08/04	Thu 23/09/14
Public hearings on EPDM rules	2 days	Fri 23/09/15	Mon 23/09/18
Approval of EPDM rules	33 days	Tue 23/09/19	Thu 23/11/02
Preparing RfD submission to the EPDM rules	7 days	Tue 23/09/19	Wed 23/09/27
Submission of RfD to the HoD and EM	2 days	Thu 23/09/28	Fri 23/09/29
Submission of the RfD to the FTRM and CEO	2 days	Mon 23/10/02	Tue 23/10/03
Submission of the RfD to the RSU	5 days	Wed 23/10/04	Tue 23/10/10
Special ELS consider the RfD for recommendation to ER	1 day	Wed 23/10/11	Wed 23/10/11
Preparation of two pager to the ER	3 days	Thu 23/10/12	Mon 23/10/16
Submission to RSU	7 days	Tue 23/10/17	Wed 23/10/25
Approval of the RfD by the ER	1 day	Thu 23/10/26	Thu 23/10/26
Incorporation of guidance from ER members	2 days	Fri 23/10/27	Mon 23/10/30
Publication of EPDM rules	3 days	Tue 23/10/31	Thu 23/11/02

Indicative timelines

End