REPORT

GERI 2022

Global Electricity Regulatory Index

ESMAP
Energy Sector Management Assistance Program
WORLD BANK GROUP
AfDB

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Anshul Rana, Mumba Ngulube and Vivien Foster

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ABOUT ESMAP

The Energy Sector Management Assistance Program (ESMAP) is a partnership between the World Bank and 24 partners to help low- and middle-income countries reduce poverty and boost growth through sustainable energy solutions. ESMAP's analytical and advisory services are fully integrated within the World Bank's country financing and policy dialogue in the energy sector. Through the World Bank Group (WBG), ESMAP works to accelerate the energy transition required to achieve Sustainable Development Goal 7 (SDG7) to ensure access to affordable, reliable, sustainable, and modern energy for all. It helps to shape WBG strategies and programs to achieve the WBG Climate Change Action Plan targets. Learn more at: https://esmap.org.

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Telephone: 202-473-1000; Internet: www.worldbank.org

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Acronyms and Abbreviations

AfDB	African Development Bank
DFI	Development Finance Institution
EAP	East Asia and the Pacific (World Bank region)
ECA	Europe and Central Asia (World Bank region)
ERI	Electricity Regulatory Index
ESMAP	Energy Sector Management Assistance Program
GERI	Global Electricity Regulatory Index
LAC	Latin America and the Caribbean (World Bank region)
MNA	Middle East and North Africa (World Bank region)
RGI	Regulatory Governance Index
RSI	Regulatory Substance Index
RISE	Regulatory Indicators for Sustainable Energy
SSA	Sub-Saharan Africa (World Bank region)
UN SDG 7	United Nations Sustainable Development Goal 7
WGI	Worldwide Governance Indicators

All currency is in United States dollars (US$, USD), unless otherwise indicated.

KEY FINDINGS

- **In 2021, the average global GERI score was 59 percent.** This indicates an intermediate stage of development of power sector regulations in developing countries, indicating considerable room for improvement and the need for further action to strengthen regulatory frameworks. Indeed, only 17 percent of the countries surveyed had a GERI score falling in the green color score range, while 54 percent scored yellow, 28 percent scored orange and just 1 percent scored red.
- **The average scores for the two pillars of GERI stood at 65 percent for RGI and 54 percent for RSI.** The lower score on regulatory substance was responsible for bringing down the overall GERI score to 59 percent. Of the 82 countries surveyed, 76 percent scored highly on regulatory governance than regulatory substance.
- **The main reason countries performed poorly on regulatory substance was due to poorly developed tariff methodologies.** The indicator on economic regulation of tariffs was the weakest under the RSI registering an average score of just 37 percent. This low score does not reflect an absence of tariff methodologies, but rather the fact that tariff methodologies are often poorly specified. While 75 percent of the surveyed countries have documented tariff methodologies, a majority lack essential features such as automatic tariff adjustments (absent in 85% of countries), schedules for major tariff reviews (missing in 81% of cases) and publication of the formulas used in the determination of end-user tariffs (not provided by 55% of countries).
- **In terms of regulatory governance, lack of regulatory independence is a challenge faced in the electricity sector in almost all countries.** The most widespread deficiencies when it comes to regulatory governance were on independence from stakeholders (with an average score of just 29%). Many countries lack provisions in the electricity laws to prohibit the regulatory authority head and board members from engaging in conflicts of interest, such as by taking up employment in regulated utilities at any point in their career. The other area of weakness under regulatory governance was financial independence of regulators (with an average score of 59%). Specifically, incentivizing staff of regulatory authorities remains a challenge in many countries (average score 31%). Regulatory Authorities in 41 percent of the countries surveyed set salaries lower than the utility companies they regulate.
- **Almost all regions have a GERI score in the yellow zone indicating an intermediate stage of development of regulation in the electricity sector worldwide.** The lagging region is ECA, with scores of 46 percent for regulatory governance and 37 percent for regulatory substance. These scores are below the global averages of 65 percent of regulatory governance and 54 percent of regulatory substance. ECA lags severely on the indicators of economic regulation of tariff-setting, technical regulation of quality of service, predictability, independence from stakeholders and participation.

- **African countries were among some of the highest scoring for GERI.** The best performing countries in the 2021 GERI survey were found in Africa and Latin America. Uganda was the top performing country in Africa with a GERI score of 95 percent. Outside Africa, Panama was the top performing country with a score of 85 percent. It is important to note that these scores reflect the regulation and processes as they appear on paper 'de jure' and not necessarily the way they are implemented in practice 'de facto'. Many countries may have created sound legal frameworks due to extensive international technical assistance, however that does not necessarily mean that the regulations are being optimally implemented.

Executive Summary

Electricity plays an important role in economic development and poverty reduction. However, in many developing countries, the electricity sector is characterized by weak governance and resulting poor operational and financial performance. Regulation is a critical instrument for improving the performance of the power sector by providing public oversight of monopolistic service providers. Since the 1990s, a large majority of low- and middle-income countries created electricity regulators; yet building these into capable regulatory institutions operating robust regulatory frameworks has often proved challenging.

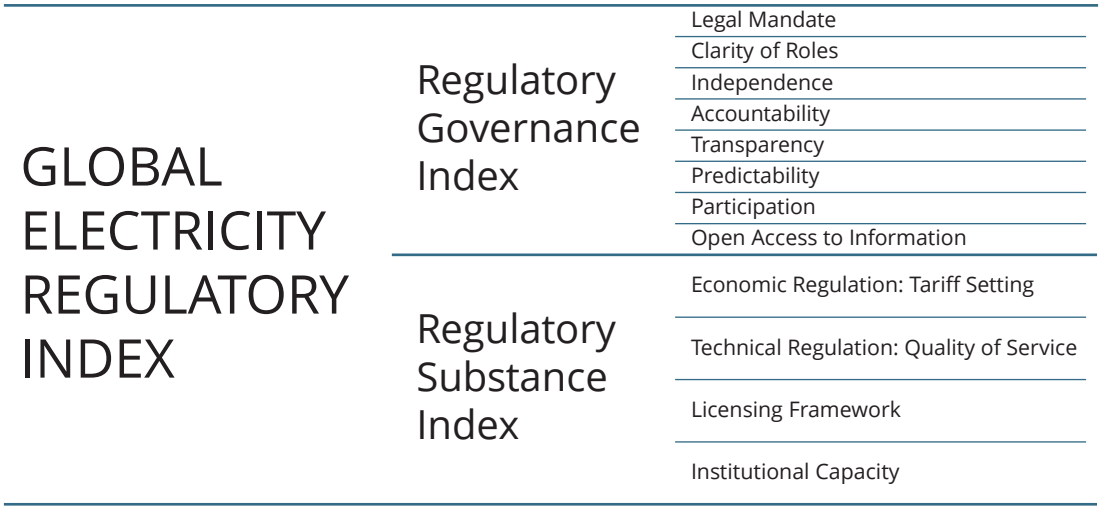
This report introduces the Global Electricity Regulatory Index (GERI), an index which benchmarks a country's existing regulatory system against theoretical best practice, based on a set of standardized indicators which permit meaningful cross-country comparisons and provide the potential for progress with regulation to be tracked over time. The resulting snapshot of regulatory performance reveals that important progress has been made, but at the same time highlights many remaining significant gaps and shortcomings in the regulatory environment for the power sector in the developing world.

What is GERI?

The GERI measures the level of development of legal frameworks, decision-making processes, and economic and technical regulations in the electricity sector, with a view to ascertaining the extent to which regulatory authorities well placed to carry out their regulatory functions. The index comprises two pillars, the Regulatory Governance Index (RGI) and the Regulatory Substance Index (RSI), with several indicators under each that capture different aspects of the regulatory system (Figure ES.1). By measuring the adoption of regulatory best practices, GERI enables countries to Identify gaps in their regulatory framework and benchmark their performance against global peers.

This is the first edition of the GERI report, covering 82 non-OECD countries from across the globe—about half from Sub-Saharan Africa and the other half from across Asia, Europe, the Middle East and Latin America. The GERI is scored out of 100, with a traffic light system used to classify countries according to whether scores are red (0–24%), orange (25–49%), yellow (50–74%) and green (75–100%).

FIGURE ES.1
GERI Sub-Indices and Indicators



Source: World Bank GERI 2021

OLIVER KNIGHT / WORLD BANK

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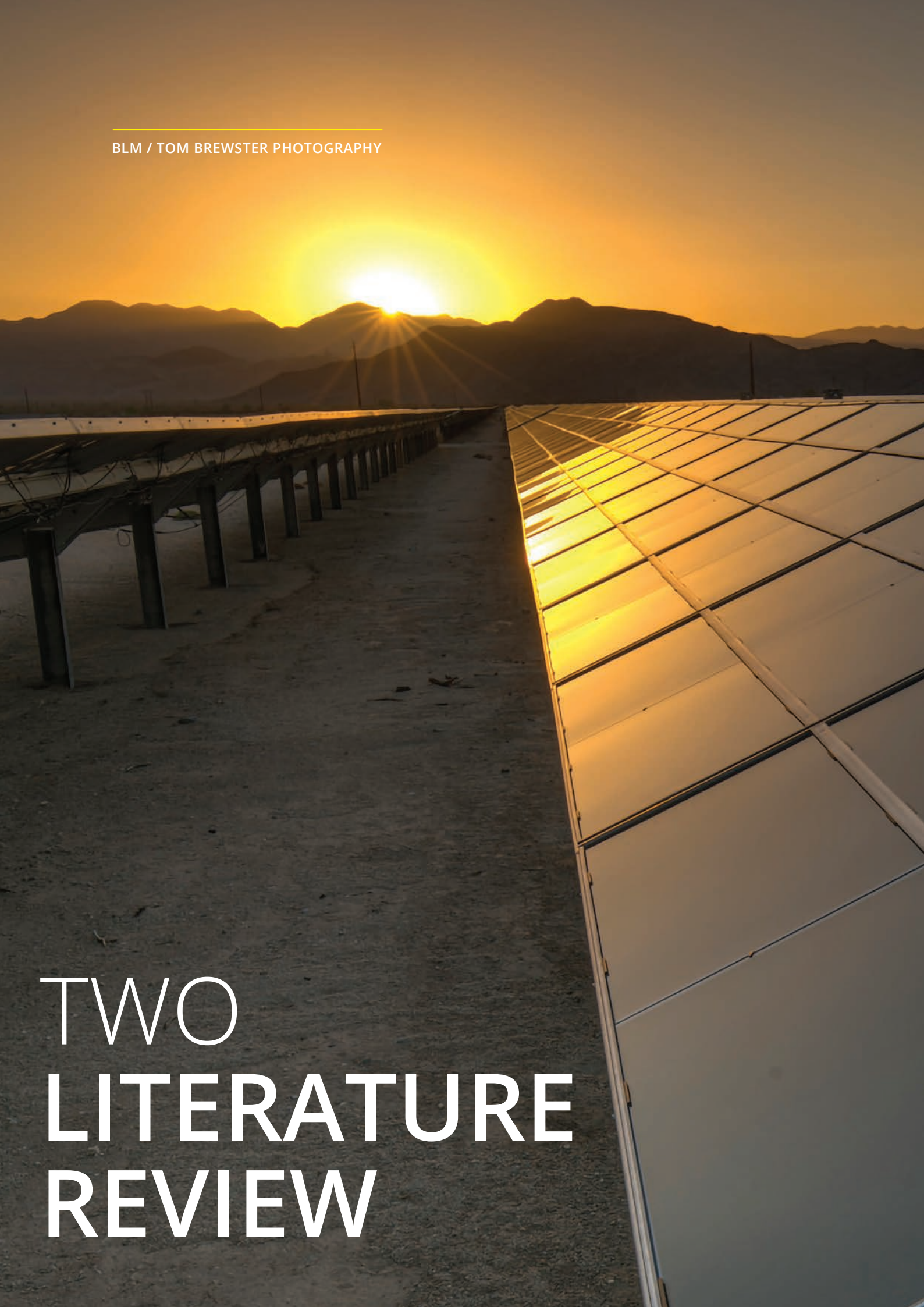
ONE
INTRODUCTION

The natural monopoly characteristics of much of the electricity supply chain call for economic regulation to ensure that prices recover efficient costs, and that acceptable quality of service is provided to customers. Since the 1990s, around 70 percent of countries across the developing world have established regulatory agencies, and enacted legislation to introduce modern regulatory frameworks for the power sector. However, the implementation of modern economic regulation has proved to be very challenging in low- and middle-income countries, and the state of legal and institutional development remains uneven.

