Global Gateway

Funded by the European Union

Date: 23/02/2026

Levies and Fees for Financing Regional Market Operators and Regulators in Africa's Power Pools.

Guidelines Report

This document has been prepared under the terms of the European Union funded project under service contract no. NDICI AFRICA 2024/461-222 entitled “Continental Energy Programme in Africa (CEPA) – Technical Assistance to AU Energy Institutions for AfSEM/CMP/AfEES”. The content of this document is the sole responsibility of the consortium led by Stantec and can in no way be taken to reflect the views of the European Union. This document is prepared solely for the use and benefit of the Contracting Authority, the European Union, represented by the European Commission, and neither the consortium led by Stantec, nor the authors accept or assume any responsibility or duty of care to any third party.

Report Title	Guidelines for Regional Market Levies and Fees
Version	V1.0
Date	23/02/2026
Prepared By	Felice Furiani, CEPA AfSEM NKE4
Coordinated by	Dimitris Papastefanakis, CEPA KE1
Reviewer	Alexandros Grivas, Stantec Project Director Henry Jacobs, Stantec Project Manager Assistant

Table of contents

List of figures

List of tables

List of formulas

List of boxes

Abbreviations list

ACER	Agency for the Cooperation of Energy Regulators
AfSEM	African Single Electricity Market
AU	African Union
CACM	Capacity Allocation and Congestion Management (EU CACM Regulation / Guideline)
CAPP	Central Africa Power Pool
CEER	Council of European Energy Regulators
CEPA	Continental Energy Programme in Africa
CAPEX	Capital Expenditure
ECOWAS	Economic Community of West African States
EAPP	Eastern Africa Power Pool
EU	European Union
IEA	International Energy Agency
IT	Information Technology
NDICI	Neighbourhood, Development and International Cooperation Instrument (EU “Global Europe”)
OECD	Organisation for Economic Co-operation and Development
OPEX	Operating Expenditure
RAB	Regulatory Asset Base
RR	Revenue Requirement
SAPP	Southern African Power Pool
SMO	System and Market Operator
TSO	Transmission System Operator
WACC	Weighted Average Cost of Capital
WAPP	West African Power Pool

Executive Summary

This report provides a structured reference framework for the design and allocation of institutional levies and fees financing regional market operators and regulators within Africa's Power Pools. It builds upon the findings of the AfSEM Stocktaking Report and responds directly to identified structural weaknesses, including fragmented funding models, limited regulatory independence, weak cost classification practices, exposure to revenue volatility, and partial reliance on donor financing.

The Guidelines do not prescribe a single charging model. Rather, they establish a harmonized architectural framework for institutional cost recovery that can be applied flexibly across regions with different levels of market maturity, liquidity, and institutional capacity. The focus is strictly on institutional levies and fees – that is, charges intended to finance:

- Market Operator functions
- Regulatory Oversight and Market Integrity functions
- Governance and coordination activities

Network tariffs and physical grid cost recovery are explicitly outside scope and will be treated with the dedicated report on Transmission and Wheeling Tariffs.

Chapter 2 establishes the normative foundation of levy design. **Six core principles** are identified as the structural anchors of any AfSEM-consistent fee framework:

1. **Transparency** – methodologies, cost components, and approval processes must be publicly disclosed and understandable.
2. **Cost-reflectivity** – charges must recover efficient institutional costs and avoid structural under-recovery or hidden surpluses.
3. **Proportionality and fairness** – allocation must avoid undue discrimination and unjustified cross-subsidisation.
4. **Stability and predictability** – funding structures must avoid volatility and regulatory arbitrariness.
5. **Regulatory independence** – oversight functions require secure, ring-fenced funding insulated from operational or political interference.
6. **User-pays (beneficiary-pays)** – costs should be borne by those who use or benefit from institutional services.

The chapter emphasizes that transferability of international best practice depends on four enabling conditions: institutional capacity, market liquidity, data quality, and enforcement capability. The Guidelines are therefore presented as a reference architecture, not as a prescriptive transplant of EU models.

Chapter 3 translates principles into operational mechanisms through a structured institutional Revenue Requirement (RR) model and a modular cost-recovery architecture.

For a given year *t*, the **Revenue Requirement (RR)** of an institution may be defined as:

$$\boxed{RR_t = (EC_t^{MO} + EC_t^{REG} + EC_t^{GOV}) + Cont_t + Adj_t - OR_t}$$

Where:

- EC_t^{MO}= **eligible costs** for **Market Operator functions**
- EC_t^{REG}= **eligible costs** for **Regulatory Oversight and Market Integrity functions**
- EC_t^{GOV}= **eligible costs** for **Governance and Coordination functions**
- $Cont_t$= approved **contingency** / reserve contribution
- Adj_t= prior-year **true-up adjustment** (under/over-recovery + audit adjustments)
- OR_t= **other revenues** credited against fees (e.g., earmarked grants, interest income, penalties if policy says net-off)

Once the RR is defined, recovery occurs through four interoperable modules.

- **Module A – Fixed Participation / Membership Fee** recovers baseline institutional costs independent of trading activity. This module provides revenue stability and institutional continuity, particularly in low-liquidity markets.
- **Module B – Volumetric Fee (per MWh traded)** allocates costs in proportion to traded energy volumes. This module enhances proportionality and aligns contributions with market use.
- **Module C – Ad Valorem Levy (percentage of transaction value)** allocates costs in proportion to the monetary value of trades. This module is suitable in mature markets with robust settlement systems and reliable transaction reporting.
- **Module D – Ring-Fenced Regulatory Oversight Levy** ensures independent financing of regulatory functions, which may be calculated similarly to the other modules (fixed contributions, activity-based per MWh, ad valorem percentage).

The **selection** of modules should reflect:

- Market liquidity
- Price volatility
- Participant diversity
- Institutional maturity
- Billing and settlement capacity

Low-liquidity markets should rely more heavily on fixed modules. Mature, liquid markets may progressively increase activity-based components, while early-stage markets should rely more on a fixed participation fee.

In **Chapter 4**, four strategic messages emerge, together with relevant Action Priorities for AfSEM:

Key Message 1 – Harmonization, not uniformity

Uniformity of fee levels is neither realistic nor desirable. Harmonization should focus on:

- Common Revenue Requirement definitions

- Standardized cost classification
- Structured true-up mechanisms
- Regulatory ring-fencing

AfSEM Action Priority n.1

Develop and formally endorse a standardized Institutional Revenue Requirement template and reporting structure applicable to all Power Pools.

Key Message 2 – Financial credibility requires clarity on cost-recovery

Under-recovery, opaque adjustments, or cross-subsidisation undermine trust.

AfSEM Action Priority n.2

Promote a structured Revenue Requirement approval and reconciliation cycle, including:

- Ex ante budget approval
- Mandatory audited true-up
- Standard reconciliation templates
- Public reporting of revenues vs eligible costs

Key Message 3 – Moving from fixed cost-recovery mechanism to progressively more activity-based hybrid systems

Purely activity-based models expose immature markets to volatility.

AfSEM Action Priority n.3

Promote hybrid funding models anchored by a minimum fixed “stability floor,” with progressive expansion of activity-based components as liquidity deepens.

Key Message 4 – Regulatory independence requires ring-fenced funding

Regulatory functions must be structurally insulated from market operation financing.

AfSEM Action Priority n.4

Promote formal ring-fencing of regulatory revenue requirements, including:

- Separate accounting lines
- Dedicated regulatory levy
- Annual reporting
- Independent audit

1 Introduction

This report builds upon the findings of the *Levies and Fees for Financing Regional Market Operators and Regulators in Africa's Power Pools – Stocktaking Report* and provides a structured reference framework for the design and allocation of levies and fees financing regional market institutions within Africa's Power Pools

Its purpose is not to prescribe uniform fee levels or impose a single charging model across all regions. Rather, it offers a **practical architecture for institutional cost recovery** that is consistent with AfSEM objectives while allowing calibrated flexibility across different market contexts.

The Guidelines focus exclusively on **institutional levies and fees**, namely, charges intended to finance Market Operator functions, Regulatory Oversight and Market Integrity functions, and Governance and Coordination activities. They do not address physical network tariffs or transmission cost recovery mechanisms. The core objective is to ensure that regional market institutions are financed in a transparent, cost-reflective, proportionate, stable, and independent manner.

The report is structured as follows:

- **Chapter 2 – Guiding Principles for Market Levies and Fees**. This chapter establishes the normative foundation for levy design. It defines and discusses six core principles: transparency, cost-reflectivity, proportionality and fairness, stability and predictability, regulatory independence, and the user-pays principle. Each principle is examined through three lenses: conceptual definition, international best practice, and practical application to AfSEM. The chapter also assesses the conditions under which these principles can be effectively implemented across African Power Pools, identifying enabling factors such as institutional capacity, market maturity, data quality, and enforcement capability.
- **Chapter 3 – Financial Design Options**. This chapter translates principles into operational mechanisms. It first defines the institutional Revenue Requirement (RR), including eligible cost categories, contingency provisions, true-up adjustments, and the treatment of other revenues. It then presents a modular architecture for recovering the approved revenue requirement through four interoperable fee modules: A) Fixed Participation / Membership Fee, B) Volumetric Fee (per MWh traded), C) Ad Valorem Levy (percentage of transaction value), D) Ring-Fenced Regulatory Oversight Levy. For each module, the report provides the rationale, allocation logic, and high-level formula templates. The chapter concludes with a structured decision framework and applicability matrix to guide Power Pools in selecting and calibrating the most appropriate combination of modules based on market liquidity, volatility, participant structure, institutional maturity, and settlement capacity.
- **Chapter 4 – Conclusion: Key Messages and Action Priorities**. The final chapter distils the main findings into four key messages and identifies corresponding AfSEM Action Priorities. These priorities focus on harmonizing structural elements, such as revenue requirement templates, approval and true-up processes, hybrid funding models, and regulatory ring-fencing. The emphasis is on building a common institutional architecture that strengthens financial discipline, comparability, and long-term sustainability.

The design choices presented in this report respond directly to the structural weaknesses identified in the Stocktaking Report, including fragmented funding models, partial regulatory independence, weak cost classification, limited use of activity-based recovery mechanisms, and exposure to donor-

dependence in several regions. Therefore, the modular architecture proposed should therefore be read as a **structured response to those institutional gaps**, with the degree of sophistication adopted by each Power Pool reflecting its current level of institutional maturity and enforcement capacity.

2 Guiding Principles for Market Levies and Fees

This chapter establishes the fundamental principles that should guide the design, allocation, and regulation of levies and fees in a regional electricity market.

These principles – **transparency**, **cost-reflectivity**, **proportionality and fairness**, **stability and predictability**, **regulatory independence**, and the **user-pays** (beneficiary-pays) principle – are drawn from international best practices and regulatory literature. Adhering to these principles provides a strong foundation for the African Single Electricity Market (AfSEM) by aligning it with proven approaches from the EU internal energy market, OECD, IEA, and global regulatory experiences.

Notably, many of these principles have long been recognized by energy regulators: for example, since long, the Council of European Energy Regulators (CEER) has emphasized that network tariffs must be transparent, objective, non-discriminatory, simple to apply, and reflective of costs[1].

By elaborating each principle below, we illustrate how they are applied in other jurisdictions (such as Europe's internal electricity market and cross-border interconnection regimes) and discuss their application to the AfSEM context.

2.1 Transparency

2.1.1 Definition and Rationale

Transparency means **openness in how levies and fees are determined and applied**.

All stakeholders, including regulators, market operators, utilities, and consumers, should have access to information on the methodology, data, and rationale behind any regional charge.

In practice, this entails that tariff methodologies and cost components are publicly disclosed and understandable. CEER's guidelines explicitly state that *"the methodology for calculating tariffs should be transparent and accessible to all stakeholders"*[2].

Transparency builds trust in the market by allowing participants to see that fees are based on objective criteria rather than arbitrary decisions. It also enables market participants to plan and respond appropriately, since they can anticipate charges if they understand how they are calculated.

2.1.2 International Best Practices

In the **EU internal energy market**, transparency is a legal requirement for network tariffs and cross-border charges.