The Global Electricity Regulation Index (GERI) is an organized suite of indicators that portray the extent to which best practice regulatory design for the power sector has been adopted in any given country. The index, and in particular its constituent parts, are helpful for pinpointing where a particular regulatory framework may be wanting. They also allow for systematic comparisons across countries and over time, so that the quality of the regulatory environment can be benchmarked. In addition to the scored indicators, the GERI survey also collects a lot of useful descriptive background information, which helps to create a more complete picture of the regulatory context in any given country.

This paper presents the methodology for the GERI and reports on the results from a first global survey comprising a snapshot of the regulatory context in 82 low- and middle-income countries as of 2021. The paper begins in Section 2 with a literature review that elucidates the theoretical foundations for the design of the GERI Index that is described in Section 3. The resulting findings for the overall GERI, as well as the two underpinning pillars—Regulatory Governance Index (RGI) and Regulatory Substance Index (RSI)—are reported in Sections 4, 5 and 6 respectively. Section 7 provides conclusions and recommendations.



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TWO LITERATURE REVIEW

Starting in the 1970s, higher fuel prices, growing environmental concerns, accelerating technological innovations, and a desire for greater economic efficiency led to the rethinking of the institutional model for the power sector (Tuttle et al. 2016). Vertically integrated state utilities operating as regional monopolies had to some extent succeeded in rolling out energy infrastructure in developing countries, but post the 1980s, it became evident that these utilities could not meet the increasing electricity demands arising from increased economic activity, population growth and evolving consumer tastes. The electricity sector was facing challenges of high electricity tariffs resulting from high fuel prices, high technical losses due to aging infrastructure, and poor financial performance that led to increasing government subsidies.

To address these challenges, a new model based on the "Washington Consensus" emerged in the 1990s, advocating for comprehensive sector reform, which entailed restructuring of the power sector through corporatization and full vertical and horizontal unbundling of the incumbent utility, private sector participation in generation and distribution, competition in generation through the establishment of wholesale power markets and the creation of independent regulators to oversee remaining natural monopoly elements such as transmission and distribution.[1] Despite widespread adoption, developing countries lagged in the breadth and depth of power sector reforms they were able to implement in comparison with developed countries (Foster et al. 2017). Further, despite power reforms being conceived as an integrated coherent package of measures, countries were selective in adopting power sector reforms, based on political feasibility.

The creation of a regulatory agency, which did not greatly challenge vested political interests, became the most popular reform measure adopted in around 70 percent of developing countries (Foster et al. 2017).[2] Institutions and regulations matter for growth and development in infrastructure sectors (Rodrik 2004; Andres 2007). In the electricity sector, well-designed regulations and institutions assist in overcoming market failure and meeting sector policy goals such as improved financial sustainability, better quality of electricity services, increased private sector participation, achievement of universal access to reliable and affordable services, as well as development of clean energy with a view to sector decarbonization.

In studies evaluating the effectiveness of regulation in the electricity sector, regulation is divided into two main components (Brown et al. 2006). The first element is regulatory governance, which refers to the institutional and legal design, and the resulting framework within which decisions are made. Brown et al. (2006) define regulatory governance as the laws, processes, and procedures that determine: which enterprises, actions and parameters are regulated; which government entities make regulatory decisions; and which resources

[1] Regulatory reform is just an element of a larger reform package that usually includes sector restructuring, corporatization, commercialization, and some degree of private sector participation (Brown et al. 2006).

[2] Country characteristics such as geography, income group, power system size, and attributes of the political system seem to have had a statistically significant influence on the uptake of reform (Vivien Foster et al. 2017).

and information are made available to support these actions. The second element of regulation is regulatory substance, which is the content of regulation, comprising the actual decisions made by the regulator or other entities within government, along with the rationale for the decisions made. The substance of economic regulation in the electricity sector has traditionally comprised price controls (price caps or rate of return) and service obligations (minimum quality standards) (Pardina and Schiro 2018).

According to the literature, good governance is characterized by attributes of credibility, legitimacy, and transparency in the regulatory system (Brown et al. 2006). Good governance promotes a sense of safety and confidence in consumers and investors, convinces stakeholders that the regulatory system would protect them from malpractices in the sector, and reduces information asymmetry due to open access to information. Pardina et al. (2018) propose 10 principles to inform the design of a good regulatory system. These are independence, accountability, transparency and public participation, predictability, clarity of roles, completeness and clarity of rules, proportionality, requisite powers, appropriate institutional characteristics, and Integrity. In a similar vein, Ali et al. (2022), argue that good regulatory governance should consist of the following eight attributes: participation, rule of law, transparency, responsiveness, consensus oriented, accountability, equity, and inclusiveness.

Different institutional models may be adopted in designing regulatory systems in the electricity sector, ranging from "regulation by government" to "regulation by agency" (Eberhard 2007).[3] Direct regulation by government has been the starting point in many countries, sometimes enshrined in the terms of a concession contract between the state and the service provider. However, direct regulation gives rise to major conflicts of interest between long-term policy goals (for example, the financial sustainability of the sector) and short-term political interests (such as avoiding tariff hikes in advance of elections) (Necoechea-Porras, López, and Salazar-Elena 2021; Pardina and Paper 2018).[4] Regulation by agency on the other hand, offers a solution to the conflict-of-interest problem as it separates the policy-making function from the regulatory function, by assigning the latter to an independent institution operating at arm's length from the state.

However, implementation of this regulatory system remains a challenge. In practice, the political system struggles to surrender control of the electricity sector to an independent regulator, because of the many opportunities the sector presents to practice patronage politics. To achieve genuine independence, the literature insists upon the establishment of an agency separated from government with full financial and decision-making autonomy, and adequate technical expertise. Case studies show improved performance in the

[3] Pardina et al., (2018) define regulation by government, as a type of regulation where there is no distinction between the policy-making and regulatory functions of government, while regulation by agency is one where an independent entity is created which has full financial and decision-making autonomy that is binding.

[4] Regulation would typically be the starting point, so that the rules and incentives of the sector would be specified before any changes were made to the institutional actors (Foster and Rana 2019).

electricity sector following the introduction of a regulator as part of wider sector reforms (Cubbin and Stern 2004; Vivien Foster and Briceño-Garmendia 2010).[5]

Regulatory authorities are rarely as independent as envisioned, and a good number operate as "advisory regulators". Empirical evidence shows that advisory regulators are commonly established in the initial stages of the reform process. However, in circumstances where the initial advisory regulator is weak, there is a risk of never achieving the transition to a fully independent regulatory authority. Advisory regulators with potential for evolving into an effective independent regulator are characterized by strong legal protection, independent budgetary arrangements outside the line ministry, adherence to principles of transparency, stakeholder involvement in regulatory decision-making and establishment of conflict-of-interest rules for staff and board. However, the reality is that many regulatory authorities lack financial and decision-making autonomy (Pargal and Mayer 2014; Vivien and Briceño-Garmendia 2010). This is because countries tend to implement regulatory systems in the context of the existing political system and government power structures.[6]

Regulation has positive performance impacts in countries where there is strong regulatory commitment by government. Government commitment to regulation is best expressed through introducing changes via legislation, while adapting reforms to fit the local political context. Factors that increase the prospets for a successful reform include engagement of influential local reform champions, as well as explicit efforts to build consensus through direct stakeholder engagement with contrarian groups (Foster and Rana 2019). Case studies show that by adopting new electricity laws, countries have been able to reform tariff regulation, opened the sector to private investment, and initiated a competitive wholesale electricity market (Foster and Rana 2019). Inversely, weak or lack of regulatory commitment thwarts the implementation of regulatory frameworks that meet the criteria of good regulatory governance in developing countries (Eberhard 2007). In Africa, Eberhard (2007) cites lack of regulatory commitment, capacity or competency, participation, transparency, and accountability as some of the bottle necks preventing good regulatory governance.[7]

An example of a country where high government regulatory commitment assisted to turn the electricity sector is Colombia. In the 1990s, Colombia suffered a macroeconomic crisis

[5] An example of regulation by contract are Concessions and Build Operate and Transfer Contracts. Advisory regulators involve creating a regulatory with strong technical competency but with no decision-making independence.

[6] Eberhard (2007) states that regulatory design is "essentially about the appropriate level of regulatory discretion that should be informed by the local country context"; regulatory models should be "securely located within the political, constitutional, and legal arrangements" of countries, taking into account their level of regulatory commitment (i.e. the willingness of governments to de-politicize tariff settings and service standards), of institutional development, and human resource capacity.

[7] Lack of regulatory commitment partly explains why developing countries despite widely adopting regulatory frameworks, implementation often fail far short of design, especially where utilities remained under state ownership (V Foster and Rana 2019).

in which the power sector greatly contributed. The Colombian government, in its 1991 constitution decided to incorporate institutional and governance reforms, emphasizing decentralization and transparency. By adopting new public service and electricity laws, Colombia was able to reform tariff regulation, opened the sector to private investment, and initiated a competitive wholesale electricity market (V Foster and Rana 2019).

Evaluating the effectiveness of a regulatory system involves examining both the regulatory governance and regulatory substance elements. To offer recommendations that improve the entire regulatory system, it is important that the evaluation of the regulatory system focuses not only on the legal framework and institutional arrangements but also the content of economic and technical regulation.

Best practice in economic regulation of tariffs requires developing an explicit tariff methodology, comprising details on the determination of tariff levels, tariff structures, and the overall tariff regime. Tariff regime fundamentals which must be prescribed in the legal framework include, the objectives of tariff-setting (financial sustainability, allocative efficiency, productive efficiency or social equity), the use of rate of return or price-cap tariff regulation regime, the time schedule for minor and major tariff reviews, the mechanisms to prevent passing inefficient costs to consumers, and arrangements for safeguarding the affordability of tariffs for low-income consumers. Defining the tariff structure, on the other hand, can be the responsibility of either the regulator or the utility companies (Pardina and Schiro 2018). The tariff structure should largely detail billing information on consumers by type (residential, commercial), location (urban, rural), services (HV, MV) and charges (fixed, variable) within a defined price cap. The tariff level on the other hand, should be set just enough to cover economic costs including a reasonable rate of return for sector financial sustainability (Pardina and Schiro 2018). However, tariff objectives of universal access and affordability may conflict with the setting of cost-reflective tariff levels.