Regulators require Transmission System Operators (TSOs) and market operators to publish tariffs, tariff methodologies, and the terms and conditions of network access. For example, in the European Union, energy regulators require transmission and distribution system operators to publish network tariffs and charges, together with clear information on the tariff methodology, structure, and regulatory approval process. While detailed cost data are typically subject to regulatory scrutiny rather than full

[1] Principles on Regulatory Control and Financial Reward for Infrastructure Investments, CEER, 2003
[2] Guidelines of Good Practice for Distribution Network Tariffs, CEER, January 2017

public disclosure, national regulators ensure that tariff-setting is transparent and based on objectively justified cost components, in line with EU energy legislation and national regulatory frameworks.

The **Agency for the Cooperation of Energy Regulators (ACER)** and **CEER** also foster transparency by developing common reporting frameworks and requiring that any cross-border cost-sharing arrangements be clearly documented.

Outside of the EU, the **OECD** identifies transparency as a cornerstone of good regulatory practice, emphasizing that regulators should clearly communicate how decisions are taken and on what basis, in order to strengthen accountability and confidence among stakeholders[3].

2.1.3 Application to AfSEM

In the AfSEM context, where power pools are encompassing multiple countries and utilities, **transparency is paramount to achieve cooperation**.

Regional market levies and fees should be governed by **rules and calculation methods that are clearly communicated to all member countries and market players**.

AfSEM regulators (national and regional) should ensure that the tariff-setting process is open, with any proposals for new fees or changes subjected to stakeholder consultation and published in advance. By mirroring the international transparency practices, AfSEM can mitigate suspicion among diverse parties and prevent disputes. For instance, if a regional system operation fee or interconnector usage levy is introduced, its basis (e.g. cost of providing the service or maintaining the interconnection) must be openly available.

This will help market operators and even consumers across Africa to understand why such a fee exists and to see that it is grounded in real costs and approved methodologies.

Transparency, in summary, will **build the credibility of AfSEM's fee system** and enable effective participation and oversight, just as it has underpinned trust in Europe's integrated electricity market.

2.2 Cost-reflectivity

2.2.1 Definition and Rationale

Cost-reflectivity means that levies and fees should **accurately reflect the actual costs incurred in providing the associated service or infrastructure**.

Charges that are cost-reflective send efficient price signals: they encourage users to make decisions that consider the true cost implications for the system, thereby promoting economic efficiency and sustainable operation of the grid.

According to CEER, *"tariffs paid by network users should reflect the cost they impose on the system and give appropriate incentives to avoid future costs"*[4]. In other words, each user or transaction should bear costs in proportion to the burden it places on networks or the benefits it draws, ensuring no undue subsidies or distortions.

[3] OECD Regulatory Policy Outlook 2025, OECD, 2025
[4] Guidelines of Good Practice for Distribution Network Tariffs, CEER, January 2017

Cost-reflective pricing also helps **ensure the financial viability of the market**: if fees cover the real costs, the entities responsible for infrastructure (like transmission operators or market facilitators) can recover their costs and maintain reliable service.

2.2.2 International Best Practices

Cost-reflectivity is a central principle in international energy regulation. The **International Energy Agency (IEA)** has noted that ideally, *"energy bills would be based on cost-reflective energy prices and would encourage efficient and sustainable choices"*, provided this is done without harming vulnerable consumers[5].

In the **European Union**, electricity network tariffs are required to reflect the main underlying cost drivers of the system. Transmission tariffs are predominantly capacity-based and, in several Member States, incorporate time-of-use or peak-related elements to reflect higher costs associated with system stress and peak demand. **ACER** has observed that, in principle, strict cost-reflectiveness may justify limited locational signals, such as differentiation linked to network losses, although the application of such signals is carefully constrained in order to preserve market integration and avoid undue tariff fragmentation[6].

At the cross-border level, the European Union introduced early and far-reaching reforms to address distortions in network charging for cross-border electricity flows. In particular, it eliminated tariff pancaking, where cumulative network charges applied when electricity transited multiple national systems, and moved away from national postage-stamp charging for cross-border use[7]. This was achieved through a harmonized regulatory framework and the introduction of an **Inter-TSO Compensation (ITC) mechanism**, under which transmission system operators are compensated for the costs of hosting cross-border flows, while the costs are shared among system users across the internal market rather than borne by transit countries alone.

The "beneficiary-pays" approach in Europe's cross-border cost allocation embodies cost-reflectivity. Likewise, **regulators globally** (e.g. in the United States' FERC principles) insist that transmission costs be assigned to those who cause or benefit from them, reinforcing the user-pays notion for cost causation[8].

Crucially, the absence of cost-reflective pricing can lead to serious market distortions and financial shortfalls. A cautionary example is Nigeria's power sector, where for years tariffs have been set below cost-recovery levels. The IEA reports that *"electricity tariffs in Nigeria remain below cost-reflective levels, making it difficult for power companies to cover production costs"*, which in turn has led to debt accumulation and supply issues[9].

This underscores that if levies/fees are kept artificially low (not reflecting true costs), the system's sustainability is jeopardized. Utilities cannot maintain infrastructure or fuel supply, and reliability suffers. International best practice thus strongly favors cost-reflectivity not only for efficiency, but as a precondition for stable, reliable service.

---

[5] World Energy Outlook 2021: Prices and Affordability, IEA, 2021
[6] Report on Electricity Transmission and Distribution Tariff Methodologies in Europe, ACER, January 2023
[7] Principles on Regulatory Control and Financial Reward for Infrastructure Investments, CEER, 2003
[8] How Cost Allocation Works for Transmission Lines, IFP, April 2024
[9] Electricity 2025, IEA, 2025

2.2.3 Application to AfSEM

Embracing cost-reflectivity in AfSEM's levies and fees will be critical for the market's success and credibility. AfSEM regulators should ensure that any **regional market charges** (such as fees for cross-border transmission usage, market operator fees, balancing charges, etc.) **are grounded in the actual costs** of those services.

This may involve developing a **cost allocation methodology that attributes network operation and expansion costs to those who use the network capacity**. For example, if a country or utility draws heavily on a regional interconnector at peak times, a cost-reflective usage fee would be higher for that usage, mirroring the strain on the system.

Cost-reflectivity in AfSEM will encourage **efficient use of interconnections**. Market participants will schedule trades in a way that avoids unnecessarily overloading lines if doing so incurs higher fees. It will also **signal where investment is needed**: if certain corridors are congested and thus carry high cost-reflective charges, it indicates a need for infrastructure upgrades or expansion.

AfSEM can look to the EU's experience in eliminating transit pancaking. Similarly, AfSEM might institute a **unified or reciprocal charging system for cross-border flows** so that electricity can move freely without excessive cumulative fees.

The overarching goal is to **avoid situations where some members feel they are unfairly subsidizing others**. Each country or user should pay in line with the costs their activities impose on the regional network.

By applying this principle, AfSEM will also ensure its **financial sustainability**. Revenues from fees will be sufficient to cover the regional institutions' and infrastructure costs, preventing the need for ad-hoc government bailouts.

It is worth noting, however, that cost-reflective design in AfSEM should be coupled with measures to **mitigate impacts on the poor** (as discussed under fairness below), so that the drive for economic efficiency does not inadvertently harm affordability for vulnerable populations.

2.3 Proportionality and Fairness

2.3.1 Definition and Rationale

The principles of proportionality and fairness ensure that **levies and fees are allocated justly among stakeholders** and are **no more burdensome than necessary**.

Fairness in this context means **avoiding undue discrimination or inequitable impacts**: fees should not favor one group of users over another without objective justification, and similar situations should be treated similarly.

Proportionality means the **level of charges should be commensurate with their purpose**. Regulators should calibrate fees so that they achieve cost recovery and policy aims without exceeding what is needed.

In essence, fees should be fairly apportioned among different customers, and 'undue discrimination' in rate relationships is avoided. A proportional and fair levy system **prevents cross-subsidies** where one category of users overpays to subsidize others (unless such support is an explicit policy choice, transparently implemented). Fairness also involves consideration of **consumers' ability to pay** and

ensuring that basic access is not compromised by fees, a concept sometimes termed affordability in regulatory literature[10].

Conversely, if users view charges as **unfair or excessive**, it can **undermine public acceptance of the market** and **even incentivize evasion or political pushback**. Fairness has both procedural and distributive dimensions: procedurally, stakeholders should feel the process of setting fees is fair (with consultation and reason-giving), and distributively, the outcomes (who pays how much) should align with societal notions of equity (for example, ensuring that vulnerable consumers are not disproportionately burdened).

2.3.2 International Best Practices

Fairness and non-discrimination are bedrock principles in the **EU energy market**. European law requires that network tariffs *"shall be non-discriminatory and cost-reflective"*[11], capturing both fairness and efficiency. CEER's guidance highlights that there should be *"no undue discrimination among network users"*[12]. In other words, similar network users should face similar tariff structures, and differences in charges must be justified by differences in cost or service.

A practical example is that industrial and residential consumers may have different tariff components (due to differing usage patterns), but within a class, one consumer should not secretly be charged more than another for the same usage profile.

Fair allocation also means avoiding cross-subsidies unless deliberately instituted for public policy. For instance, **ACER** and **CEER** have promoted applying cost-reflective and beneficiary-pays principles specifically *"to avoid cross-subsidies"* between gas users[13]. In cross-border cost allocation for new infrastructure, the EU's use of the beneficiary-pays approach is an example of proportionality. Each country pays for a project in proportion to the benefit it derives, which is perceived as fair and prevents one country from bearing all costs of a line that primarily helps others.

Another aspect of fairness is protecting certain groups of consumers. The **International Energy Agency** cautions that while prices should be cost-reflective, this should be achieved *"without harming low income households or choking off economic activity"*[14].

OECD best practices for policy often invoke proportionality, meaning that regulatory measures (including fees) should not overshoot their objective.

For instance, if a levy is meant to fund grid maintenance, it should be set at a level that meets that need but not arbitrarily higher to become a source of general revenue.

2.3.3 Application to AfSEM

In the AfSEM-wide context, proportionality and fairness are crucial for unity and buy-in among member states and consumers. Given the economic diversity across African countries and customer groups, AfSEM must strive for a **fee structure seen as just and balanced**.

---

[10] "Balancing affordability and financial viability requires policymakers to set tariffs high enough to allow for full cost-recovery, while ensuring that low-income customers are not asked to pay more than they can bear", Regulatory Indicators for Sustainable Energy (RISE), WB, 2017.
[11] Guidelines of Good Practice for Distribution Network Tariffs, CEER, January 2017
[12] Ibid.
[13] Position Paper on the Key Regulatory Requirements to Achieve Gas Decarbonisation, ACER/CEER, December 2021
[14] World Energy Outlook 2021: Prices and Affordability, IEA, 2021

Proportionality means AfSEM should **set any Africa-wide levies at reasonable levels** aligned with actual needs. For example, if a small administrative levy funds the regional market operator, it should be no higher than required to run that entity efficiently.

Fairness in AfSEM implies **non-discrimination between member countries and market participants**. No country should feel that the fee system puts it at a disadvantage relative to others. For instance, rules should prevent a situation where power exporters are charged markedly different rates than importers without justification, or where certain interconnections have surcharges not applied elsewhere.

Fairness also suggests that if AfSEM implements any regional cost-sharing for infrastructure, it follows the **beneficiary-pays logic** as in the EU. Those who benefit most from a new transmission line should contribute accordingly, which will seem equitable to all parties.

Additionally, AfSEM regulators should **consider the impact of fees on end-users**. Many African consumers are price-sensitive, and the user-pays principle can be tempered by social policy (like targeted subsidies or lifeline tariffs at the national level) to maintain affordability. While the AfSEM guidelines will be general, they should encourage member states to ensure that the **recovery of regional costs does not unduly burden poor households**. This could mean, for example, that any necessary **solidarity mechanisms** or **external funding** are used instead of adding excessive surcharges to electricity bills in least-developed member states.

2.4 Stability and Predictability

2.4.1 Definition and Rationale

Stability and predictability refer to having a regulatory regime for levies and fees that is **consistent over time and changes only in a well-communicated, gradual manner**.

Stability means **avoiding sudden, erratic shifts in fee levels or methodology**. Charges should not fluctuate wildly from year to year in ways that investors and users cannot anticipate.

Predictability means market **actors can reasonably forecast future charges based on known rules**, allowing them to **plan long-term investments and operations** with confidence.

These principles are vital in capital-intensive sectors like the electricity one. Developers of generation or transmission, for example, need certainty about future network charges to evaluate project viability. A stable, predictable framework reinforce investor confidence and **prevents short-term political considerations from undermining the economic logic of the market**.

Regulators are responsible for providing a stable and predictable regulatory environment, in which investors, operators, and customers can make long-term decisions with confidence that short-term political goals will not affect the efficiency of utility services. In practice, this often means using **multi-year tariff periods**, **advance notice of any tariff adjustments**, and **clear formulas or mechanisms** for updating fees (such as indexation or periodic reviews).

2.4.2 International Best Practices

Around the world, successful electricity markets prioritize stability and predictability in tariff regulation.

European regulators typically set network tariffs within multi-year regulatory periods (e.g. 3-5 years) with defined review processes, ensuring that any changes in levies follow a stable cycle and

methodology. **CEER**'s principles highlight predictability, noting that network users must be able to effectively estimate the costs of their use of the system, facilitating efficient long-term investment[15]. This is balanced with the understanding that tariffs will evolve as the system changes, but even evolution should happen with forethought and not surprise stakeholders.

The EU internal market achieved a high degree of stability by codifying many tariff rules in legislation and network codes. Market participants know that core principles will not be suddenly overturned. For example, the abolition of cross-border transaction fees within the EU (apart from regulated network tariffs) has been a stable rule for years, allowing cross-border trade to flourish without fear of new fees being imposed.

The importance of predictability is also emphasized by energy investors and organizations like the **IEA** and **OECD**. Regulatory risk (the risk of unforeseeable changes in rules or charges) will raise the cost of capital and deter investment. OECD best-practice principles therefore emphasize the importance of consistent, predictable and credible regulation over time, noting that more predictable regulatory decision-making fosters investment, particularly for long-lived infrastructure assets[16].

2.4.3 Application to AfSEM

For AfSEM, ensuring stability and predictability in regional levies and fees will be fundamental to attract investment and to integrate diverse national systems into one market.

African electricity infrastructure development (generation, transmission, and distribution) requires significant capital, and investors (whether public or private) will be far more willing if they see **AfSEM's fee framework** as **reliable and not subject to political whim**.

In practice, AfSEM can promote stability by establishing clear rules that **regional charges** (such as a levy to fund the market operator) **will be set through a long-term methodology**. For example, AfSEM might stipulate that any region-wide tariffs are determined for a multi-year period (say 5 years) and can only be adjusted via a defined formula (perhaps linked to inflation or cost indices) or during a scheduled review. This mimics the approach of regulatory periods used by European regulators, giving all parties a predictable outlook on costs.

Moreover, predictability in AfSEM can be enhanced by **transparent governance**. Any prospective changes to levies should involve **advance notice and consultation**. If AfSEM needs to introduce a new type of fee (for instance, a reliability or capacity reserve charge across members), the process should be gradual: first a proposal; then, stakeholder engagements; subsequently, an impact analysis; and, finally, a phase-in period.

Consistency across the region is another aspect of predictability. If each country were to impose ad-hoc charges on cross-border trades unilaterally, it would create uncertainty. AfSEM guidelines should thus encourage harmonization, so that all participants know that the rules are uniform and not shifting depending on where you trade.

Regulatory independence (discussed next) also plays a role here. A regulator insulated from day-to-day politics is less likely to make abrupt fee changes to satisfy short-term demands.

---

[15] Guidelines of Good Practice for Distribution Network Tariffs, CEER, January 2017
[16] The Governance of Regulators, OECD, 2014

2.5 Regulatory Independence

2.5.1 Definition and Rationale

Regulatory independence refers to the **autonomy of regulatory authorities from undue political, commercial, or stakeholder influence in making decisions**.

An independent regulator is one that can **set and enforce levies and fees objectively, impartially, and consistently**, with the **long-term interests of the market in mind**, rather than bending to short-term political pressures or lobbying by specific interests.

The OECD describes an independent regulator as behaving *"objectively, impartially, and consistently, without conflict of interest, bias or undue influence"*[17]. This principle is crucial to ensure that decisions on market fees are made on technical and economic merits (e.g., based on cost data, demand forecasts, and policy objectives) rather than being manipulated to favor certain groups or to serve as political tools.

Independence does not mean the regulator is unaccountable; rather, it means the regulator has a clear mandate and protection from interference, enabling it to make tough decisions (like raising a tariff to cost-reflective levels or allocating costs to a powerful incumbent utility) in pursuit of the agreed principles.

Regulatory independence reinforces investor confidence too: investors trust that once rules are set, they won't be arbitrarily overruled by political decree, and market participants trust that all will be held to the same rules.

2.5.2 International Best Practices

The importance of regulatory independence has been well established in international energy markets.

The **European Union's Third Energy Package** (2009) and subsequent **Clean Energy Package** (2019) legally requires each member state to have an independent National Regulatory Authority for energy, one that is free from instructions from government or industry and has authority over tariffs, network access, and cross-border issues. **ACER** at the EU level itself is an independent agency that can make impartial decisions on cross-border cost allocation when national regulators cannot agree.

The **OECD** Best Practice Principles for regulatory policy also highlight that regulators should have operational autonomy, fixed-term appointments, and stable funding to carry out their duties without external pressure[18].

2.5.3 Application to AfSEM

Regulatory independence will be a linchpin for AfSEM's success. Given that AfSEM spans many nations, each with its own government and politics, having decisions about regional levies and fees made impartially is **critical to avoid stalemates or biased outcomes**.

AfSEM should continue to **promote the development and strengthening of regional regulatory bodies** at the power pool level, many of which are already in place or emerging. Over time, and in

[17] Being an Independent Regulator, The Governance of Regulators, OECD, 2016
[18] The Governance of Regulators, OECD, 2014

alignment with regional integration objectives, consideration could be given to **fostering a structured coordination mechanism among national regulators**, or, eventually, **an independent AfSEM-wide regulatory function**, to provide oversight of regional tariffs and market rules. Any such structure should be designed to ensure impartiality and avoid undue influence from any single country or political cycle.

For instance, when adjustments to regional market fees are required to ensure cost recovery, decisions should be guided by transparent formulas and objective data, even if they involve difficult trade-offs. Supporting the independence of national regulators, consistent with AU and AfSEM framework guidelines, will also help ensure that regional fee structures are implemented consistently and shielded from short-term political pressures.

In practical terms, AfSEM could draw on international governance models such as **Europe's ACER** or structured regional associations elsewhere. One possible approach is the establishment of a **regional regulatory forum or committee**, comprising representatives of national regulators, mandated to act in the collective interest of the regional market. In such a structure, tariff decisions, such as cost allocation for interconnectors or the harmonization of fee methodologies, would be guided by technical assessments and the shared principles outlined in this chapter, rather than negotiated solely through bilateral or political channels.

A sustained commitment to regulatory independence would send a **strong signal to investors and market participants** that regional electricity market rules are stable, credible, and professionally overseen. It also reduces the risk that changes in national circumstances, such as shifts in government, might disrupt prior regulatory agreements. Instead, any necessary adjustments would be handled through structured, rules-based processes.

Moreover, regulatory independence reinforces **non-discrimination**: impartial regulators act as **neutral arbiters**, applying rules consistently across all participants, regardless of size or ownership structure. In this way, AfSEM's support for regulatory independence underpins and reinforces all the other core principles presented in this chapter, serving as a foundation for effective, trustworthy regional market governance.

2.6 User-Pays Principle

2.6.1 Definition and Rationale

The user-pays principle (also known as the beneficiary-pays principle) stipulates that **those who use a service or facility** (or those who directly benefit from it) **should bear the costs**.

In the context of electricity markets, this means **costs of the grid or market infrastructure should be allocated to the users of that infrastructure in proportion to their use or benefit**, rather than socialized indiscriminately.

The rationale is **both ethical and economic**. It is fair that one pays for what one uses, and it provides correct incentives by ensuring that parties weigh the true cost of what they consume. If users do not pay for what they use, it can lead to overuse or underinvestment.

For example, if cross-border transmission capacity is provided to enable trade, the traders or countries engaging in those transactions should cover the costs of building and maintaining that capacity (to the extent they have caused the need for it). The user-pays approach thereby complements cost-reflectivity and fairness, it helps avoid others (non-users) being forced to subsidize services from

which they derive no benefit. It is closely aligned with the "**cost causation**" principle common in utility regulation: costs should be assigned to those who cause them.

2.6.2 International Best Practices

The user-pays or beneficiary-pays principle is widely reflected in international regulatory frameworks.

In the **European Union**, it is clearly illustrated by the way costs of cross-border electricity interconnections are shared. For **Projects of Common Interest** (major cross-border transmission infrastructure) regulators allocate investment costs among participating countries based on an assessment of the quantified system benefits each is expected to receive, such as improved security of supply, congestion relief, and lower overall system costs

ACER and **CEER** have consistently promoted cost reflectivity and beneficiary-pays principles when setting network tariffs, emphasizing that this avoids cross-subsidies[19].

The **EU's inter-TSO compensation mechanism** provides a further illustration of the beneficiary-pays principle. Transmission system operators in countries whose grids host cross-border transit flows are compensated through a harmonized EU-wide mechanism, ensuring that the costs of transit are not borne by host countries alone, but shared among system users across the internal market. At national level, similar user-pays principles apply to network connections: for example, a large industrial customer or generator requiring a dedicated connection or network reinforcement is often required to bear the associated costs, rather than having them spread across all consumers.

In the **United States**, the **Federal Energy Regulatory Commission (FERC)** has established beneficiary-pays as a core principle for transmission investment. Under FERC Order No. 1000, the costs of new transmission facilities must be allocated in a manner that is at least roughly commensurate with the benefits received within a region. In practice, this has led regional transmission organizations to rely on power-flow modelling and benefit-cost analysis, such as congestion reduction, reliability improvements, and production cost savings, to determine how transmission costs are shared among beneficiaries[20].

The **OECD**, in general infrastructure policy, supports user-pays as it enhances efficient usage and can reduce the fiscal burden on governments (provided equity concerns are addressed separately).

Academic literature often cites the user-pays principle as a means to signal scarcity. As an example from another sector, pricing transport use according to marginal social cost sends efficient signals to users about the scarcity of infrastructure capacity and encourages more efficient use[21].

2.6.3 Application to AfSEM

The user-pays principle is highly pertinent for AfSEM as it evolves in a continent-wide power market. It provides a guiding logic for how regional costs can be shared. Under AfSEM, when deciding who should finance a new cross-border transmission project or who should pay a regional system operation fee, the default question should be: **who uses it or who benefits from it?** Those entities

[19] Position Paper on the Key Regulatory Requirements to Achieve Gas Decarbonisation, ACER/CEER, December 2021
[20] Making beneficiaries pay for new power lines is fair strategy, L. Reiley, Cornell Chronicle, 2024
[21] Among others Congestion Theory and Transport Investment, W. S. Vickrey, The American Economic Review, Vol. 59, No. 2, Papers and Proceedings of the Eighty-first Annual Meeting of the American Economic Association, May 1969

(be they countries, utilities, or generators) identified as main beneficiaries should shoulder the corresponding fees.

For example, if a new interconnector between two countries A and B is built primarily to allow Country A's excess power to flow to Country B (improving B's supply and allowing A to sell more), then under user-pays, A and B would bear the project's costs, not other countries that are not using that line. This principle would prevent scenarios where, say, a third country C has to contribute to a line from which it gets no electricity, which would be seen as unfair and would likely face resistance.