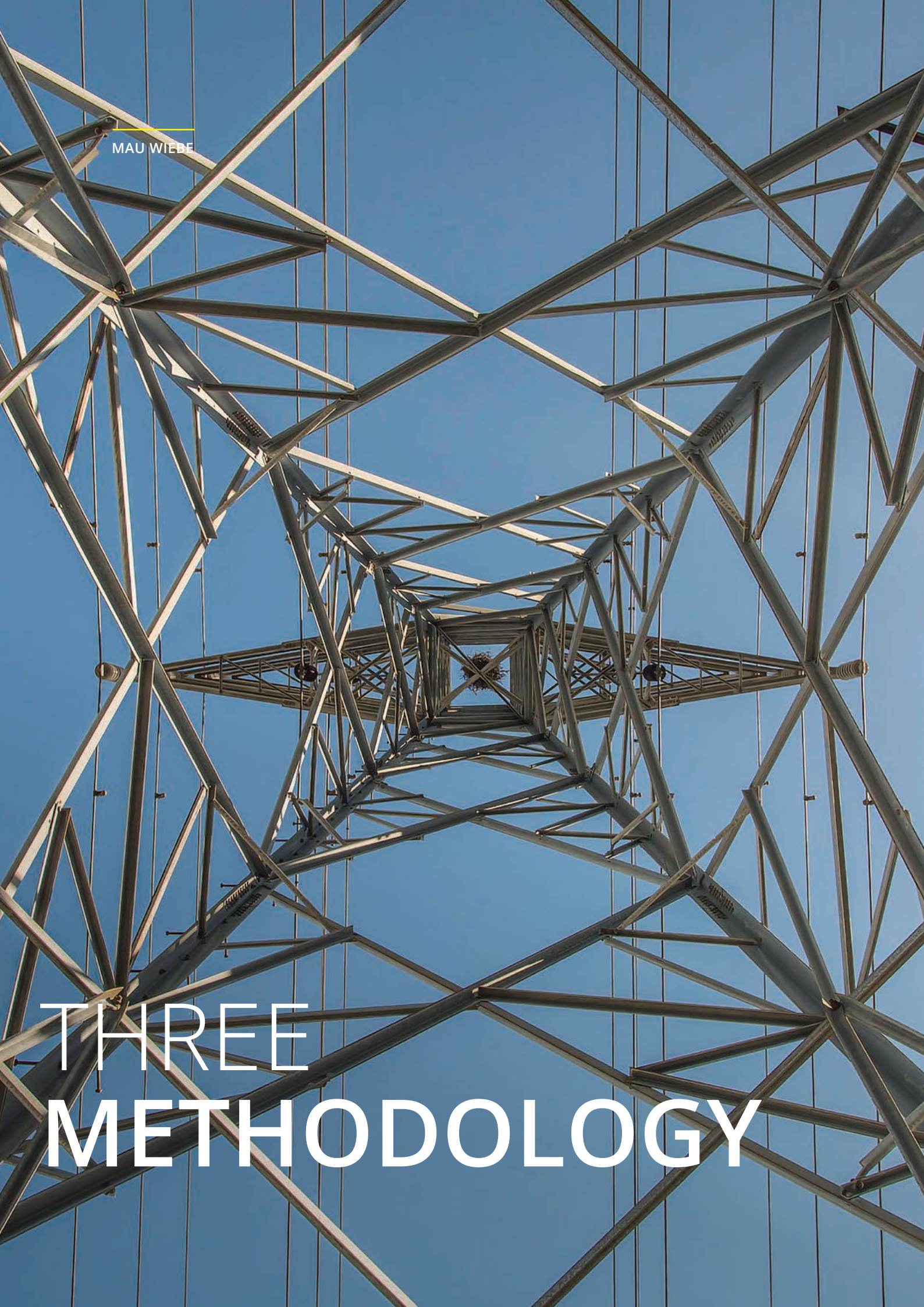
Technical regulation of service quality is required to promote and maintain good electricity services. Monitoring and evaluating technical performance and quality of service performance is important for maintaining and improving service quality in the electricity sector. Regulators should develop and publish a consistent set of performance metrics to allow comparisons across utilities over time (Pardina and Schiro 2018). Studies reveal that greater performance-based regulation can improve the efficiency of the distribution system and quality of utility investments (Massachusetts Institute of Technology 2016). To this effect, several countries like the US, United Kingdom, New Zealand and others have implemented quality of service guaranteed standards with associated penalties and rewards for regulated distribution companies that fail to meet or exceed the agreed performance level, respectively (Massachusetts Institute of Technology 2016; Joskow 2014).

Finally, notwithstanding the importance of a sound regulatory framework, there can still be a major divergency between the formal (de jure) regulatory system and the informal (de facto) regulatory process. In analyzing the regulatory environment, it is important to distinguish between what is written down in the legal frameworks, and what is practiced, as focusing solely on the former may lead to biased conclusions. To minimize this problem, several open-ended questions can be included in surveys to help detect gaps between the

formal and informal characteristics of the system (Brown et al. 2006). Empirical studies repeatedly disclose that developing countries experience a substantial gap between the conditions stated in the legislation and what happens in the real world (Rodríguez Pardina 2008).[8] Moreover, correlation coefficients between indicators of formal and informal regulatory practice are relatively low, only weakly positive and often statistically insignificant (Andres 2007; Rodríguez Pardina 2008; Mueller 2006).[9] Further, scores on formal governance may at times be higher or lower than informal governance (Gilardi 2010). In the literature, reasons behind the divergence between formal and informal governance include the implementation of a regulatory system imported from a different legal tradition (particularly Anglo-Saxon models implanted in Latin America and French speaking Africa), which creates tensions between the regulatory regime and the rest of the legal system leading to a gap between the formal and real operation of the system (Rodriguez et al. 2008). Foster and Rana (2019) find that the magnitude of the gap between de jure and de facto regulatory performance is smallest in countries where the private sector is extensively involved in power distribution.

[8] To measure the divergence between formal governance regulatory system and informal governance regulatory system, correlation studies have been conducted.

[9] Andres (2007) finds correlation coefficients of between 0.3 and 0.4 while Mueller (2006) finds a coefficient of 0.7.



MAU WIEBE

THREE METHODOLOGY

3.1 Definitions

Closely grounded in the academic literature described above, the GERI measures the level of development of legal frameworks, economic and technical regulations in the electricity sector, and assesses the framework in which decisions are made to ascertain the strength of regulatory authorities in carrying out their functions. The GERI benchmarks a country's existing regulatory system against theoretical best practice (as described above) and the institutional design against the independent regulatory agency model. Closely following (Brown et al. 2006), GERI is made up of two sub pillars, the Regulatory Governance Index (RGI) and the Regulatory Substance Index (RSI). The RGI measures the extent to which the laws, regulations, institutional arrangements inclusive of the framework in which decisions are made, meet international best practice. The RSI evaluates the content of economic regulation of tariffs and technical regulation of quality of service, as well as the institutional capacity of the regulator to carry out its mandate in line with international best practice.

3.2 Selection and Design of GERI Indicators

The genesis of the GERI indicators can be traced back to two parallel yet connected works: the African Development Bank's *Electricity Regulatory Index*, launched in 2018, and a similar index the World Bank developed during the same time period as part of the report on *Rethinking Power Sector Reform in the Developing World* (Foster and Rana, 2019). Both efforts aimed to provide a quantitative basis for measuring the adoption of regulatory theoretical best practices, allowing countries to identify gaps in their regulatory framework and benchmark their performance against regional or global peers. The framework of indices developed under the two projects were derived from similar conceptual frameworks mentioned in the literature and built on indices previously developed. Although independently conceived, collaboration was later undertaken to harmonize the structure of indicators under both projects, so that the indicators under the Global Electricity Regulation Index (GERI) produced by the World Bank could be compared to an important nested subset of the indicators under the Electricity Regulation Index (ERI) published by the African Development Bank. It is important to note that despite the two indices being closely related, they are not explicitly directly comparable as the methodology to construct them differs. See Annex A for a detailed explanation of the construction of the ERI and its comparison to the GERI.

Both indices broadly focus on two areas—governance and substance. Regulatory governance was defined as the legal frameworks, processes, and the regulatory entities themselves. For governance to be meaningful a regulator must be autonomous and yet accountable for its decisions; it needs to have credibility and legitimacy for the regulated entities to have faith in it; and its decisions must be made in a transparent manner. Thus, the set of indicators chosen to measure governance are based on best practices against

each of these areas.[10] Regulatory substance deals with the actual content of regulation mostly addressing the setting and implementation of tariffs and quality regulation. Based on the literature, several indicators were collected to reflect the best practices for tariff setting, designing a tariff structure, entry to the market, designing and implementing the quality standards.[11]

3.3 Data

3.3.1 Data Collection

The collection of the GERI data has been supported by the Energy Sector Management Assistance Program (ESMAP). The GERI survey is administered alongside the Regulatory Indicators for Sustainable Energy (RISE) survey in World Bank client countries outside Africa every two years.[12] The data collection process for RISE is based on contracting local expert consultants to respond to the data questionnaires by reviewing published legal and operational documents, as well as interviewing key stakeholders. In this report, the GERI data collected by the World Bank represents the situation as of December 31st, 2021. The GERI data on African countries is collected in partnership with the African Development Bank (AfDB). AfDB administer the Electricity Regulatory Index (ERI) survey to all African countries annually. The ERI data included in this report represents the situation as of May 31st, 2021. Due to the process involved in collecting indicators under the RISE project, the GERI indicators typically lag one year behind the latest data available under the ERI.

The ERI survey comprises three pillars. The first pillar on regulatory governance is identical between the ERI and the GERI. The second pillar on regulatory substance, there is full overlap between ERI and GERI for the four sub-indicators that relate to economic regulation, technical regulation, licensing frameworks and institutional capacity. In addition, the ERI (but not the GERI), also incorporates sub-indicators on renewable energy, mini-grids, off-grids, and energy efficiency (like those captured by RISE). Finally, the ERI additionally incorporates a third pillar on regulatory outcomes, which is not considered by the GERI.

3.3.2 Data Validation

The validation process for data collected by the World Bank starts by first scoring all the questions, sub-indicators and indicators. The final scores are then sent back to the World Bank country energy team for verification. In cases where indicator scores change because of an implausible or missing response to the same question between the current and

[10] See Annex B for an overview of the indicator structure for RGI.
[11] See Annex C for an overview of the indicator structure for RSI.
[12] Rise website https://rise.esmap.org/about-us and RISE report available at https://rise.esmap.org/reports.

previous year, a record of discrepancies is prepared and circulated to World Bank country energy teams for clarification. The record of discrepancies also includes countries whose scores change because of a notable increase or decrease in some indicators or sub-indicators. The World Bank country energy team leaders provide clarifications in writing or through bilateral meetings held with the GERI team.

The validation process under the AfDB similarly involves the preparation of a record of discrepancy for the regulator, where a discrepancy is observed for the same question between the previous and current year. The AfDB interviews and requests the organizations' representatives to provide further supporting documents where necessary. In the absence of supporting documents, clarifications are requested from the respondents concerned during a validation session with representatives of the regulator. In the cases of incomplete or incomprehensible answers, clarifications or proof of certain statements are requested from the institution or respondent for a better understanding.[13]

3.4 Construction of the GERI

The GERI, and its constituent RGI and RSI pillars, are calculated based on survey responses. The RGI comprises eight indicators which capture information on the legal framework, the institutional design and the basis on which decisions are made in the electricity sector. The eight indicators include, legal mandate, clarity of role, independence, accountability, transparency, predictability, stakeholder participation, and open access to information. The four indicators under the RSI include tariff-setting methodology, quality of service, licensing framework and institutional capacity.

There are a total of 12 indicators under the two sub-indices of RGI and RSI. The RGI and the RSI scores are calculated by taking the average score of the indicators under them. Similarly, the overall GERI score is an average of the RGI and the RSI. The formulas explaining the calculation of the RGI and RSI and how these are combined into the GERI are provided below (equations 1 to 3). In the absence of any theoretical basis for doing otherwise, equal weighting is given to the RGI and RSI in the calculation of the GERI.

$$RGI = \frac{\sum_{i=1}^{8} X}{8} \quad (1)$$

$$RSI = \frac{\sum_{i=1}^{4} X}{4} \quad (2)$$

$$GERI = \frac{RGI + RSI}{2} \quad (3)$$

[13] See the ERI for Africa Detailed Methodology report (AfDB 2021)for more details on Africa data.

3.5 Calculation of Scores

Each indicator in the questionnaire is assigned a score ranging from 0 to 1. A score of 1 indicates international best practice and a high level of development of the regulatory framework, while a score of 0 indicates a complete absence of, or a considerable deficiency in, the development of regulatory frameworks in the electricity sector. The calculation of scores is based on the arithmetic mean of the responses for the underlying dimensions. Thus, indicator scores are the average of the underlying sub-indicator scores, while sub-indicator scores are the average of the underlying question scores. The scoring system gives equal weights to scores across all levels of score calculation—indicator level, sub-indicator level and question level. However, since the RGI includes a larger number of sub-indicators than the RSI, these implicitly receive a lower weight in the calculation of the GERI overall.

To ensure credibility of responses provided in the questionnaire, some questions have follow-up questions (questions asked immediately after the main question) which request the submission of a link providing supporting documents. For questions that require proof (questions with follow-up questions), the final score is calculated by multiplying the score of the main question and that of the follow-up proof question, which can either be one or zero depending on whether supporting evidence is provided. This would mean that a positive score on the survey answer could be replaced by a zero if no documentation is provided to justify the response. For example, if the score of the main question is 0.5 and that of the follow-up proof question is 1, the result is 0.5 x 1 = 0.5. Likewise, the final score can be 0 if the main question has a score of 0.5 but the follow-up proof question is 0. It is the product score which is included in the calculation of the scores of the indicators and sub-indicators. For easy interpretation, final scores of indicators and sub-indicators are converted into percentages.