In practice, implementing user-pays in AfSEM means developing a framework for **cost allocation** of regional investments and for **charging mechanisms** of regional services. AfSEM can take inspiration from the EU's cross-border cost allocation rules: establish criteria to evaluate benefits (like savings in generation costs, reliability improvements, or reduced losses) for each involved party in a project, and allocate costs accordingly. Similarly, for ongoing operational levies, such as a regional market operator fee, AfSEM might charge each member country or participant proportionally to their share of market transactions (i.e., heavier users of the market pay more of the common costs). This ensures that someone who rarely trades in the regional market is not paying the same as a large trader who uses the market platform extensively.

Moreover, user-pays can **guide pricing of access to the regional grid**. If a utility in Country X uses the transmission system of Country Y to wheel power to Z, a user-pays approach would have the utility (or Country X) compensate Country Y's grid operator for that usage.

AfSEM could formalize this through an **inter-TSO compensation mechanism** akin to Europe's, so that no grid is uncompensated for hosting transit flows. The outcome of user-pays is that each participant pays in line with what they use, reinforcing both fairness and efficient usage of the network. It also discourages "free-riding" and overuse. If, for instance, a country knows that drawing a lot of emergency power from neighbors will come with costs attached, it will weigh those in its planning (perhaps investing in its own reliability or purchasing appropriate reserves).

One consideration for AfSEM is that while user-pays is the general rule, there may be **strategic cases for exceptions**. For example, if a certain backbone interconnector is deemed to benefit the entire region (like a continental backbone), the costs might be broadly spread. However, even in such cases**, transparency about the rationale is needed**.

Overall, by adopting the user-pays principle, AfSEM sets a clear expectation: those who use the regional market and grid should finance it. This will not only appear fundamentally fair, but it is also likely to **encourage the most efficient projects to move forward** (because if a project's costs would fall on the would-be beneficiaries and they are unwilling to pay, that's a signal the project's value is questionable).

2.7 Summary and Applicability of Principles

2.7.1 Summary of Principles

The table below summarizes the key aspects of the guiding principles for the regional market levies and fees.

Principle	Definition	Rationale	International Best Practices	Application to AfSEM
Transparency	Openness and clarity in how levies and fees are calculated, approved, and applied, including disclosure of methodology and cost components	Builds trust, reduces disputes, enables stakeholder scrutiny, and improves predictability for market participants	EU Internal Electricity Market requires transparent tariff methodologies; CEER guidelines require publication of tariff structures and calculation methods; OECD promotes transparent regulatory decision-making	Clear publication of fee methodologies, consultation before changes, disclosure of eligible cost bases, and transparent approval procedures for regional charges
Cost-Reflectivity	Charges reflect the efficient costs of providing institutional services and are aligned with cost drivers	Ensures financial sustainability, avoids distortions, provides efficient price signals, and prevents structural under-recovery	Regulation (EU) 2019/943 requires tariffs to reflect costs; EU Inter-TSO Compensation mechanism aligns charges with cost causation; FERC Order 1000 applies beneficiary-pays and cost commensurability principles	Define institutional Revenue Requirement transparently; allocate costs using appropriate drivers (fixed, volumetric, or value-based); avoid cross-subsidization; ensure periodic true-up and cost verification
Proportionality and Fairness	Charges are allocated equitably, without undue discrimination, and calibrated to what is necessary for cost recovery	Prevents unjust burden-sharing, maintains legitimacy, and protects smaller or vulnerable participants from disproportionate impact	EU law requires non-discriminatory tariffs; CEER emphasizes avoidance of undue discrimination; cross-border cost allocation in EU based on proportional benefit assessment	Design differentiated participation categories where justified; avoid over-recovery; ensure that regional cost allocation reflects benefit or usage patterns; consider affordability impacts at national level
Stability and Predictability	Fee structures are consistent over time, changes are gradual and rule-based, and revenue recovery is not excessively volatile	Supports investment confidence, reduces regulatory risk, and enhances financial continuity of market institutions	EU multi-year regulatory periods; predictable tariff methodologies; OECD principles on regulatory certainty; structured tariff review cycles in mature markets	Use multi-year fee frameworks; combine fixed and variable modules to reduce volatility; implement transparent true-up mechanisms; avoid ad hoc changes in regional charges
Regulatory Independence	Oversight authorities operate autonomously from political or commercial influence and are financially secure	Ensures objective decision-making, protects against capture, strengthens credibility, and improves investor confidence	EU Third Energy Package and Clean Energy Package require independent regulators; OECD "Governance of Regulators" framework; ACER funding and programming governance mechanisms	Ring-fenced regulatory levies; clear mandates; separation between market operator and regulator funding; transparent budgeting and accountability processes at regional level
User-Pays Principle	Costs are borne by those who use or benefit from the service or infrastructure	Enhances fairness, aligns incentives, prevents free-riding, and promotes efficient resource allocation	EU cross-border cost allocation under Regulation 347/2013; EU Inter-TSO Compensation mechanism; FERC beneficiary-pays doctrine; cost-causation principle in utility regulation	Allocate institutional costs according to participation, traded volume, or transaction value; ensure beneficiaries of regional services finance them; avoid socializing costs across non-users without justification

Table 1: Summary of guiding principles for regional market levies and fees

2.7.2 Principles Applicability

The principles outlined in this Chapter are widely recognized in international regulatory practice. However, their **effective application** within AfSEM is **conditional**. Transferability from EU, OECD, or IEA frameworks cannot be presumed automatic; it depends on contextual readiness within African power pools and regional institutions.

It is important to clarify that a detailed **institutional readiness assessment** of each AfSEM region **is beyond the intended scope of this sub-activity**. The present work is conceived as a desk-based technical exercise focused on developing common principles, reference methodologies, and structured guidance for levy and fee design. It is not designed to conduct in-country missions, institutional audits, or comprehensive governance diagnostics.

Accordingly, this Chapter does not attempt to provide a granular assessment of compliance levels, enforcement capacity, or data maturity within individual power pools. Such analysis would require targeted institutional reviews, direct stakeholder engagement, and access to detailed operational information, which fall outside the mandate and timeframe of this activity. The Guidelines should therefore be understood as a **structured reference framework** intended to support regions in reflecting on their own level of readiness and, where appropriate, identifying areas for further institutional strengthening.

Nonetheless, it is worth noting that the applicability of the six principles described above requires, at minimum, **four enabling conditions**, which will strongly impact the effectiveness of their practical implementation, the credibility of the resulting levy and fee framework, and the long-term financial sustainability of AfSEM's regional market institutions.

The four enabling conditions are:

2.7.2.1 Institutional and governance capacity

International best practice frameworks, particularly those developed within the EU, assume the presence of:

- Legally established and functionally independent regulatory authorities;
- Clearly defined mandates for market operators and oversight bodies;
- Transparent budget approval processes;
- Established dispute resolution mechanisms;
- Credible enforcement capacity.

For example, the EU framework requires independent national regulatory authorities with defined powers over tariff methodologies and cross-border cost allocation. In the absence of comparable legal clarity or operational autonomy, the direct replication of such principles may risk remaining aspirational rather than effective.

As highlighted in the Stocktaking Report, within AfSEM, regional **institutional maturity differs across power pools**. Some regions possess functioning market platforms and emerging regional regulators; others remain in earlier stages of institutional consolidation. Consequently:

- Where regulatory independence is partial or evolving, ring-fenced levy mechanisms may strengthen autonomy but cannot substitute for governance reforms.

- Where enforcement tools are weak, cost-reflective fee frameworks may generate under-recovery risks if payment discipline is not supported by enforceable rules.

Transferability therefore presupposes, at minimum:

1. A legally recognized institutional entity responsible for fee-setting and oversight;
2. A defined approval process for revenue requirements;
3. A minimum level of financial governance and accountability.

Where these conditions are not fully met, phased or simplified approaches may be necessary.

2.7.2.2 Market maturity and liquidity

Many international fee models assume relatively mature and liquid markets. In the EU context, volumetric and ad valorem charges operate within systems characterized by:

- High trading volumes;
- Stable participation levels;
- Established settlement systems;
- Predictable transaction reporting.

In immature or low-liquidity markets, reliance on purely activity-based funding mechanisms can create **revenue volatility and financial instability** for market institutions.

Accordingly, the transferability of volumetric or value-based fee structures, which will be shown in the next chapter, depends on:

- Sufficient and reasonably predictable traded volumes;
- Adequate diversification of participants;
- Operational settlement systems capable of accurate transaction recording.

Where these conditions are weak, hybrid structures incorporating fixed components may be more appropriate during early phases of market development.

2.7.2.3 Data quality and financial transparency.

Cost-reflectivity and true-up mechanisms rely fundamentally on reliable data. International regulatory systems typically operate with:

- Audited financial statements;
- Accrual-based accounting;
- Standardised cost classifications;
- Verified transaction datasets;
- Independent audit functions.

Without minimum data governance standards, the implementation of **revenue requirement formulas** and adjustment mechanisms risks becoming **opaque or contested**.

Transferability therefore requires:

- A minimum dataset for traded volumes and transaction values;

- Transparent accounting of eligible costs;
- Periodic external audit or independent validation mechanisms.

In contexts where data systems remain under development, simplified cost allocation approaches may be necessary, alongside capacity-building measures.

2.7.2.4 Legal and Enforcement Capacity

International best practice assumes credible enforcement. Cost-reflective tariffs or user-pays principles are effective only when non-compliance carries consequences.

In mature markets, enforcement may include:

- Financial penalties;
- Suspension of market access;
- Mandatory guarantees or collateral;
- Judicial review mechanisms.

In AfSEM, **enforcement capacity varies significantly across jurisdictions**. Therefore, before transferring advanced fee mechanisms, consideration should be given to:

- The existence of enforceable contractual frameworks;
- Dispute resolution procedures at regional level;
- Mechanisms to manage payment arrears and default risk.

Where enforcement is limited, safeguards such as phased implementation, revenue floors, or minimum contribution mechanisms may be required.

As a final note, it is important to recognize that the full implementation of all principles may not be simultaneous across regions. In some Power Pools, priority may need to be given first to strengthening accounting discipline, enforcement mechanisms, or budget transparency before introducing more sophisticated activity-based allocation models. The principles should therefore be understood as an ending point, with phased implementation pathways tailored to regional readiness.

3 Financial Design Options

This chapter provides **design options for institutional levies and fees** that finance regional electricity market institutions within the African Single Electricity Market (AfSEM).

The focus is strictly on charges whose primary purpose is to recover the costs linked to **(i) Market Operator functions** (e.g., trading platform administration, scheduling/settlement, data and IT operations), to **(ii) Regulatory Oversight and Market Integrity functions** (monitoring, compliance, investigations, dispute resolution), and to **(iii) Governance and coordination functions** (rule development, stakeholder processes, committees, documentation, and coordination functions).

These institutional charges are distinct from network tariffs and physical grid cost recovery. The practical dividing line is not the unit of charging (which may be fixed, per participant, per MWh traded, or a percentage of transaction value), but the **economic purpose and cost base**:

- **Institutional levies and fees** are triggered by participation in, or access to, regional markets and are justified by institutional cost recovery (rules, governance, cost allocation, auditing).
- **Network tariffs** are triggered by physical grid usage and are justified by network cost recovery (e.g., RAB/WACC, losses, engineering-economic modelling). These are explicitly outside the scope of this chapter.

This separation is not merely conceptual, as it is a **governance safeguard against double charging**. International market governance frameworks increasingly require that market-coupling and market-operation costs be separately identifiable and auditable, reinforcing the logic that institutional costs should not be bundled invisibly into unrelated charges. For example, EU market-coupling cost reporting under the CACM framework emphasises that costs directly related to coupling activities must be "clearly and separately identified and auditable"[22].

For AfSEM, where regional market integration is a policy objective of the African Union and its Member States, a clear institutional-fee framework helps ensure the market is not only technically operable but also **financially sustainable, credible, and trusted**. AfSEM's policy framing emphasizes harmonization at national, regional and continental levels, under the African Union Commission's coordination role, which in turn implies the need for consistent funding models for the institutions that make such harmonization workable[23].

Finally, the Revenue Requirement structure and formula templates presented in this Chapter reflect international good practice in institutional cost recovery. It is acknowledged that not all Power Pools currently operate with fully disaggregated cost accounting or structured true-up mechanisms. The introduction of such frameworks may therefore require **phased institutional strengthening**, including standardized cost classification, independent audit processes, and formal budget approval cycles.

[22] CACM Cost Report of 2024, NEMO Committee, ENTSO-E, June 2025
[23] Towards an African Single Electricity Market – AfSEM, Policy Paper and Roadmap 2040, EU Technical Assistance Facility (TAF) for Sustainable Energy, AUC, November 2021

3.1 Defining the Institutional Revenue Requirement

Effective institutional cost recovery begins with a defined **revenue requirement**, meaning **a quantified amount that must be recovered from market participants (or related fee-paying entities) to fund eligible institutional functions**.

In institutional fee design, "cost-reflectivity" should be understood as **institutional cost-reflectivity**. This means that charges reflect the efficient costs of providing market-operation and regulatory services, not the physics of network usage.

3.1.1 Revenue Requirement (RR)

For a given year *t*, the **Revenue Requirement (RR)** of an institution may be defined as:

$$RR_t = (EC_t^{MO} + EC_t^{REG} + EC_t^{GOV}) + Cont_t + Adj_t - OR_t$$

Formula 1: Revenue requirement

Where:

- EC_t^{MO}= **eligible costs** for **Market Operator functions**
- EC_t^{REG}= **eligible costs** for **Regulatory Oversight and Market Integrity functions**
- EC_t^{GOV}= **eligible costs** for **Governance and Coordination functions**
- $Cont_t$= approved **contingency** / reserve contribution
- Adj_t= prior-year **true-up adjustment** (under/over-recovery + audit adjustments)
- OR_t= **other revenues** credited against fees (e.g., earmarked grants, interest income, penalties if policy says net-off)

In other words, the "budget-to-fee" revenue requirement is **approved eligible costs, plus governed adjustments, minus other income**.

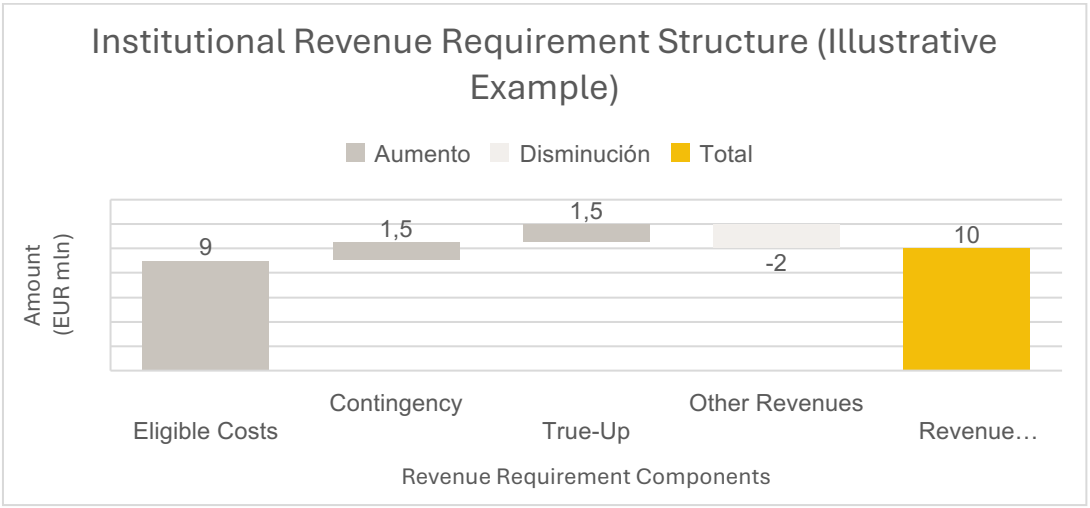

Figure 1: Revenue Requirement structure (illustrative example)

3.1.2 Eligible Costs

For each function, eligible costs are usually the following:

A. **Market Operator functions** (EC_t^{MO}): market administration, trading systems, bid/offer processing, scheduling interfaces, settlement, collateral/credit support processes (where relevant), publication of market information, reporting and data governance, IT maintenance and cybersecurity, and customer/participant support.

B. **Regulatory Oversight and Market Integrity functions** (EC_t^{REG}): market monitoring, surveillance, compliance verification, investigations, dispute resolution processes, rule enforcement, and periodic audits.

C. **Governance and Coordination functions** (EC_t^{GOV}): rule drafting, stakeholder consultation, committees, documentation management, training and capacity-building that is directly tied to market functioning.

The EU's **institutional-fee scheme for ACER's REMIT tasks** provides an instructive benchmark for how eligible institutional costs can be framed. The **Commission Decision (EU) 2025/1771** links fee eligibility to ACER's programming and financial governance, describing the agency's programming document as the "appropriate tool" to identify costs eligible to be covered by fees and requiring transparency about revenue sources and their use[24].

Such institutional framing is directly relevant to AfSEM. Fee schemes should be tied to an approved work program/budget and demonstrably connected to eligible institutional tasks.

Each eligible-cost block is best defined as:

$$\boxed{EC_t^X = OPEX_t^X + CAPEX_{ann,t}^X + Pass_t^X}$$

Formula 2: Eligible costs

for $X \in \{MO, REG, GOV\}$

whereas:

3.1.2.1 Eligible OPEX (annual operating expenditure)

OPEX includes staff costs, IT operations, professional services, administrative overheads, and other recurring expenses:

$$\boxed{OPEX_t^X = HR_t^X + IT_{ops,t}^X + Prof_t^X + Admin_t^X + Ops_t^X}$$

Formula 3: Eligible OPEX

Typical line items:

- HR_t^X: **staff costs** (salaries, benefits, training directly linked to market functioning)
- $IT_{ops,t}^X$: **IT operations** (licenses, hosting, maintenance, cybersecurity OPEX)
- $Prof_t^X$: **professional services** (legal, audit, specialist advisory, forensic/market monitoring tools)
- $Admin_t^X$: **admin overheads** (finance, procurement, HR support, office running costs)
- Ops_t^X: **operational costs** (stakeholder consultation events, publications, participant support, committee logistics)

[24] Commission Decision (EU) 2025/1771

These costs should reflect **efficient operation**, not historical spending patterns, and should be subject to review during fee approval.

3.1.2.2 Eligible CAPEX annualization

Only **institutional systems** (e.g. software platforms, monitoring tools, data systems) are eligible. CAPEX should be annualized through depreciation or amortization over approved asset lives.

A straightforward annualization template (no return on capital required) is:

$$CAPEX^{X}_{ann,t} = \sum_{i \in Assets^{X}} \frac{CAPEX^{X}_{i,t}}{Life_i} + \sum_{j \in ExistingAssets^{X}} Dep^{X}_{j,t}$$

Formula 4: Eligible CAPEX annualization

Where:

- $CAPEX^{X}_{i,t}$= new eligible IT/system investment in year t
- $Life_i$= approved economic life (e.g., 3–7 years for software/IT, depending on asset type)
- $Dep^{X}_{j,t}$= depreciation/amortisation of existing eligible institutional assets

3.1.2.3 Pass-through costs

Pass-through items include statutory audits or mandatory external systems imposed by law. These should be explicitly identified and justified to preserve transparency:

$$Pass^{X}_{t} = \text{Audits}_t + \text{Statutory fees}_t + \text{Mandatory platforms/tools}_t$$

Formula 5: Pass-through costs

These are costs the institution cannot reasonably control (e.g., statutory external audit, mandated reporting platforms), but they must still be **eligible and justified**.

3.1.3 Contingency / Reserve Contribution

A limited contingency may be included to address unforeseen but plausible operational risks. Such provisions should be modest, explicitly capped, and subject to ex-post review to prevent accumulation of hidden reserves.

Calculation should be the following:

$$Cont_t = \beta \cdot (EC^{MO}_t + EC^{REG}_t + EC^{GOV}_t)$$

Formula 6: Contingency / Reserve

- β= approved contingency rate (e.g., 0–5% depending on maturity and risk; the exact number is a policy choice)
- Or, alternatively, set as a fixed amount with justification and cap.

3.1.4 True-Up Adjustment

True-ups reconcile forecast budgets with audited actuals:

$$Adj_t = (ActualCost_{t-1} - ActualRevenue_{t-1}) + AuditAdj_{t-1}$$

Formula 7: True-up adjustment

This mechanism ensures that any under- or over-recovery in one regulatory period is corrected in the subsequent period. If actual costs exceed revenues collected, the shortfall is incorporated into the following year's Revenue Requirement. Conversely, if revenues exceed eligible costs, the surplus is returned to participants through a downward adjustment.

The inclusion of a structured true-up mechanism is central to cost-recovery credibility. It guarantees that the institutional funding framework remains strictly cost-based over time, as it prevents the accumulation of hidden surpluses or structural deficits.

Important note: *The effectiveness of a true-up mechanism depends on* ***credible enforcement of payment obligations****. Where regional contractual frameworks or sanction mechanisms remain under development, Power Pools may initially combine the true-up mechanism with payment safeguards such as advance invoicing, collateral requirements, minimum annual contributions, or late-payment penalties. Without such safeguards, reconciliation mechanisms risk becoming a purely formal exercise without financial effect.*

3.1.5 Other revenues to net off (policy choice, but define it)

Other revenues, such as earmarked grants or interest income, may be credited against fees where they directly finance eligible activities:

$$OR_t = Grants_t^{earmarked} + Interest_t + OtherIncome_t$$

Formula 8: Other revenues

As a note, **earmarked grants** reduce fees *only if* they finance eligible functions and are predictable; otherwise they can be treated as separate financing and not netted off.

3.2 Recovering the Institutional Revenue Requirement through Levies and Fees: A Modular Approach

Once the institutional revenue requirement has been defined and the eligible cost base clearly established, the next step is to determine **how that revenue requirement is recovered in practice through levies and fees**.

In a regional market as large and heterogeneous as AfSEM, **this step cannot be approached through a single, prescriptive charging model**. Power pools across Africa differ significantly in terms of market maturity, trading volumes, institutional capacity, legal frameworks, and the composition of market participants. As a result, a uniform fee structure applied indiscriminately across all regions would risk being either impractical or inequitable.

To address this diversity, AfSEM should adopt a **modular approach to levy and fee design**. Rather than prescribing one mandatory fee system, these Guidelines define a set of standardized, interoperable fee modules, each designed to recover a specific portion of the institutional revenue requirement. Power pools and regional institutions may then select, combine, and calibrate these modules according to their own circumstances, while remaining fully aligned with AfSEM principles of transparency, cost-reflectivity, proportionality, and regulatory independence.

Under this approach, the institutional revenue requirement serves as the common anchor. Each module represents a mechanism through which a defined share of that requirement is recovered, using an explicit allocation base (such as participation, transaction volume, or transaction value).

The choice of modules determines how costs are shared among market participants, but does not alter the underlying obligation to recover only eligible institutional costs. This ensures consistency of purpose across AfSEM, even where implementation differs.

The modular approach also supports **gradual market development**. Emerging or low-liquidity markets may initially rely more heavily on fixed participation fees or member contributions, ensuring predictable funding of core institutional functions. As markets deepen and transaction volumes increase, power pools may progressively shift toward activity-based modules that allocate costs more closely in proportion to market use. In this way, fee structures can evolve over time without requiring fundamental redesign or renegotiation of principles.

Importantly, the modular framework preserves a clear boundary between institutional cost recovery and network tariff design. All modules presented in this chapter relate exclusively to the financing of market operation, regulatory oversight, and governance functions. They do not price physical use of transmission infrastructure, nor do they rely on engineering-based allocation methods.

In the sections that follow, the Guidelines present the available fee modules, describe their intended purpose, identify suitable allocation bases, and provide high-level formula templates. Together, these modules provide AfSEM power pools with a flexible yet disciplined toolkit for recovering institutional costs in a manner that is locally appropriate, regionally consistent, and aligned with international regulatory good practice.

3.2.1 Module A: Fixed Participation / Membership Fee

3.2.1.1 Purpose and rationale

A **fixed participation** or **membership fee** constitutes one of the most established and widely used mechanisms for financing regional market institutions.