3.6 Classification of Scores

The unit of analysis for GERI is the country. All questions under regulatory governance and substance, construct indicators and sub-indicator scores for a respective country. The final scores are classified into four categories based on a “traffic light” system (Table 3.1). Green represents the highest quarter of scores (75–100%), and countries in this color range have a strong and mature regulatory environment with a high level of development of regulatory frameworks, though with still some room for improvement. Yellow denotes the second quarter of scores (50–74%), meaning that countries have attained an intermediate level of regulatory performance and progress, but with a lot more room for improvement. Orange represents the second lowest quarter of scores (25–49%), and countries in this category have insubstantial level of development of regulatory frameworks with basic elements

TABLE 3.1
GERI Score Legend

COLOR	RANGE OF SCORES	INTERPRETATION
	75%–100%	Strong performers in the top quarter of the 0–100 score range
	50%–74%	Good/intermediate performers in the second top quarter of the 0–100 score range
	25%–49%	Medium performers in the third quarter of the 0–100 score range
	0%–24%	Weak performers in the bottom quarter of the 0–100 score range

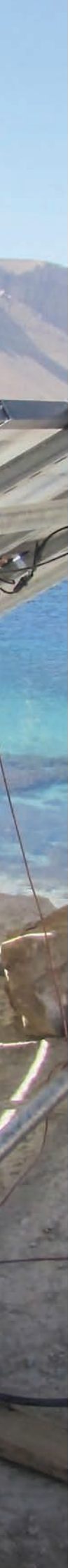
available but requiring major improvement. Red indicates the lowest quarter of scores (0–24%), and countries in this color range have a weak electricity sector regulatory environment, which is in the early stages of development. It should also be noted that the classification of scores in GERI differs from ERI. See Annex A for more details.

3.7 Limitations

The GERI and its sub-pillars evaluate the power sector regulatory system of a country based on what is written on paper in terms of laws, tariff-setting regulations, technical quality of service regulations, licensing frameworks and sector institutional arrangements. The Index and its sub-pillars do not evaluate the actual processes followed or practices applied in the electricity sector regulatory process. Neither does GERI nor any of its sub-pillars aim to capture anything about electricity sector performance in terms of coverage, efficiency, or quality of service. However, the index attempts to give an indication of the progress made by countries in developing legal frameworks, regulations, standards and guidelines, and institutional designs to support the growth of the electricity sector. With the understanding that requisite regulatory frameworks and institutional arrangements can only translate into sector development if there is high government commitment to enforce them in addition to other positive exogenous factors. A robust regulatory regime does not necessarily directly translate into strong sector development as many other factors are required to achieve this, but it nonetheless constitutes a strong foundation.

Despite the above limitations, the GERI database makes available quality and standardized data, valuable to private investors, researchers, and policy makers. By providing data on power sector regulatory governance and regulatory substance indicators across different countries, policy makers can benchmark their own national electricity legal frameworks, and economic and technical regulations against those of other countries, the region, income group and the globe.

FOUR **RESULTS FOR GERI**



In 2021, the average GERI score was 59 percent, indicating an intermediate level of regulatory development across the developing world with significant room for improvements. GERI scores of three regions were above the global average: LAC with a score of 70 percent, SSA with a score of 67 percent and South Asia with a score of 60 percent. The rest of the regions (ECA, EAP, and MNA) recorded scores below the global average mainly due to low scores on regulatory substance. Similarly, upper middle-income countries recorded a GERI score below the global average due to a low score on regulatory substance. (Separate results for the high-income country group are not reported due to a relatively small and unrepresentative sample.)

The country distribution of the GERI score shows that about half (54%) of the countries surveyed fall in the intermediate stage of development of regulatory frameworks (yellow range 50%–74%), indicating that many countries have set in place more than just the basic elements of a good regulatory system in the electricity sector. Of the total of 82 countries surveyed, 29 percent were below the intermediate stage of development, and only 17 percent were above the intermediate stage of development of regulatory frameworks. Over half of the countries below the intermediate stage of development scored below 50 percent both on regulatory substance and on regulatory governance.

It is interesting to see to what extent the GERI is related to broader indices of the quality of governance in an economy. To this end, correlations are examined against the six components of the World Bank's World Governance Indicators (WGI), comprising voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption.[14] Statistical analysis shows that the only sub-component of the WGI that is systematically correlated with the GERI and many of its sub-components (see Annex D) is voice; albeit relatively weakly at around 0.2 to 0.3, although mainly at a five percent significance level. Cross-plotting the WGI index for voice and accountability against the GERI illustrates that many of the countries reporting high values of GERI do not score well on voice and accountability (Figure 4.2). A possible explanation for this is that the WGI are designed to capture the actual functioning of governance in a country rather than the documented legal and regulatory framework as well as institutional design as in the case of GERI.

While the GERI itself is not able to measure how the actual practice of regulation deviates from what is prescribed by the legal and regulatory framework, a pilot exercise was undertaken in seven countries to ascertain this divergence from experts familiar with the

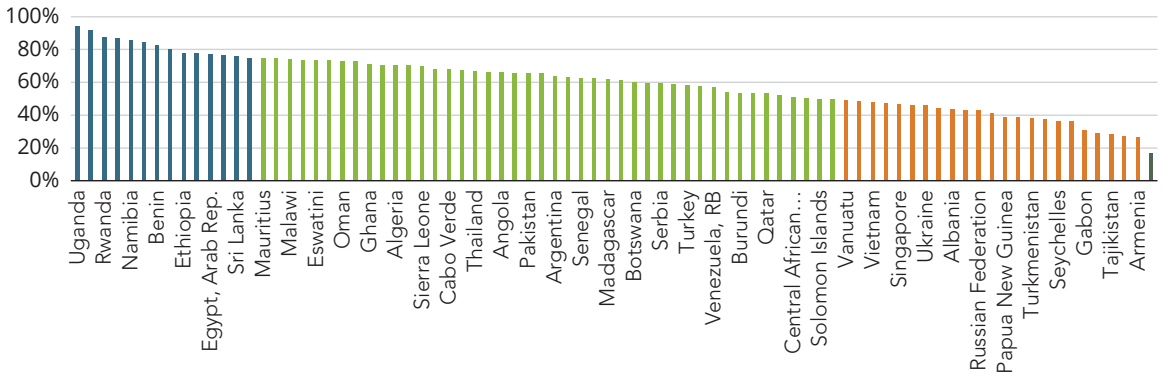
[14] Voice and accountability capture perceptions of the extent to which a country's citizens can participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Government effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests (WGI, 2022).

TABLE 4.1
GERI and Sub-Pillars

INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
GERI	51%	42%	70%	55%	60%	67%	64%	61%	56%	59%
Regulatory Governance	57%	46%	71%	58%	66%	74%	71%	64%	63%	65%
Regulatory Substance	45%	37%	69%	52%	55%	60%	58%	57%	49%	54%
Total Number of Countries	**8**	**13**	**6**	**11**	**4**	**40**	**21**	**31**	**22**	82

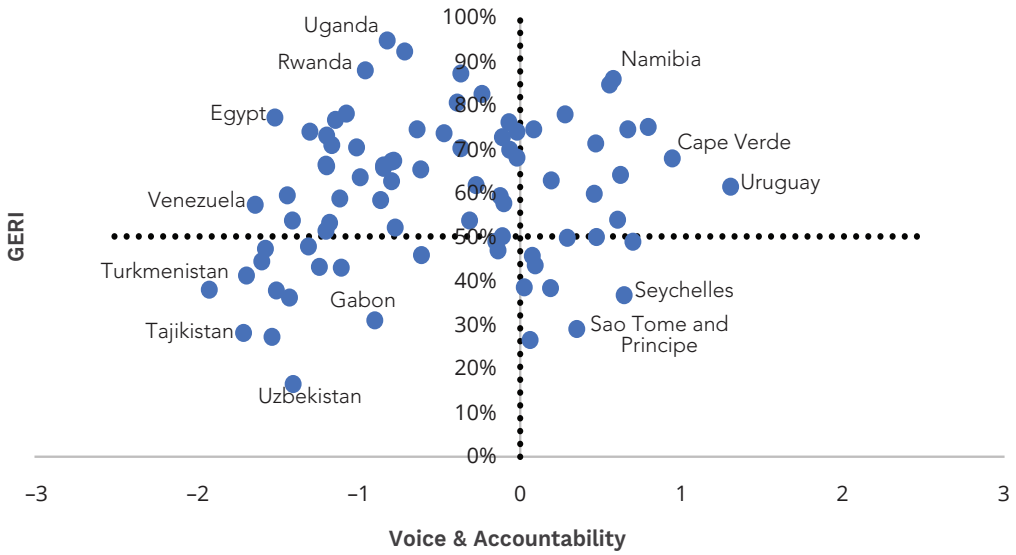
Source: World Bank and AfDB, GERI 2021.

FIGURE 4.1
GERI Distribution by Country



Source: World Bank and AfDB, GERI 2021.

FIGURE 4.2
Scatter Plot GERI and Voice and Accountability



Source: World Bank, GERI 2021.

regulatory environment in each country. Such de facto responses were collected for a sample of seven countries and compared with the de jure results. Strikingly, the de facto evaluation of the regulatory framework was inferior to the de jure score for just under half of the countries and superior for just over half (see Table 4.2 for headline results and Annex E for further details). This indicates that in some cases, countries fail to abide by their own regulatory framework, while in others they may adopt good practices that are not strictly mandated by law.

Countries that recorded higher de jure responses compared to de facto responses revealed the following. In Sri Lanka indicators on predictability and open access to information are better developed on paper than in practice. In Uruguay, independence from stakeholders is entirely absent in practice and weakly developed on paper, while technical regulations for service quality are also better developed on paper. In Cambodia, where the gap between de jure and de facto regulation is particularly large, transparency in decision-making is one salient example of an area that is perfectly developed on paper but entirely absent in practice.

Countries that recorded higher de facto responses compared to de jure responses showed the following. In Vietnam, participation, open access to information, independence from government and technical regulations on quality of service are better in practice than on paper. In Tajikistan, several sub-indicators on RGI and RSI are better in practice. Financial independence, accountability, transparency, predictability, participation, economic regulation of tariffs and technical regulation of quality of service are better in practice and not legally documented. In Romania, clarity of roles, accountability and transparency in decision-making are well practiced though not legally demanded. In the Philippines, clarity of roles and transparency in decision-making are also well practiced, although not legally enshrined.

Finally, before going on to explore the performance on the RGI and RSI in greater depth, it is interesting to examine the correlation between these two sub-pillars of GERI, which turns out to be large and positive, at 0.7, as well as statistically significant at the one percent level. This suggests that countries tend to make parallel progress with improving both the governance and substance components of the regulatory system. Notwithstanding

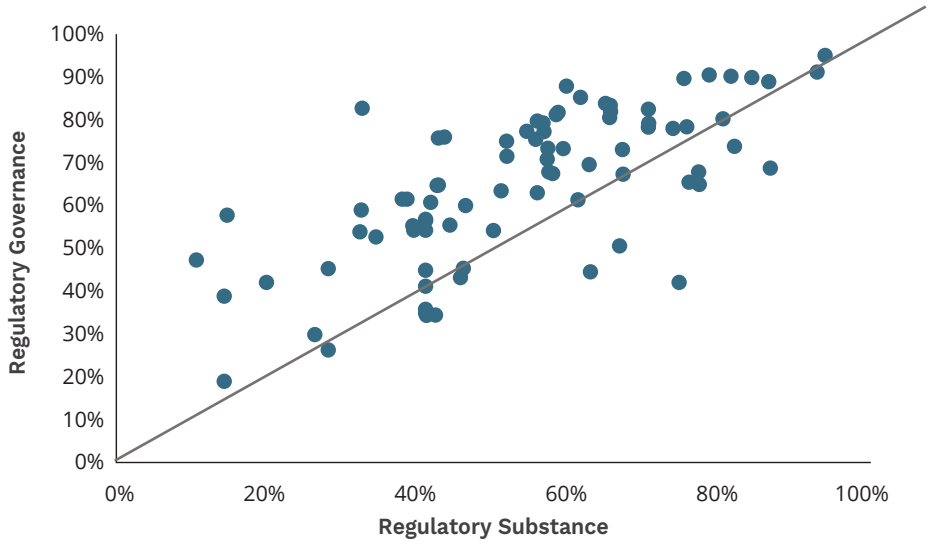
TABLE 4.2
Formal and Informal GERI Results

	INDICATOR	GERI: DE JURE SCORE	GERI: DE FACTO SCORE
1	Cambodia	59%	15%
2	Philippines	49%	72%
3	Romania	54%	72%
4	Sri Lanka	76%	72%
5	Tajikistan	28%	69%
6	Uruguay	61%	60%
7	Vietnam	48%	54%

Source: World Bank GERI 2021.

the high correlation, overall, scores on regulatory substance are systematically lower than those for regulatory governance, as shown by the fact that the points in the cross-plot generally fall above the 45-degree line (Figure 4.3). This may suggest that while regulatory governance arrangements can be put in place up front through initial legislation, the technical aspects of regulatory substance may be more challenging to develop, particularly if institutions lack the necessary capacity.