Its primary function may be to **recover the portion** of the institutional Revenue Requirement **that does not vary with trading activity, transaction volume, or price movements**. These are the costs that must be incurred simply to ensure that the regional market exists, operates within a coherent governance structure, and maintains regulatory oversight, regardless of whether trading volumes are high or low.

Regional electricity markets require a standing institutional architecture. Even in periods of limited liquidity or market stress, the market operator must maintain its trading systems, cybersecurity infrastructure, and settlement capabilities. The regional regulator must continue monitoring compliance, enforcing rules, and maintaining market integrity. Governance bodies must convene, rules must be updated, documentation must be maintained, and transparency obligations must be fulfilled. These baseline costs are **not discretionary** and **do not fluctuate in direct proportion to market activity**. For this reason, relying exclusively on activity-based levies would expose the institution to revenue instability and potentially undermine its operational continuity.

The fixed participation fee therefore provides a **stable financial foundation**. It ensures that a defined share of institutional costs is recovered predictably and independently of short-term market dynamics. This stability is particularly important in the **early stages of market development**, when traded volumes may be uncertain or uneven across power pools. By anchoring part of the revenue

requirement in fixed contributions, AfSEM institutions may reduce the risk of under-recovery during low-liquidity periods and avoid excessive fee volatility when market activity fluctuates.

From a regulatory perspective, the fixed participation fee is closely aligned with the principles set out in Chapter 1. It promotes stability and predictability by establishing a known, ex ante annual contribution. It enhances transparency because the amount is determined directly from the approved fixed portion of the institutional budget. It supports cost-reflectivity at the institutional level, insofar as it recovers clearly defined baseline governance and administrative costs. Finally, when appropriately structured, it respects proportionality by allowing for differentiated contributions across participant categories where justified.

3.2.1.2 Allocation logic

The portion of the Revenue Requirement allocated to the fixed module should correspond to **costs that are demonstrably independent of market usage**. This typically includes governance and coordination functions, core regulatory oversight capacity, baseline administrative overhead, and essential IT and cybersecurity infrastructure that must be maintained irrespective of trading volumes. In practice, the approved budget should clearly identify this fixed component and justify its allocation.

Where **all eligible participants are treated equally**, the fixed participation fee can be determined through a straightforward division of the allocated revenue requirement by the number of participants:

$$Fee_t^{member} = \frac{RR_t^{fixed}}{N_t}$$

Formula 9: Fixed participation fee (equal treatment of all participants)

where:

- RR_t^{fixed} = **portion** of the Revenue Requirement **designated for recovery through fixed contributions** in year t
- N_t = **number of eligible participants** in year t

Each participant pays the same annual amount. This approach is administratively simple and offers maximum predictability.

In larger and more diverse markets, however, **strict equality may not always satisfy proportionality considerations**. Utilities, large traders, and small market entrants may differ significantly in scale and financial capacity.

In such cases, the fixed component may be allocated across **participant categories**, with each category bearing a defined share of the fixed revenue requirement:

$$Fee_{k,t}^{member} = \frac{RR_{k,t}^{fixed}}{N_{k,t}}$$

Formula 10: Fixed participation fee (participant categories)

Were:

- k = **participant class**
- $RR_{k,t}^{fixed}$ = **portion of fixed costs allocated to that class**
- $N_{k,t}$ = number of participants within the class considered

This preserves the stability advantages of the fixed module while **improving fairness** across heterogeneous market actors.

It is important to emphasize that the fixed participation fee **should not be designed in isolation**. In most AfSEM contexts, it will operate within a hybrid structure combining fixed and variable components. The fixed module provides a revenue floor and institutional continuity; the variable modules ensure that costs are shared in proportion to market activity. Together, they create a balanced and resilient cost-recovery architecture.

3.2.1.3 Example

Assume:

- Total Revenue Requirement (RR) = EUR 12 million
- Fixed portion allocated = EUR 5 million
- Variable portion allocated = EUR 7 million
- Number of eligible participants = 25

Equal participation model

$$Fee^{member} = 5{,}000{,}000/25 = 200{,}000 \text{ EUR per participant per year}$$

Each participant pays USD 200,000 annually as a fixed contribution.

The remaining USD 7 million would then be recovered through activity-based modules (e.g., per MWh or ad valorem fees).

Participation categories model

Participants are divided into three categories reflecting differences in scale and market role:

Category	Description	Number of Participants
Category A	Large utilities / dominant market participants	5
Category B	Medium utilities / active traders	10
Category C	Small traders / IPPs / limited participants	10
Total		**25**

Step 1 – Allocate the fixed portion across categories

Suppose AfSEM (or the relevant power pool) determines the following allocation weights for proportionality:

- Category A: 50% of fixed RR
- Category B: 30% of fixed RR
- Category C: 20% of fixed RR

This reflects the assumption that larger participants derive greater structural benefit from the existence of the market and have greater financial capacity.

Thus:

- Category A share = 50% × 5,000,000 = USD 2,500,000

- Category B share = 30% × 5,000,000 = USD 1,500,000
- Category C share = 20% × 5,000,000 = USD 1,000,000

Step 2 – Calculate the fixed fee per participant in each category

Category A (5 participants):

$$2{,}500{,}000/5 = 500{,}000 \text{ USD per participant}$$

Category B (10 participants):

$$1{,}500{,}000/10 = 150{,}000 \text{ USD per participant}$$

Category C (10 participants):

$$1{,}000{,}000/10 = 100{,}000 \text{ USD per participant}$$

Each participant contributes according to its category, and the full USD 5 million fixed portion of the RR is recovered.

The remaining USD 7 million would then be recovered through one or more activity-based modules (e.g., per MWh traded or ad valorem transaction fees), ensuring that costs linked to market usage are allocated proportionally to activity.

3.2.2 Module B: Volumetric Market Administration Fee (per MWh Traded)

3.2.2.1 Purpose and rationale

The **volumetric market administration fee** is intended to **recover the portion of the Revenue Requirement that varies with the level of market activity**. Whereas the fixed participation fee secures the financial base required for governance, baseline oversight, and structural administration, the volumetric fee allocates costs in **proportion to actual use** of the regional market platform.

In practical terms, a significant share of market-operator costs is directly linked to the number and size of transactions processed. Settlement systems must handle larger data volumes when trading increases. Scheduling interfaces must process more nominations. Reporting and monitoring systems scale with activity. IT systems must support higher transaction loads. The workload of operational teams rises in line with market participation intensity. It is therefore reasonable, under the principles of proportionality and institutional cost-reflectivity, that **participants who trade more electricity contribute more** toward the costs of operating the market.

The volumetric fee expresses this principle in a straightforward way: costs are allocated according to the **number of megawatt-hours** traded through the regional platform. It is important to emphasize that the megawatt-hour unit is used here purely as an administrative allocation key. The fee does not price physical transmission use, does not reflect network congestion, and does not recover infrastructure costs. Its sole function is institutional cost recovery.

Because it links cost recovery to market usage while remaining simple and transparent, the volumetric approach is widely used in electricity markets globally. It integrates easily into settlement systems, is predictable for participants, and scales naturally as markets mature.

3.2.2.2 Allocation logic

Once the Revenue Requirement has been divided into fixed and variable components, the portion designated for activity-based recovery is assigned to the volumetric module.

The volumetric fee rate is determined by dividing the allocated revenue requirement by the forecast total traded energy:

$$Fee_t^{MWh} = \frac{RR_t^{variable}}{E_t}$$

Formula 11: Volumetric market administration fee

Were:

- $RR_t^{variable}$ = **portion** of the Revenue Requirement **designated for recovery through variable contributions** for year *t*
- E_t, total eligible **electricity trade expressed in megawatt-hours** for year *t*

Each participant's charge is then calculated by multiplying this rate by the participant's own traded volume during the period:

$$Charge_{i,t} = Fee_t^{MWh} \times E_{i,t}$$

Formula 12: Participant's charge with volumetric fee

Where:

- $E_{i,t}$= MWh traded by participant *i* in year *t*.

In practice, the fee rate is typically calculated using **forecast volumes** at the beginning of the period. At the end of the year, any difference between forecast and actual traded energy is reconciled through the **adjustment mechanism** described earlier, ensuring that total revenues match the approved revenue requirement over time.

3.2.2.3 Example

Assume:

- Total Institutional Revenue Requirement (RR) = EUR 12 million
- Fixed portion allocated = EUR 5 million
- Variable portion allocated (to volumetric module) = EUR 7 million
- Total forecasted traded energy = 140,000 GWh

Convert traded energy into MWh:

$$140{,}000 \text{ GWh} = 140{,}000{,}000 \text{ MWh}$$

Step 1 – Calculate the volumetric fee rate

$$Fee^{MWh} = \frac{7{,}000{,}000}{140{,}000{,}000}$$

$$Fee^{MWh} = 0.05 \text{ EUR per MWh}$$

Step 2 – Calculate charges per participant

Assume three illustrative participants:

Participant	Annual Traded Volume (MWh)
Utility A	70,000,000
Utility B	50,000,000
Utility C	20,000,000
Total	**140,000,000**

Charges:

Utility A:

$$70{,}000{,}000 \times 0.05 = 3{,}500{,}000 \text{ EUR}$$

Utility B:

$$50{,}000{,}000 \times 0.05 = 2{,}500{,}000 \text{ EUR}$$

Utility C:

$$20{,}000{,}000 \times 0.05 = 1{,}000{,}000 \text{ EUR}$$

Participants contribute in direct proportion to their trading activity.

3.2.3 Module C: Ad Valorem Transaction Levy (Percentage of Transaction Value)

3.2.3.1 Purpose and rationale

The **ad valorem transaction levy** is an activity-based fee module through which a defined portion of the Revenue Requirement is recovered as a **percentage of the monetary value of transactions** executed in the regional market. Unlike the volumetric fee, which allocates costs according to physical energy quantities traded (MWh), the ad valorem approach allocates costs in proportion to the **commercial value** of those trades.

This module reflects the principle that **participants who generate greater economic value** through the market platform **derive proportionally greater benefit** from its existence and functioning. The institutional infrastructure (trading systems, settlement engines, compliance monitoring, reporting frameworks, and governance arrangements) enables transactions to occur securely and transparently. Where market prices are high and transaction values increase, the economic scale of activity supported by the institution correspondingly increases. An ad valorem levy captures this dimension of market use.

In practice, this approach is widely used in **exchange-based electricity markets** and other financial markets, where transaction-value-based fees are standard. It integrates seamlessly into settlement systems, as transaction values are already computed for clearing and invoicing purposes. As with the volumetric fee, it is essential to emphasize that the ad valorem levy does not price physical transmission use and does not recover network infrastructure costs. It is purely an institutional cost-recovery mechanism.

The ad valorem approach is particularly suitable in markets **where price volatility is significant**, or where policymakers consider it appropriate that contributions reflect not only traded volume but also the economic magnitude of activity.

Important note: *The ad valorem module presupposes* ***reliable transaction-value recording****,* ***automated settlement systems****, and* ***transparent reporting of cleared prices****. In Power Pools where such systems are still developing, the introduction of value-based levies should be preceded by settlement system consolidation and independent data validation capacity. Premature implementation may generate disputes or revenue volatility.*

3.2.3.2 Allocation logic

The ad valorem rate is determined as:

$$\alpha_t = \frac{RR_t^{value}}{V_t}$$

Formula 13: Ad valorem fee

Where:

- RR_t^{value} = **portion allocated to value-based recovery** in year *t*
- V_t = **total forecast transaction value** in year *t*, i.e. the aggregate monetary value of all eligible transactions executed through the regional market during the period.

As with the volumetric module, forecast transaction values are typically used to set the rate at the beginning of the period. Deviations between forecast and actual values are reconciled through the standard true-up adjustment mechanism in subsequent periods.