FIGURE 4.3
Cross-Plot of RGI and RSI Indicating Correlation



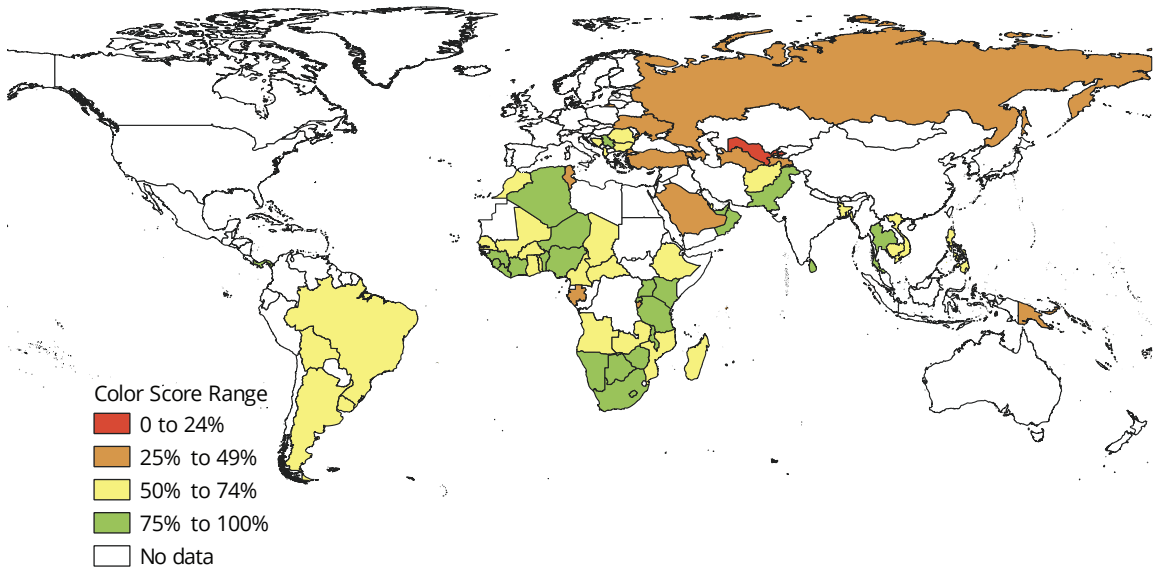
Source: World Bank and AfDB, GERI 2021.


MAU BROWN

OLIVER KNIGHT / WORLD BANK

FIVE RESULTS FOR REGULATORY GOVERNANCE INDEX

FIGURE 5.1
Regulatory Governance Index (2021)



Source: World Bank and AfDB, RGI 2021.

The RGI evaluates the extent to which documented legal frameworks, the institutional design and the framework in which decisions are made meet international best practice. The RGI highlights gaps in sector regulatory frameworks and deficiencies in the definition of roles of the regulator and other sector players in the law. It assesses the regulator's independence from government and stakeholders, independence in decision-making and finances, accountability, transparency and predictability in decision-making, involvement of stakeholders in decision-making and access to sector information. To this effect, the regulatory governance index uses eight indicators (including four sub-indicators under the indicator of independence) to capture the aspects mentioned above. Table 5.1 below shows scores for all indicators including the four sub-indicators under independence.

5.1 Question Level Analysis of Indicators under Regulatory Governance

5.1.1 Legal Mandate

The RGI Legal Mandate indicator captures whether countries have introduced an energy sector law, and whether the regulatory agency is established by legislation. With an average score of 83 percent, legal mandate was the strongest performing indicator under regulatory governance (Table 5.2). Best practice calls for the establishment of a regulatory

TABLE 5.1
GERI Indicators on Regulatory Governance

INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
REGULATORY GOVERNANCE	**57%**	**46%**	**71%**	**58%**	**66%**	**74%**	**71%**	**64%**	**63%**	**65%**
Legal Mandate	63%	73%	83%	69%	75%	95%	93%	73%	89%	83%
Clarity of Roles and Objectives	49%	56%	99%	78%	100%	95%	92%	80%	75%	82%
Independence	70%	49%	58%	58%	53%	56%	56%	57%	57%	57%
Formal Independence from Government and Legislature	68%	53%	65%	61%	55%	68%	66%	63%	63%	64%
Independence from Stakeholders	43%	24%	36%	31%	29%	26%	27%	27%	34%	29%
Decision-Making Independence	98%	69%	73%	77%	80%	71%	73%	79%	73%	75%
Financial Independence	70%	49%	57%	62%	48%	61%	59%	60%	58%	59%
Accountability	50%	41%	50%	64%	72%	68%	66%	59%	54%	60%
Transparency of Decisions	67%	44%	72%	52%	58%	72%	71%	63%	63%	64%
Predictability	53%	31%	57%	42%	55%	63%	61%	60%	47%	53%
Participation	58%	39%	80%	49%	56%	66%	63%	60%	60%	59%
Open Access to Information	46%	38%	65%	54%	57%	74%	68%	63%	56%	61%

Source: World Bank and AfDB, GERI 2021.

TABLE 5.2
RGI Sub-Indicators on Legal Mandate

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	Legal Mandate	**63%**	**73%**	**71%**	**70%**	**75%**	**95%**	**93%**	**73%**	**85%**	**83%**
1	Does your country have an Energy sector law?	38%	69%	57%	64%	50%	95%	95%	61%	79%	76%
2	Was the regulatory authority established by Legislation?	88%	77%	86%	75%	100%	93%	90%	82%	92%	87%

Source: World Bank and AfDB, GERI 2021.

TABLE 5.3
Complementary Data on Operationalization of Regulatory Authorities

YEARS TO OPERATIONALIZE REGULATOR AFTER ESTABLISHMENT BY LAW	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
Within the same year	100%	82%	50%	55%	75%	15%	14%	47%	55%	42%
After 1 year	0%	9%	50%	9%	0%	17%	10%	7%	30%	14%
After 2 years	0%	9%	0%	27%	0%	56%	67%	37%	10%	35%
After 5 years	0%	0%	0%	9%	25%	12%	10%	10%	5%	9%
Total Number of Countries	**8**	**13**	**6**	**11**	**4**	**41**	**22**	**31**	**22**	**83**
Countries with Response	7	11	4	11	4	41	21	30	20	78

Source: World Bank and AfDB, GERI 2021.

authority by law. Of the countries surveyed, 76 percent have an energy sector law and 87 percent have a law establishing the regulatory authority. Despite a good overall score on legal mandate, it is striking that most countries in the East Asia and Pacific Region do not have energy sector laws.

While it is important to have solid legislation in place, in some cases many years may pass before laws are effectively implemented. Some of the background information collected for GERI provides insight as to the prevalence of such delays (Table 5.3). For example, in Sub-Saharan Africa, most countries take more than two years to operationalize a regulatory agency after it has been legally established, while in about 10 percent of countries operationalization has taken in excess of five years. On the other hand, countries in East Asia and Pacific have been exceptionally swift, with all of them managing to establish regulatory institutions within one year of their legal creation.

5.1.2 Clarity of Roles and Objectives

The RGI Indicator on Clarity of Roles and Objectives considers whether the functions and obligations of both the regulator and the regulated entities are clearly defined in legislation. Most regions perform well when it comes to providing legal clarity regarding the objectives and roles of the regulator (Table 5.4). On average, 86 percent of the countries surveyed have defined functions of the regulator clearly in the law and 80 percent have formally outlined obligations of regulated utilities. However, progress is not uniform across regions, with only 38 percent of the countries in East Asia and Pacific and 54 percent of the countries in Europe and Central Asia having regulations that detail the obligations of regulated utilities.

As regards the range of roles assigned to power sector regulators, complementary data identifies as many as 13 roles depending on the jurisdiction (Table 5.5). The three most

TABLE 5.4

RGI Sub-Indicators on Clarity of Roles and Objectives

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	Clarity of Roles and Objectives	**49%**	**56%**	**85%**	**78%**	**100%**	**95%**	**92%**	**80%**	**71%**	**82%**
1	Is your institution's regulatory function clearly defined in primary legislation?	75%	62%	86%	82%	100%	95%	95%	84%	74%	86%
2	Are the regulated utilities' obligation formally set out?	38%	54%	86%	73%	100%	95%	95%	77%	70%	80%

Source: World Bank and AfDB, GERI 2021.

TABLE 5.5

Complementary Data Regulated Activities in the Electricity Sector

	AREAS THE REGULATOR HAS LEGAL MANDATE	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	GLOBAL	LICS	LMICS	UMICS	GLOBAL
1	End-user tariffs	25%	54%	83%	73%	100%	95%	78%	95%	71%	68%	78%
2	Quality of supply and service	25%	38%	100%	82%	75%	98%	78%	95%	71%	68%	78%
3	Oversight of regulated utilities	50%	31%	100%	73%	75%	95%	77%	95%	74%	64%	77%
4	Licensing generation	25%	54%	67%	64%	100%	90%	73%	86%	65%	73%	73%
5	Licensing distribution	25%	31%	67%	55%	100%	90%	69%	86%	61%	59%	69%
6	Licensing transmission	25%	31%	67%	55%	100%	88%	67%	82%	61%	59%	67%
7	Licensing trading or supply	25%	23%	67%	55%	50%	88%	64%	77%	61%	55%	64%
8	Electrification or increasing access to energy	25%	38%	83%	55%	50%	80%	64%	77%	52%	59%	64%
9	Facilitating competition in the market	38%	15%	67%	27%	50%	93%	63%	86%	65%	50%	63%
10	Oversight of system operation functions	13%	23%	83%	45%	25%	88%	61%	86%	55%	50%	61%
11	Promotion of renewable energy or energy efficiency	25%	38%	50%	64%	50%	76%	60%	77%	55%	50%	60%
12	Prices or terms of power purchase agreements	25%	8%	50%	55%	25%	83%	57%	82%	58%	32%	57%
13	Competitive procurement	25%	8%	50%	45%	25%	73%	51%	68%	52%	32%	51%
	Total Number of Countries	**8**	**13**	**6**	**11**	**4**	**41**	**83**	**22**	**31**	**22**	**83**

Source: World Bank and AfDB, GERI 2021.

TABLE 5.6
Complementary Data on Coverage of Regulated Sectors

	SECTORS REGULATED	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
1	Electricity	100%	85%	67%	100%	100%	93%	86%	97%	91%	92%
2	Gas	88%	77%	17%	64%	50%	34%	32%	52%	59%	49%
3	Petroleum	75%	77%	17%	36%	50%	34%	32%	48%	55%	45%
4	Water & Sanitation	0%	38%	17%	45%	25%	0%	0%	10%	18%	14%
5	Telecommunication	0%	15%	17%	0%	0%	12%	14%	0%	23%	10%
6	Others (Post, Coal, etc.)	0%	23%	0%	0%	0%	5%	0%	3%	18%	6%
7	Transport	0%	15%	0%	0%	0%	5%	5%	0%	14%	5%
8	Heating	0%	23%	0%	0%	0%	0%	0%	3%	9%	4%
	Total Number of Countries	**8**	**13**	**4**	**11**	**4**	**41**	**22**	**31**	**22**	**83**

Source: World Bank and AfDB, GERI 2021.

prevalent roles for electricity regulators are tariff-setting, quality of service regulation and oversight of utilities. However, additional roles include licensing of operators, facilitating competition, procuring generation, advancing electrification, and accelerating decarbonization. In Sub-Saharan Africa, and to a lesser extent South Asia, the roles of electricity regulators are quite comprehensive, usually covering most of these mandates (Table 5.5). Whereas in other developing regions, the roles of regulators are more narrowly defined.

As regards the sectoral jurisdiction of power sector regulators, in most countries, these also have jurisdiction over the wider energy sector, including natural gas and petroleum (Table 5.6). In a minority of cases, they may also have combined jurisdiction over other public service sectors, such as water and telecommunications (Table 5.6).

5.1.3 Independence from Stakeholders

The RGI indicator on Independence from Stakeholders examines the presence of legal provisions to safeguard against conflict of interest. It is apparent that regulators have struggled to assert their independence in the sector with only 29 percent of the countries following best practices (Table 5.7). This is the weakest score on the entire RGI. Provisions preventing conflict of interest are missing in many countries. Only 6 percent of the countries surveyed have adopted the international best practice of disallowing the appointment of former officials from regulated utilities to the board of the regulatory authority. Similarly, only 26 percent of the countries surveyed have provisions in the electricity law to prohibit the head of the regulatory authority or its board members from taking-up employment in a regulated utility company after the end of term of office. This lack of restrictions paves the

TABLE 5.7
RGI Sub-Indicators on Independence from Stakeholders

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	Independence from Stakeholders	**43%**	**24%**	**35%**	**31%**	**29%**	**26%**	**27%**	**27%**	**34%**	**29%**
1	Are there provisions in the Law that prohibit the appointment of Commissioners/CEO/Director General of the Regulatory Authority, if any of them has previously held a position in the regulated utility company? Yes = 1; No = 0	0%	8%	14%	0%	0%	7%	10%	0%	13%	6%
2	Are there provisions in the Law that prohibit the Commissioners or CEO/ Director General of the Regulatory Authority from accepting employment in the regulated utility company after the end of their term in office? Yes = 1; No/Not specified = 0	29%	15%	43%	9%	25%	31%	24%	22%	40%	26%
3	Are there any provisions in the Law prohibiting the CEO/Director General or Commissioners, from having any personal interest in the regulated electricity utility? Yes = 1; No/Not specified = 0	50%	8%	43%	73%	50%	71%	67%	59%	40%	56%

Source: World Bank and AfDB, GERI 2021.

way for a revolving door relationship between the leadership of the regulator and the regulated utility, potentially seeding conflicts of interest, and undermining independence.

5.1.4 Formal Independence from Government and Legislation

The RGI indicator on Formal Independence from Government and Legislation examines the processes for the appointment and dismissal of the leadership of the regulator entity. A notable area where regulatory frameworks often fall short is on the absence of provisions for staggering the tenure of board members. Such measures can be helpful in promoting continuity of leadership and facilitating institutional memory and knowledge transfer. However, only 35 percent of the countries surveyed have a legal framework that requires staggering the tenure of board members (Table 5.8). Absence of these statutes is more pronounced in the Middle East and North Africa, Europe and Central Asia and South Asia, where scores on this question are very low ranging from 0 to 20 percent.

The survey also reveals the potential for a high degree of political influence exerted on boards of regulatory authorities in many countries, by means of the board appointment and removal processes. The criteria for dismissal from the board are not legally specified in 49 percent of the countries surveyed, leaving incumbents subject to discretionary removal (Table 5.8). For those that specify criteria, the main reasons for dismissal include

TABLE 5.8

RGI Sub-Indicators on Formal Independence from Government and Legislature

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	Formal Independence from Government and Legislature	**68%**	**53%**	**61%**	**61%**	**55%**	**68%**	**66%**	**63%**	**62%**	**64%**
1	Is it required that representatives of specific institutions or sectors be represented on the Board? Yes = 1; No = 0	100%	92%	100%	82%	100%	43%	48%	73%	73%	69%
2	Who is the appointing authority for the Commissioners/Board Members? The Executive (i.e., President or Prime Minister) = 33%; The Legislature = 100%; Mixture of legislature and executive = 66%; Other (please specify) = 0%	79%	74%	47%	72%	50%	35%	36%	52%	59%	52%
3	Who appoints the Chairperson of the Board/Commissioners? Board Members = 100%; The Executive (i.e., President or Prime Minister) = 33%; The Legislature = 66%; Others (Please specify) = 0%	79%	69%	57%	66%	67%	38%	46%	49%	62%	53%
4	What is the duration of the first term of the Commissioners or Board Members? 2 to 4 years = 50%; 5 to 7 years = 100%; More than 7 years = 0; No fixed term or at the discretion of the appointing authority = 0	100%	77%	64%	70%	63%	82%	76%	77%	83%	79%
5	Is the term of office of Commissioners/ Board Members renewable? No = 100%; Yes, once = 50%; Yes, more than once = 0	100%	58%	36%	68%	50%	86%	85%	73%	69%	75%
6	Is there any mechanism/ provision in the regulatory law or act that ensures continuity, i.e., Staggering the terms of the Commissioners to allow for institutional memory and transfer of regulatory knowledge to new Commissioners? (Yes/No)	25%	8%	43%	18%	0%	52%	38%	34%	41%	35%
7	Who is the appointing authority for the Chief Executive Officer (CEO)/ Director General (DG) of the Regulatory Authority? The Board Members = 100%; The Executive (i.e., President or Prime Minister) = 33%; The Legislature = 66%; Other (please specify) = 0%	75%	59%	57%	69%	67%	54%	55%	58%	58%	59%
8	Are there provisions in the regulatory law that prohibit the Director General/ CEO or any Commissioner from holding other offices in the government or private sector within the energy sector during their tenure? Yes = 1; No/ Not specified/Yes, but with permission from the Executive = 0	88%	62%	71%	54%	75%	52%	53%	57%	70%	60%
9	Are there criteria for dismissing agency head/board members during their term of office published? Yes = 1; No = 0	0%	8%	71%	27%	50%	79%	76%	46%	39%	51%

Source: World Bank and AfDB, GERI 2021.

TABLE 5.9
Complementary Data on Criteria for Board Dismissal

	CRITERIA TO DISMISS THE BOARD	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	HICS	GLOBAL
1	Gross Misconduct	50%	0%	75%	33%	100%			60%	40%	67%	54%
2	Conviction of a Crime	0%	100%	50%	67%	0%			0%	60%	100%	46%
3	Physical or Mental Incapacity	50%	50%	0%	67%	100%			60%	20%	67%	46%
4	Failure to discharge duties or attend meeting for 3 months or more	50%	0%	25%	33%	100%			80%	0%	33%	38%
5	Ineligible	50%	50%	0%	0%	100%			60%	20%	0%	31%
6	Maladministration	0%	0%	50%	67%	0%			20%	20%	67%	31%
7	Resignation	50%	0%	25%	0%	0%			20%	20%	0%	15%
8	Bankruptcy	50%	0%	0%	0%	50%			40%	0%	0%	15%
9	Death or Retirement age	50%	0%	25%	0%	0%			20%	20%	0%	15%
10	Poor Performance	0%	0%	50%	0%	0%			0%	20%	33%	15%
11	Conflict of Interest	0%	50%	0%	33%	0%			20%	20%	0%	15%
	Total Countries	**8**	**13**	**6**	**9**	**4**		**2**	**16**	**15**	**7**	**40**
	Not Specified	75%	85%	33%	67%	50%		100%	69%	67%	57%	68%
	Specified	25%	15%	67%	33%	50%		0%	31%	33%	43%	33%

Source: World Bank and AfDB, GERI 2021.

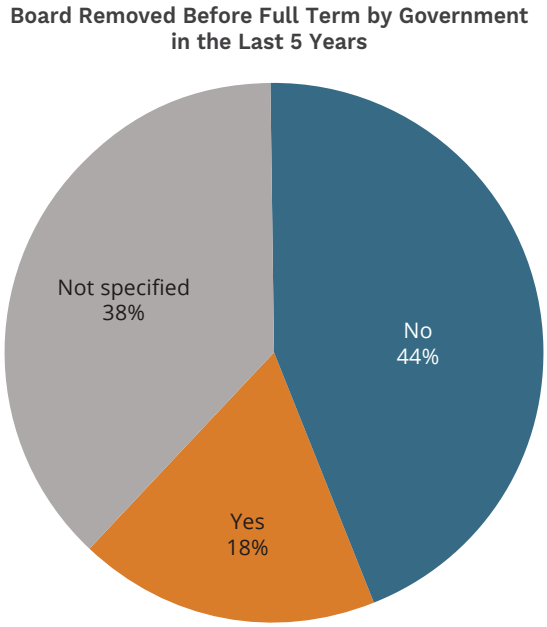
gross misconduct, conviction of a crime and mental or physical incapacitation (Table 5.9). Drawing on complementary information collected by the GERI survey, almost one in five countries reports having had the board removed from office before end of term in the last five years (Figure 5.2).

Best practice requires that the board members of the regulatory authority are appointed by the legislature, while the head of the regulatory authority is selected directly by the board. However, only in 2 percent of countries are legislatures directly involved in this process (Table 5.10). Contrariwise, the head of state is directly involved in board appointments (for 51% of countries) and board dismissals (for 30% of countries), often based on proposals from the line minister (Table 5.11).

5.1.5 Decision-Making Independence

The RGI indicator on Decision-Making Independence captures the ways in which regulatory decisions are taken. For regulators to operate effectively, laws should protect and allow

FIGURE 5.2
Complementary Data on Board Removed before Full Term of Office



Source: World Bank and AfDB, GERI 2021.

regulators to freely make the decisions that fall under their jurisdiction, without interference or the need to seek authorization from any external entity. In regions such as Latin America and the Caribbean as well as the Middle East and North Africa, as many as half the countries include legal provisions explicitly allowing government to overturn regulatory decisions (Figure 5.3). Overall, some 17 percent of the countries surveyed have provisions in the law that allows a government entity to overturn regulatory decisions and of these, about one third experienced an overturn of regulatory decisions during the last five years (Figure 5.4).

In close to half the countries surveyed, regulators are not the final authority on tariff-setting, despite this being one of their central roles. Only 53 percent of countries surveyed give regulators the final authority on tariff-setting (Figure 5.5). Instead, regulators are restricted to being advisory authorities with regard to tariff-setting, whether that be a consultative role (13% of countries) or a shared role with other government authorities (31% of countries).[15] When it comes to another fundamental role of issuing and amending licenses, regulators are again advisory authorities in 53 percent of the countries and final-decision-making authorities in just 44 percent of the countries (Figure 5.5). The prevalence of advisor regulators indicates relatively low commitment to undertaking authentic regulatory reforms by delegating the government's power to intervene in the sector.

[15] The role under others includes setting the tariff methodology, utility performance monitoring, and license verification.

TABLE 5.10
Complementary Data on Responsibility for Board Appointment

	APPOINTMENT OF BOARD MEMBERS	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	GLOBAL
1	Executive (President or King)	33%	50%	0%	50%	100%	57%	51%
2	President & Other	0%	0%	0%	17%	0%	16%	5%
3	General Manager given authority to appoint	0%	17%	0%	0%	0%	0%	8%
4	Minister (Energy or Finance)	33%	0%	0%	17%	0%	16%	15%
5	Council of Ministers or Emiri Resolution	17%	33%	100%	17%	0%	11%	19%
6	Legislature	17%	0%	0%	0%	0%	0%	2%

Source: World Bank and AfDB, GERI 2021.