3.2.3.3 Example

Assume:

- Total Institutional Revenue Requirement (RR) = EUR 12 million
- Fixed portion allocated = EUR 5 million
- Variable portion allocated to ad valorem module = EUR 7 million

Assume total forecast transaction value for the year across all market participants is:

$$V_t = 10 \text{ billion EUR}$$

Step 1 – Calculate ad valorem rate

The rate is determined as:

$$\alpha = \frac{7{,}000{,}000}{10{,}000{,}000{,}000}$$

$$\alpha = 0.0007$$

This corresponds to:

$$\alpha = 0.07\%$$

The ad valorem levy is therefore set at 0.07% of transaction value.

Step 2 – Calculate charges per participant

Assume the total EUR 10 billion transaction value is distributed as follows:

Participant	Annual Transaction Value (EUR)
Utility A	4,000,000,000
Utility B	3,000,000,000
Utility C	1,000,000,000
Other Participants (combined)	2,000,000,000
Total	**10,000,000,000**

Charges are calculated as:

Utility A:

$$4{,}000{,}000{,}000 \times 0.0007 = 2{,}800{,}000 \text{ EUR}$$

Utility B:

$$3{,}000{,}000{,}000 \times 0.0007 = 2{,}100{,}000 \text{ EUR}$$

Utility C:

$$1{,}000{,}000{,}000 \times 0.0007 = 700{,}000 \text{ EUR}$$

Other Participants (combined):

$$2{,}000{,}000{,}000 \times 0.0007 = 1{,}400{,}000 \text{ EUR}$$

The full EUR 7 million variable portion of the Revenue Requirement is therefore recovered through the ad valorem module.

3.2.4 Module D: Ring-Fenced Regulatory Oversight Levy

3.2.4.1 Purpose and rationale

A **ring-fenced regulatory oversight levy** is a dedicated funding mechanism designed to **recover** the portion of the Revenue Requirement attributable specifically to **regional regulatory functions**. Unlike market operator costs (which relate primarily to platform operation, settlement, and transaction processing) regulatory costs concern **oversight, compliance, enforcement, rule development, and market integrity**.

The rationale for separating regulatory funding from general market administration fees is twofold.

- First, it reinforces **regulatory independence**. International best practice, including OECD guidance and EU regulatory frameworks, consistently emphasizes that regulators should have secure and predictable funding sources that are insulated from political discretion and from operational dependencies on market operators. A clearly identified regulatory levy, ring-fenced and transparently accounted for, strengthens institutional autonomy and credibility.

- Second, ring-fencing enhances **transparency and accountability**. Market participants are able to see clearly what portion of their contributions finances regulatory oversight, and regulatory authorities are required to demonstrate that funds are used exclusively for eligible oversight functions. This clarity supports trust in the governance of the regional market.

Eligible costs typically recovered through this levy include:

- Market surveillance and monitoring systems
- Compliance verification and investigations
- Dispute resolution mechanisms
- Regulatory reporting and transparency obligations
- Periodic audits
- Regulatory analysis and impact assessments
- Rule development and amendments directly linked to market oversight

It is important to reiterate that this levy does not finance network infrastructure, system operation, or commercial trading services. It is strictly limited to regulatory oversight and governance functions.

In regional markets worldwide, including in the European Union, regulatory levies are commonly structured either as fixed annual contributions, as activity-based charges, or as hybrid mechanisms. The defining characteristic is not the allocation base, but the fact that the revenue is **earmarked exclusively for regulatory purposes**.

3.2.4.2 Allocation logic

Earlier, the overall institutional Revenue Requirement was defined as:

$$\boxed{RR_t = (EC_t^{MO} + EC_t^{REG} + EC_t^{GOV}) + Cont_t + Adj_t - OR_t}$$

Where the eligible cost base is structured into market-operator functions, regulatory oversight functions, and governance functions.

If the Revenue Requirement is disaggregated into funding modules, the component allocated to regulatory oversight must correspond to the regulatory cost block within this formulation. The portion of the Revenue Requirement recovered through the ring-fenced regulatory levy may therefore be expressed as:

$$RR_t^{REG}$$

In the simplest and most transparent configuration, absent contingency provisions, prior-period adjustments, or earmarked offsetting revenues, this component should be defined as:

$$\boxed{RR_t^{REG} = EC_t^{REG}}$$

This formulation ensures a direct and auditable correspondence between the approved eligible regulatory cost base and the amount recovered through the regulatory levy.

Where adjustments, contingencies, or earmarked revenues apply, the regulatory revenue requirement may be expressed more fully as:

$$RR_t^{REG} = EC_t^{REG} + Cont_t^{REG} + Adj_t^{REG} - OR_t^{REG}$$

Formula 14: Revenue requirement for the regulatory component

Regardless of the precise formulation, the defining principle remains that the ring-fenced regulatory levy must recover no more and no less than the approved costs of performing regional oversight functions.

Such a structure ensures:

- The absence of cross-subsidization between market operation and regulatory activities;
- The avoidance of hidden margins or discretionary surpluses;
- The protection of regulatory funds from diversion to operational purposes.

The ring-fenced regulatory levy may be implemented through different allocation bases, depending on market structure and policy preference.

Three common approaches are:

Option A – Fixed regulatory levy

Where regulatory oversight is considered largely independent of transaction volume, the levy may be allocated equally (or by participant category):

$$Levy_t^{REG} = \frac{RR_t^{REG}}{N_t}$$

Formula 15: Fixed regulatory levy

Where:

- N_t= number of eligible regulated entities.

Each participant pays an equal annual regulatory contribution.

Also in this case, the fixed component may be distributed across **participant categories**, with each category assigned a defined share of the fixed revenue requirement, in line with the approach described under Module A.

Option B – Activity-based regulatory levy (per MWh)

Where regulatory workload scales with market activity, the levy may be allocated proportionally to traded energy:

$$Levy_t^{REG} = \frac{RR_t^{REG}}{E_t}$$

Formula 16: Activity-based regulatory levy

Each participant's charge is:

$$Charge_{i,t}^{REG} = Levy_t^{REG} \times E_{i,t}$$

Formula 17: Participant's charge with activity-based regulatory levy

Option C – Ad valorem regulatory levy

Alternatively, the regulatory levy may be expressed as a percentage of transaction value:

$$\alpha_t^{REG} = \frac{RR_t^{REG}}{V_t}$$

Formula 18: Ad valorem regulatory levy

Regardless of the chosen allocation base, the defining feature is that revenues collected under this module are **ring-fenced**, separately accounted for, and used exclusively to finance regulatory oversight functions.

The choice between fixed, volumetric, or value-based allocation for the regulatory levy should be guided by:

- The structure and maturity of the market;
- The variability of regulatory workload;
- Proportionality considerations;
- Administrative simplicity;
- The objective of maintaining regulatory independence and transparency.

In many regional markets, a fixed regulatory levy combined with activity-based market administration fees offers a balanced and stable funding structure. However, AfSEM's modular approach allows power pools to select the most appropriate configuration while maintaining ring-fencing and full cost recovery.

3.3 Decision Framework for Selecting the Appropriate Combination of Fee Modules

The modular architecture presented above is intentionally flexible. However, flexibility alone does not guarantee coherent implementation. In order to avoid arbitrary or inconsistent choices across regions, AfSEM institutions should apply a **structured decision logic** when selecting and calibrating the combination of fee modules.

This section introduces a practical decision framework, structured as a **module decision matrix**, to guide power pools and regional institutions in choosing an appropriate mix of:

- Module A: Fixed Participation Fee
- Module B: Volumetric Fee (per MWh traded)
- Module C: Ad Valorem Levy (percentage of transaction value)
- Module D: Ring-Fenced Regulatory Levy

The framework is based on five key contextual variables:

1. Market liquidity
2. Price volatility
3. Number and diversity of participants
4. Institutional maturity
5. Billing and settlement capacity

These variables do not determine a single “correct” solution. Rather, they shape which module combinations are likely to be financially stable, proportionate, and administratively feasible.

3.3.1 Assess Market Liquidity

Indicator: Annual traded volume, number of transactions, consistency of trading activity.

- **Low liquidity / emerging market**
  - Trading volumes are irregular or concentrated among few actors.
  - Revenue from purely volumetric or ad valorem fees may fluctuate significantly.
  - Recommended structure:
    - Strong reliance on **Module A (Fixed Participation Fee)**
    - Limited or complementary use of Modules B or C
    - Regulatory costs recovered through Module D (preferably fixed)
- **Moderate liquidity**
  - Trading volumes are stable but not deeply diversified.
  - Hybrid structures become viable.
  - Recommended structure:
    - Combination of **Module A + Module B**
    - Regulatory levy may be fixed or partially activity-based.
- **High liquidity / mature market**
  - Large and diversified trading volumes.
  - Activity-based cost allocation improves proportionality.
  - Recommended structure:
    - Reduced fixed component
    - Stronger reliance on **Module B and/or Module C**
    - Regulatory levy may be aligned with activity levels.

Liquidity primarily determines the stability of activity-based revenue.

3.3.2 Assess Price Volatility

Indicator: Variability of average market clearing prices over time.

- **Low price volatility**
  - Volumetric fee (Module B) provides predictable recovery.
  - Ad valorem levy (Module C) is also stable but may not add significant allocative differentiation.
- **High price volatility**
  - Ad valorem levy (Module C) introduces revenue variability.

- If institutional budgets are fixed, strong reliance on Module C may amplify revenue uncertainty.
- In volatile environments:
  - Prefer **Module B (per MWh)** for stability, or
  - Introduce smoothing mechanisms (caps/floors, multi-year averaging).

Volatility primarily affects the suitability of Module C.

3.3.3 Assess Number and Diversity of Participants

Indicator: Number of active participants, presence of dominant utilities, diversity of transaction sizes.

- **Few dominant participants**
  - Equal fixed participation fees may create disproportionate burden on smaller actors.
  - Consider:
    - Categorized fixed fees (size-based tiers),
    - Stronger reliance on activity-based modules.
- **Large and diverse participant base**
  - Fixed fee may be modest and broadly distributed.
  - Activity-based modules enhance proportionality.

The greater the diversity of participants, the more relevant differentiated or activity-linked structures become.

3.3.4 Assess Institutional Maturity

Indicator: Governance clarity, budget approval processes, audit capacity, regulatory independence.

- **Early-stage institutional maturity**
  - Limited experience with complex cost allocation.
  - Prioritise simplicity and transparency.
  - Recommended structure:
    - **Module A (Fixed Fee)** as core anchor,
    - Simple, ring-fenced regulatory levy (Module D).
- **Intermediate maturity**
  - Stable accounting systems and approved revenue requirement process.
  - Hybrid structures feasible.
  - True-up mechanisms can be implemented.
- **Advanced maturity**
  - Strong audit systems, multi-year budgeting, transparent reporting.
  - Full modular architecture (A+B+C+D) can be calibrated with precision.

Institutional maturity determines the complexity that can be safely implemented.

3.3.5 Assess Billing and Settlement Capacity

Indicator: IT systems, transaction recording accuracy, invoicing automation, reconciliation procedures.

- **Limited billing capability**
  - Complex ad valorem calculation may create disputes.
  - Prefer fixed or volumetric modules.
  - Regulatory levy may be flat-rate.
- **Advanced settlement systems**
  - Capable of calculating transaction values automatically.
  - Ad valorem module becomes administratively viable.
  - True-up adjustments can be accurately implemented.

Administrative feasibility is a binding constraint on module selection.

3.3.6 Module Applicability Matrix

The matrix below synthesizes the decision logic developed in Section 3.3 into a consolidated overview of module suitability across different market and institutional conditions. It provides a structured cross-reference between the four levy modules (A–D) and the key contextual variables identified in the decision framework: market liquidity, price volatility, participant structure, institutional maturity, and billing and settlement capacity.

Each “X” indicates that a given module is considered acceptable and operationally feasible under the corresponding condition. The absence of an “X” does not imply prohibition, but rather signals that the module may introduce instability, administrative complexity, or disproportionate effects in that specific context.

The matrix, which should be interpreted as a practical guidance tool rather than a prescriptive rulebook, highlights the following structural insights:

- **Module A (Fixed Participation Fee)** serves as a **universal stability anchor** and remains applicable across all stages of development.
- **Module B (Volumetric Fee)** becomes appropriate once **minimum liquidity** and **institutional maturity** thresholds are reached.
- **Module C (Ad Valorem Fee)** has generally **high requirements** in terms of liquidity, diversified participation, advanced institutional maturity, and robust settlement systems.
- **Module D (Ring-Fenced Regulatory Levy)** is **structurally relevant in all contexts** to safeguard regulatory independence and financial sustainability. However, while its presence is broadly applicable, its design should mirror the same contextual considerations governing Modules A, B, and C. In other words, the most appropriate configuration of Module D (fixed contribution, activity-based allocation, or hybrid structure) should reflect the same liquidity conditions, volatility profile, institutional maturity, and administrative capacity identified for the

other modules. The matrix therefore signals applicability, but the calibration of Module D should remain aligned with the broader fee architecture selected for each context.

	Market Liquidity			Price Volatility		Number and Diversity of Participants		Institutional Maturity		Billing and Settlement Capacity		
Module	**Low Liquidity**	**Moderate Liquidity**	**High Liquidity**	**Low / Moderate Price Volatility**	**High Price Volatility**	**Few Dominant Participants**	**Large and diverse participant base**	**Early Institutional Stage**	**Intermediate Stage**	**Advanced Stage**	**Limited Billing Systems**	**Advanced Billing Systems**
Module A – Fixed Participation Fee	X	X	X	X	X	X	X	X	X	X	X	X
Module B – Volumetric (per MWh)		X	X	X	X	X	X		X	X	X	X
Module C – Ad Valorem (value-based)			X	X			X			X		X
Module D – Ring-Fenced Regulatory Levy	X	X	X	X	X	X	X	X	X	X	X	X

Table 2: Module applicability matrix

4 Conclusion: Key Messages and Action Priorities

The development of harmonized levies and fees across Africa's Power Pools is a structural precondition for market integration. As discussed in this report, the financial sustainability of regional market operators and regulators depends on a transparent, principled, and institutionally grounded approach to cost recovery. Without a credible funding framework, even well-designed market rules risk remaining a mere aspiration.

Four key messages emerge from this work, together with **four actions** that are highly relevant to AfSEM.

A first key message is that **harmonization does not mean uniformity**. Power Pools across Africa operate at different levels of market maturity, liquidity, and institutional capacity. Attempting to impose a single charging model across all regions would likely generate distortions or instability. **What can and should be harmonized**, however, **are the principles, definitions, and architecture** of levies and fees. A common definition of the institutional Revenue Requirement, a shared understanding of eligible cost categories, and the systematic use of true-up and ring-fencing mechanisms create a common continental language of cost recovery, even where numerical parameters differ. This common architecture is the foundation for comparability, peer learning, and eventual convergence.

AfSEM Action Priority: As a first and immediate step toward harmonization without imposing uniformity, AfSEM should develop and formally endorse a standardized institutional Revenue Requirement template applicable to all Power Pools.

This action would define a common structural backbone for how institutional costs are identified, classified, approved, and reported across regions.

Concretely, this activity would include:

- A harmonized definition of the Revenue Requirement structured around clearly separated cost blocks (Market Operator, Regulatory Oversight, Governance/Coordination).
- A standard taxonomy of eligible OPEX, CAPEX (annualized), pass-through items, contingency provisions, and netted-off revenues.
- A mandatory disclosure format for the calculation of annual revenue requirements.
- A standardized true-up formula and reconciliation template.
- A minimum ring-fencing reporting requirement for regulatory costs.

The objective is to create a common financial grammar across Power Pools. Even if WAPP, SAPP, EAPP, CAPP or other regional platforms apply different combinations of fixed, volumetric, or ad valorem modules, they would all anchor their levies in an identically structured revenue requirement model.

Box 1: AfSEM Action Priority n.1

A second key message concerns financial credibility. **Regional market institutions must be financed on a cost-reflective basis** if they are to maintain operational continuity and independence. Under-recovery of institutional costs, cross-subsidization between regulatory and market-operation functions, or opaque funding arrangements inevitably erode trust and weaken governance. Power Pools seeking to harmonize their levies should therefore begin by formalizing a transparent, auditable

revenue requirement process, linked to approved work programs and subject to periodic reconciliation. The introduction of structured true-up mechanisms is particularly important to prevent the accumulation of hidden surpluses or structural deficits and to reinforce the principle that fees recover eligible costs, and nothing more.

AfSEM Action Priority: AfSEM should prioritize the formalization of a structured, rule-based Revenue Requirement approval and reconciliation cycle within each Power Pool, aligned to a common continental framework.

The objective of this action to ensure institutional credibility. A levy system is only trusted when participants can see that (i) costs are approved ex ante through a defined governance process, (ii) revenues are reconciled ex post against audited actuals, and (iii) any deviation is automatically corrected through a transparent mechanism rather than discretionary adjustment.

Concretely, this action would require each Power Pool to adopt:

- A formal annual (or multi-year) budget approval process for the Institutional Revenue Requirement, including publication of eligible cost categories and supporting documentation.
- A mandatory ex post reconciliation based on audited financial statements.
- A standardized true-up mechanism that automatically carries forward under- or over-recovery into the subsequent period.
- Clear rules on the treatment of contingencies and reserve accumulation.
- Public reporting of revenue collected versus eligible costs incurred.

At continental level, AfSEM would issue a procedural guideline specifying minimum requirements for these approval and reconciliation processes, ensuring consistency of governance logic even if cost levels differ.

Box 2: AfSEM Action Priority n.2

A third message relates to stability. In emerging or low-liquidity markets, reliance on purely activity-based charges exposes institutions to revenue volatility precisely when institutional consolidation is most needed. **Hybrid funding structures**, combining fixed participation components with activity-based modules, **provide a balance between predictability and proportionality**. As liquidity deepens and settlement systems mature, the weight of activity-based modules can progressively increase, strengthening alignment with the user-pays principle. Power Pools may move along a spectrum from predominantly fixed funding models toward more usage-based structures as their markets evolve.

AfSEM Action Priority: AfSEM should promote the structured adoption of hybrid funding models across Power Pools, anchored by a minimum fixed component that guarantees institutional continuity, but aspiring to progressively increasing the activity-based component.

The central problem addressed by this action is revenue volatility. In low-liquidity or early-stage markets, exclusive reliance on volumetric or ad valorem levies exposes market institutions to fluctuations in traded volumes and prices. This creates a structural risk of under-recovery precisely at the stage when governance consolidation and operational robustness are most critical.

Therefore this action consists of formally recommending that each Power Pool:

- Define a minimum “stability floor” percentage of the institutional Revenue Requirement to be recovered through fixed participation or membership contributions.
- Allocate the remaining share through activity-based modules (per MWh or ad valorem), calibrated to local liquidity and settlement capacity.
- Review the fixed-variable balance periodically (e.g., every 3–5 years) as markets mature and volumes stabilize.
- Ensure that the hybrid structure is explicitly justified in relation to market liquidity, participant diversity, and administrative capability.

This action introduces a common design discipline: institutional survival should not depend entirely on market activity cycles.

Box 3: AfSEM Action Priority n.3

Regulatory independence emerges as a fourth central theme. **A ring-fenced regulatory levy is a fundamental element** for a functioning electricity market. Clear separation between the funding of market operation and regulatory oversight protects impartiality, enhances accountability, and signals seriousness to investors and participants. Power Pools that wish to strengthen regional governance should prioritize the establishment of distinct regulatory revenue requirements, separately accounted for and transparently reported. Over time, greater coordination among regional regulators, including alignment of budgeting cycles and cost classification standards, would further reinforce harmonization.

AfSEM Action Priority: To give practical effect to the fourth key message on regulatory independence, AfSEM should require all Power Pools to implement formal ring-fencing of regulatory oversight costs, supported by separate accounting and reporting obligations.

The purpose of this action is to avoid that the same revenue stream finances both market operation and regulatory oversight without clear separation, there is an inherent risk of cross-subsidization, opacity, or perceived conflicts of interest. Even where no misuse occurs, the absence of structural separation weakens credibility.

This action would therefore require each Power Pool to:

- Define a distinct Regulatory Revenue Requirement corresponding exclusively to eligible oversight and market-integrity functions.
- Recover this amount through a clearly identified regulatory levy (fixed, activity-based, or hybrid, depending on context).
- Maintain separate accounting lines for regulatory and market-operator expenditures.
- Publish annual reports demonstrating that regulatory revenues are used solely for approved oversight activities.
- Subject regulatory expenditures to independent audit.

This measure does not dictate how the regulatory levy must be allocated across participants. The allocation base may remain context-specific. What is harmonized is the structural separation and the obligation of transparency.

Box 4: AfSEM Action Priority n.4

Harmonized levies and fees should therefore be understood as part of the institutional infrastructure of AfSEM rather than as a standalone policy objective.

A coherent levy framework provides operational continuity for market operators, ensures that regulatory oversight is adequately financed and institutionally independent, and creates predictable obligations for participants. The modular architecture presented in this report demonstrates that cost recovery can be structured flexibly taking into account the diversity of the African electricity market, through fixed, volumetric, ad valorem, or hybrid combinations, while remaining anchored in common principles of transparency, cost-reflectivity, proportionality, stability, and user-pays logic.

The practical implication is that harmonization at AfSEM level should focus on aligning definitions, cost structures, reporting standards, and adjustment mechanisms, rather than imposing identical fee levels or allocation parameters across all Power Pools. By converging on a shared institutional revenue framework, regions enhance comparability, reduce regulatory uncertainty, and strengthen financial discipline, while preserving the ability to calibrate levy structures according to market maturity and liquidity conditions.

In this sense, levy harmonization functions as a governance stabilizer within AfSEM. It reinforces the credibility of regional institutions, supports disciplined cost recovery, and contributes to the long-term viability of the integrated continental electricity market architecture.

References

1. Council of European Energy Regulators (CEER) (2003). *Principles on Regulatory Control and Financial Reward for Infrastructure Investments*.
2. Council of European Energy Regulators (CEER) (2017). *Guidelines of Good Practice for Distribution Network Tariffs*. January 2017.
3. Organisation for Economic Co-operation and Development (OECD) (2025). *OECD Regulatory Policy Outlook 2025*.
4. International Energy Agency (IEA) (2021). *World Energy Outlook 2021: Prices and Affordability*.
5. Agency for the Cooperation of Energy Regulators (ACER) (2023). *Report on Electricity Transmission and Distribution Tariff Methodologies in Europe*. January 2023.
6. Institute for Progress (IFP) (2024). *How Cost Allocation Works for Transmission Lines*. April 2024.
7. International Energy Agency (IEA) (2025). *Electricity 2025*.
8. World Bank (2017). *Regulatory Indicators for Sustainable Energy (RISE)*.
9. ACER / CEER (2021). *Position Paper on the Key Regulatory Requirements to Achieve Gas Decarbonisation*. December 2021.
10. Organisation for Economic Co-operation and Development (OECD) (2014). *The Governance of Regulators*.
11. Organisation for Economic Co-operation and Development (OECD) (2016). *Being an Independent Regulator*. In: *The Governance of Regulators*.
12. Reiley, L. (Laura) (2024). *Making beneficiaries pay for new power lines is fair strategy*. Cornell Chronicle.
13. Vickrey, W. S. (1969). *Congestion Theory and Transport Investment*. *The American Economic Review*, Vol. 59, No. 2 (Papers and Proceedings of the Eighty-first Annual Meeting of the American Economic Association), May 1969.
14. NEMO Committee; ENTSO-E (2025). *CACM Cost Report of 2024*. June 2025.
15. African Union Commission (AUC) (2021). *Towards an African Single Electricity Market (AfSEM) – Policy Paper and Roadmap 2040*. EU Technical Assistance Facility (TAF) for Sustainable Energy. November 2021.
16. European Commission (2025). *Commission Decision (EU) 2025/1771 of 8 September 2025 on fees due to the European Union Agency for the Cooperation of Energy Regulators for its tasks under Regulation (EU) No 1227/2011 (REMIT) and repealing Commission Decision (EU) 2020/2152*.