5.1.6 Financial Independence

The RGI indicator on Financial Independence examines the sources and uses of funds for regulators. For the most part, regulatory authorities display a sustainable mix of funding sources in many countries that strengthens their financial independence (Table 5.13). Two third of the countries have earmarked levies assessed on regulated utilities as the main source of funding the regulator, reflecting a high adoption of best practices. A breakdown of funding sources reveals that 70 percent of funds come from fees (48 percent from fees on regulated utilities and 22 percent from license fees). However, this result does not hold

TABLE 5.11
Complementary Data on Responsibility for Board Dismissal

	DISMISSAL OF BOARD MEMBERS	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	GLOBAL
1	Executive (President or King)	0%	0%	75%	40%	100%	24%	30%
2	Chairman of the Board of Management of the Authority	0%	0%	0%	20%	0%	0%	2%
3	General Manager is given authority to dismiss.	33%	0%	0%	0%	0%	0%	2%
4	Minister (Energy or Finance)	0%	0%	0%	0%	0%	14%	9%
5	Council of Ministers or Emiri Resolution	0%	50%	0%	20%	0%	8%	9%
6	Legislature	0%	50%	0%	0%	0%	0%	2%
7	Not stated but provisions available in the law (Labor laws or the Energy Regulation)	67%	0%	25%	20%	0%	43%	38%
8	Others: Vote by Board Members or Appointment Committee	0%	0%	0%	0%	0%	11%	8%

Source: World Bank and AfDB, GERI 2021.

TABLE 5.12
RGI Sub-Indicators on Decision Making Independence

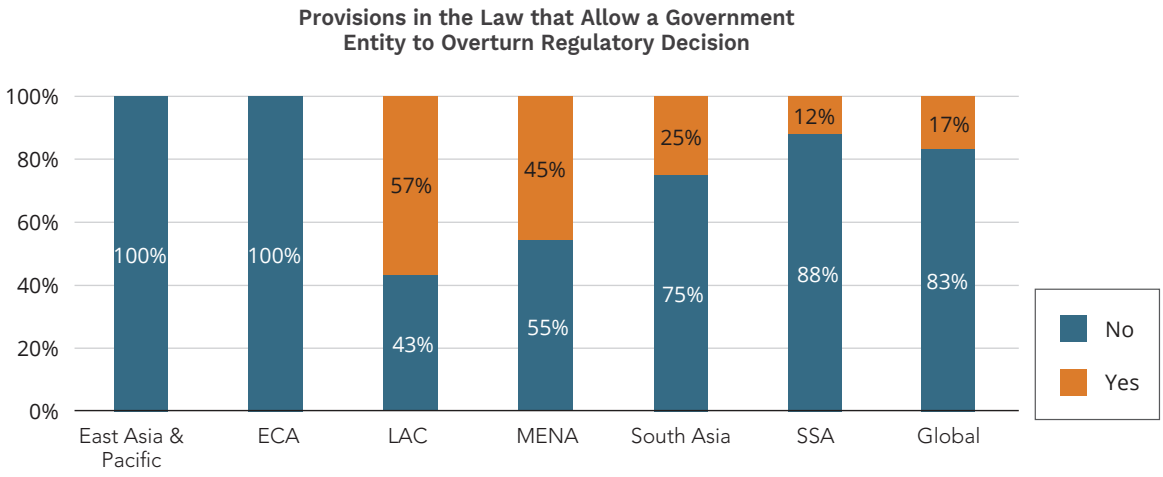
	INDICATOR	EAST ASIA & PACIFIC	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	Decision-Making Independence	**98%**	**69%**	**63%**	**77%**	**80%**	**71%**	**74%**	**79%**	**70%**	**75%**
1	Are there formal provisions in the Law that allows a government entity (e.g. Ministry) to overturn Regulatory Decision? Yes = 0; No = 1	100%	100%	43%	55%	75%	88%	91%	81%	87%	83%
2	What is the regulator's role in approving tariffs? No role = 0; Decision-making role with sector ministry or other government body = 0; plays a consultative = 0; Final decision-making body = 1; Other (please list other roles if not covered by above) = 0	100%	54%	43%	64%	75%	62%	57%	72%	61%	64%
3	What is the Regulatory Authority's role in issuing and amending licenses? Plays a consultative role = 0; Shares the decision-making authority with sector ministry or other government body = 0; Final decision-making body = 1; No role = 0; Other (please list other roles if not covered by above) = 0	88%	62%	57%	82%	75%	43%	48%	63%	57%	58%
4	What is the role of the Regulatory Authority in resolving disputes between companies, and between companies and their customers? Plays a facilitative role = 0; Final decision-making body = 1; Shares the decision-making authority with another institution = 0; No role = 0	100%	62%	86%	82%	75%	62%	66%	84%	60%	71%
5	Are decisions of the regulatory entity legally binding or intended as advisory recommendation? Legally binding = 1; Advisory = 0	100%	69%	86%	100%	100%	86%	95%	87%	78%	87%

Source: World Bank and AfDB, GERI 2021.

across all regions. In Sub-Saharan Africa, as much as 50 percent of the regulator's funding came from a combination of government budget (27%) and penalty fees (23%), where the latter may introduce a perverse incentive to levy fines (Figure 5.6).

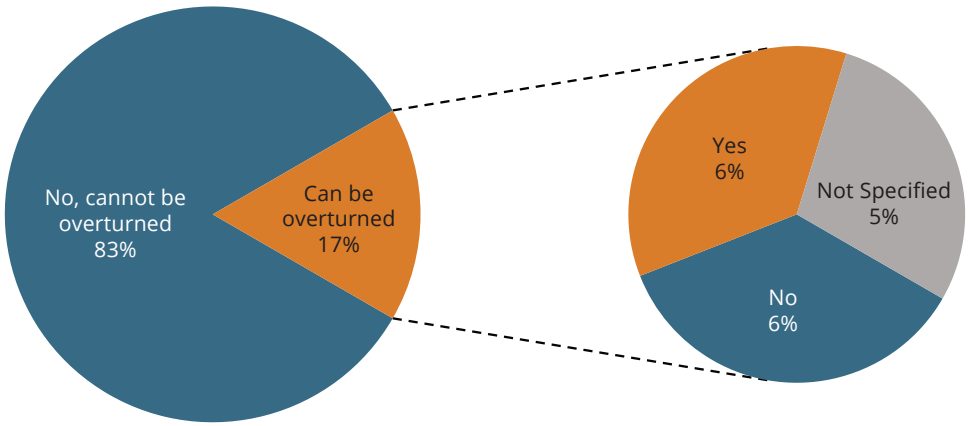
Even where regulators may have their own independent source of revenues, they are not necessarily always involved in decisions to propose and control their budgeted expenditure (Table 5.13). Regulatory authorities in 44 percent of the countries surveyed do not propose their own budget and a further 36 percent do not solely control their own budget expenditure (Figure 5.7). Proposing the budget is taken up either by the executive or legislative branches of government, while controlling budget expenditure is jointly done between the regulator and the executive, and in some cases just by the executive.

FIGURE 5.3
Complementary Data on Provisions to Overturn Regulatory Decisions, by Region



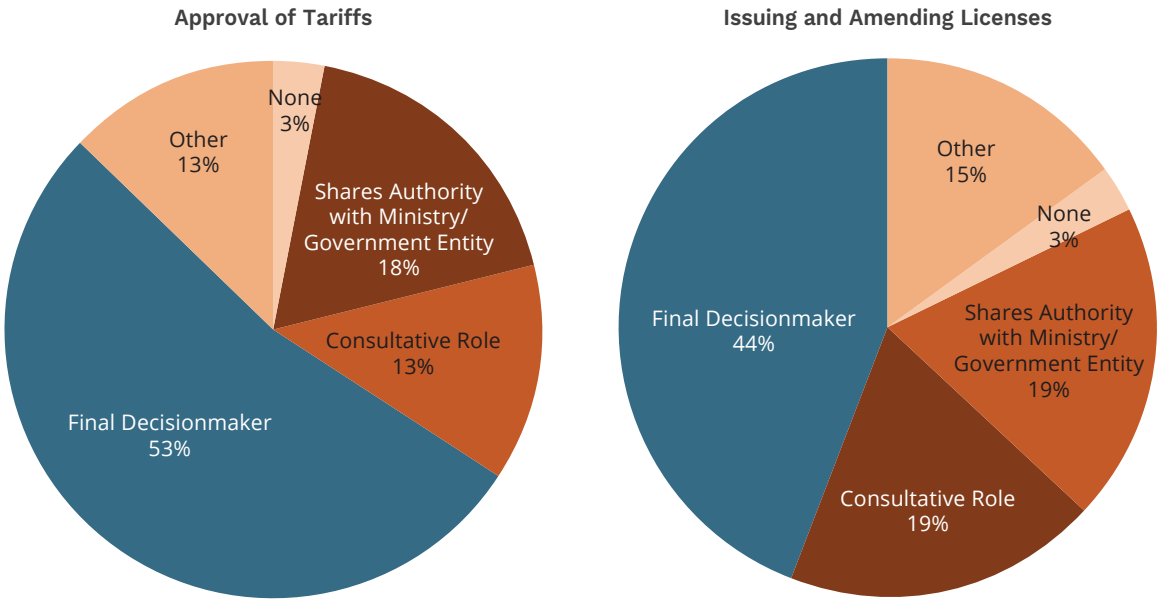
Source: World Bank and AfDB, GERI 2021.

FIGURE 5.4
Complementary Data on Decisions Overturned in the Last 5 Years



Source: World Bank and AfDB, GERI 2021.

FIGURE 5.5
Complementary Data on Role of the Regulator in Tariff-Setting and Licensing



Source: World Bank and AfDB, GERI 2021.

Incentivizing staff of regulatory authorities remains a challenge in many countries. Regulatory authorities in 41 percent of the countries surveyed set salaries lower than the utility companies they regulate (Figure 5.8). This is true even though the boards of regulatory authorities determine their own salary scale in 67 percent of the countries, while 54 percent of the countries standardize the salary scale to that of regulated utility companies, which is considered international best practice (Figure 5.8). Certain regions—notably Europe and Central Asia, Middle East and North Africa and South Asia—lag considerably on the aspect of salary compensation.[16]

5.1.7 Accountability

Regulatory independence needs to be counterbalanced with regulatory accountability. The RGI indicator on Regulatory Accountability gauges this in terms of regulatory reporting lines, transparency of information, and contestability of decisions. Performance on regulatory accountability differs across regions (Table 5.14). In the case of Europe and Central Asia as well as East Asia and Pacific, this is because most countries in these regions lack mechanisms for utilities to challenge regulatory decisions. In the case of Latin America and the Caribbean, the reason is that many countries lack provisions in the law which oblige regulators to publish annual reports.

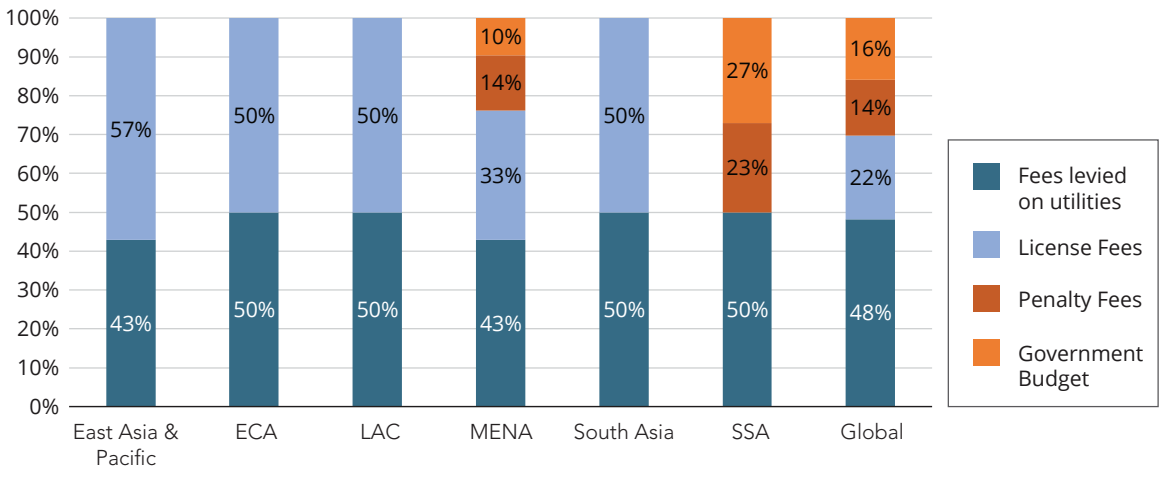
[16] See Table 5.13 question 6.

TABLE 5.13
RGI Sub-Indicators on Financial Independence

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	Financial Independence	**70%**	**49%**	**53%**	**62%**	**48%**	**61%**	**59%**	**60%**	**57%**	**59%**
1	What are the regulator's major source(s) of funding? SUM (Fees levied on regulated utilities = 50%; License/Certification Fees = 50%; Penalty Fees = 0%; Government budget allocation = 0%)	88%	69%	57%	82%	75%	76%	69%	81%	74%	75%
2	Is the source of the financial budget stated in the establishing legislation? (Yes, No)	50%	23%	86%	82%	50%	98%	90%	71%	66%	76%
3	Who controls the approved budget and is responsible for decision making in regard to expenditure? The Government and the Regulatory Authority = 0; The Regulatory Authority = 1; The Government (i.e., Minister of Finance or Minister of Energy) = 0	75%	69%	43%	64%	75%	74%	66%	71%	74%	70%
4	Who decides on the regulatory authority's staff salary level? Government or Sector Ministry = 0; Government and regulatory authority board = 0.5; Regulatory Authority Board (i.e., Commissioners) = 1	88%	65%	64%	91%	75%	82%	81%	76%	83%	79%
5	What is the basis for setting the salary level for employees of the Regulatory Authority? Civil Service Salary Scale = 0; Public Utility Salary Scale = 1; Others (If Reg. Authority's own) = 1	75%	54%	43%	46%	25%	73%	76%	62%	59%	62%
6	Is the average level of the salaries of the regulatory staff lower than those of the utilities? Yes, lower = 0; No, higher = 1; Equal = 0.5	25%	0%	36%	14%	13%	48%	58%	34%	16%	31%

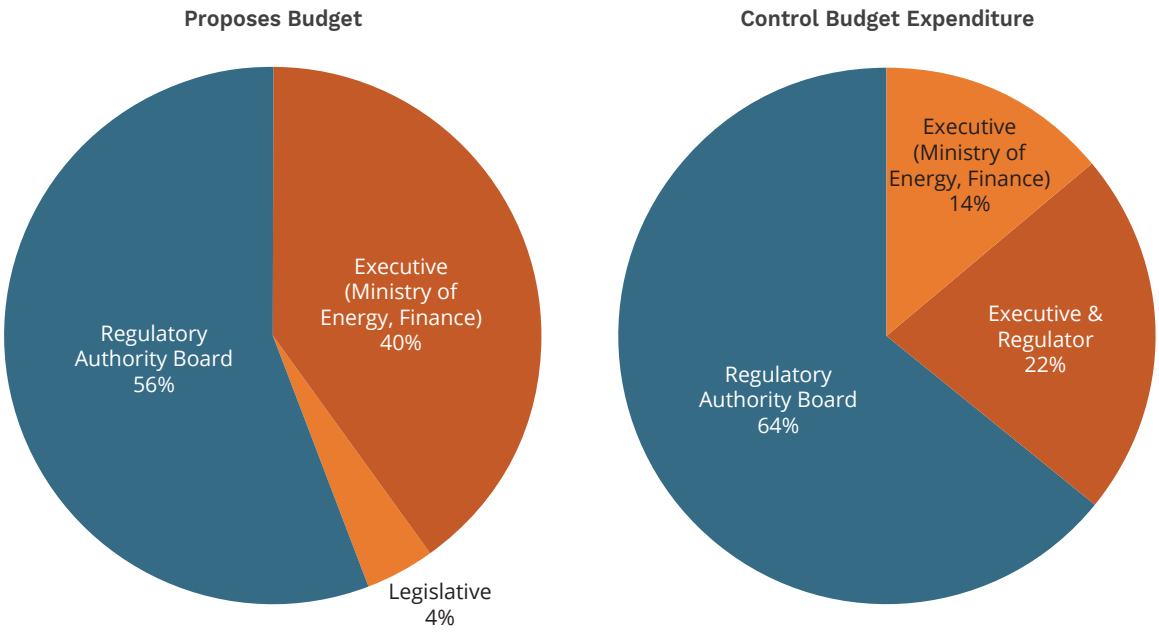
Source: World Bank and AfDB, GERI 2021.

FIGURE 5.6
Complementary Data on Regulator's Source of Funding by Region



Source: World Bank and AfDB, GERI 2021.

FIGURE 5.7
Complementary Data on Regulator's Role in Developing the Agency Budget



Source: World Bank and AfDB, GERI 2021.

5.1.8 Transparency of Decisions

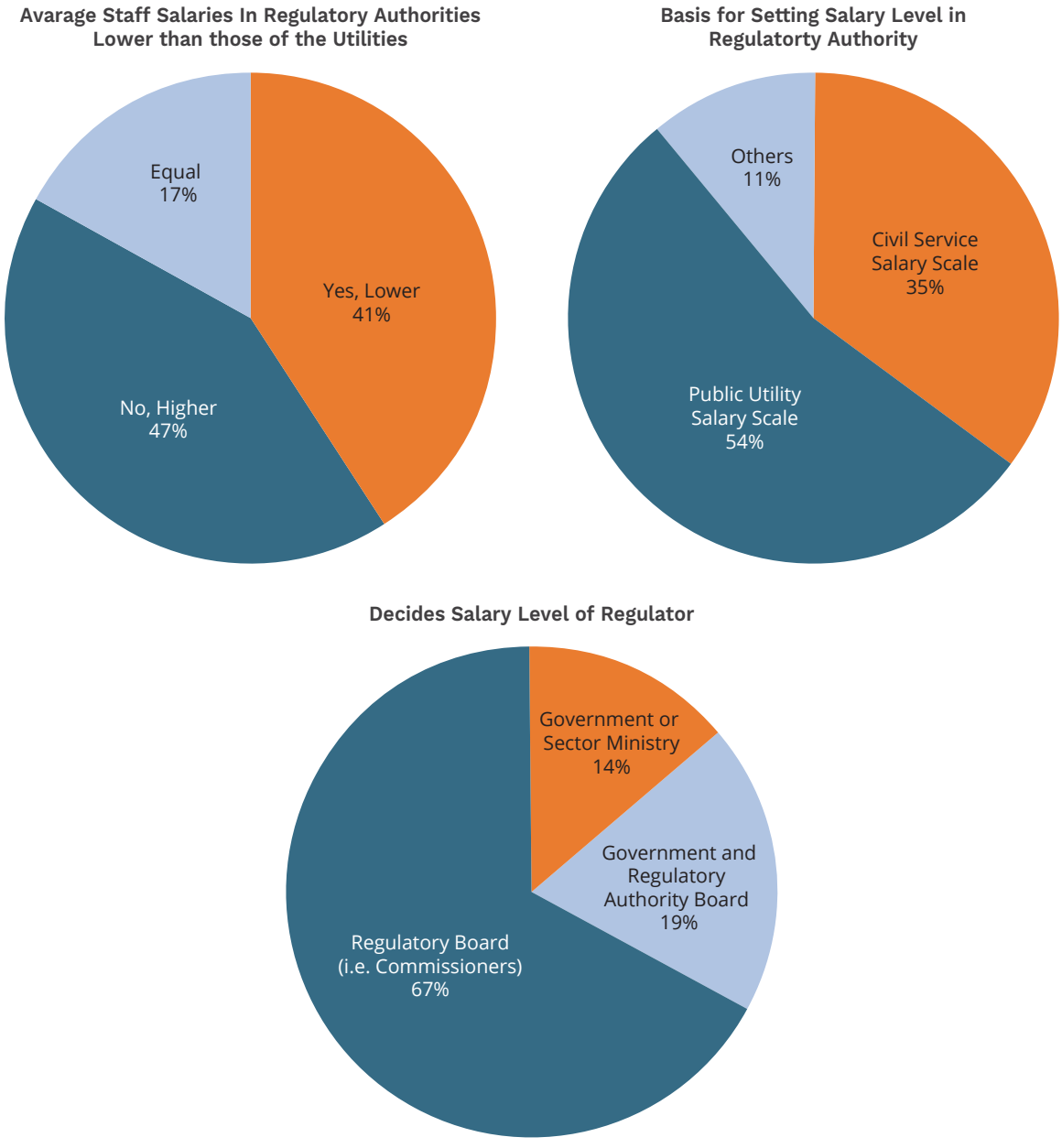
The RGI indicator on Transparency of Decisions examines requirements for regulatory decisions to be made public and explicitly justified (Table 5.15). Even if regulatory decisions are typically required to be published, only relatively few countries require proper justification to be provided for regulatory decisions. Sub-Saharan Africa, together with Latin America and the Caribbean, are the best performing regions in this regard. While for countries in Europe and Central Asia, this seems to be a particular area of weakness.

5.1.9 Predictability

The RGI indicator on Predictability captures the extent to which regulatory methodologies and procedures are clearly defined and publicized (Table 5.16). However, in many countries the regulatory process is unpredictable because the principles and rules followed by regulators in decision-making remain undocumented. Of the countries surveyed, only 43 percent of the countries have documented procedures for how regulatory documents can be modified. This is a particular issue for South Asia, Europe, and Central Asia, as well as Latin America and the Caribbean.

Tariff review procedures are missing in many countries. While 70 percent of the countries surveyed have a documented tariff methodology, only 48 percent outline the procedures

FIGURE 5.8
Complementary Data on Determination of Salaries in Regulatory Authorities



Source: World Bank and AfDB, GERI 2021.

TABLE 5.14

RGI Sub-Indicators on Regulatory Accountability

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	ACCOUNTABILITY	**50%**	**41%**	**48%**	**64%**	**72%**	**68%**	**66%**	**59%**	**54%**	**60%**
1	To whom is the regulator directly accountable or reports to? Sector Minister = 0.33; Presidency = 0.33; Parliament through Sector Minister = 0.66; Parliament directly = 1; No one = 0; Others: Specify = 0	83%	72%	43%	66%	50%	40%	44%	53%	59%	54%
2	Does the Regulatory Authority have a legal obligation to produce an annual report on its activities? Yes = 1; No = 0	54%	36%	14%	73%	92%	95%	89%	73%	55%	73%
3	Is there a formal mechanism for regulated utilities (or other parties), to challenge/contest the regulatory decisions? Yes = 1; No = 0	13%	15%	86%	64%	75%	98%	91%	68%	58%	70%

Source: World Bank and AfDB, GERI 2021.

TABLE 5.15

RGI Sub-Indicators on Transparency of Decisions

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	Transparency of Decisions	**67%**	**44%**	**71%**	**52%**	**58%**	**72%**	**71%**	**63%**	**63%**	**64%**
1	Are all decisions taken by the regulatory agency accessible to the public? Yes = 1; No = 0	63%	54%	71%	55%	75%	76%	76%	65%	69%	68%
2	Is the publication of major decisions supported by explanations or rationale? Yes = 1; No = 0	38%	15%	86%	27%	25%	88%	81%	55%	57%	60%
3	Is publication of regulatory documents and decisions voluntary or mandatory/ compulsory under the law? Yes, voluntary = 0.5; Yes, mandatory = 1; No, not specified in the law = 0	100%	62%	57%	73%	75%	67%	71%	69%	70%	70%

Source: World Band and AfDB, GERI 2021.

TABLE 5.16
RGI Sub-Indicators on Predictability

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	PREDICTABILITY	**53%**	**31%**	**51%**	**42%**	**55%**	**63%**	**61%**	**60%**	**46%**	**53%**
1	Do you have a documented Tariff Methodology? Yes (With year of adoption) = 1; No = 0	100%	62%	86%	64%	50%	67%	66%	72%	78%	70%
2	By whom and how can the Tariff Methodology be changed? By Ministerial decision = 0; By the Regulator, in consultation with regulated firms and stakeholders = 1; By the Regulator, based on unilateral decision, without consultation with stakeholders = 0; Others (specify if not included in the above) = 0	88%	62%	57%	73%	50%	67%	57%	71%	74%	67%
3	How can key regulatory documents such as licenses, contracts, authorizations etc. be modified? By mutual agreement between parties to the regulatory instrument = 1; By both regulatory and Ministerial actions = 0.5; By regulatory decision = 0; By Ministerial decision = 0; Others (specify if not included in the above) = 0	25%	15%	14%	41%	0%	65%	64%	50%	27%	43%
4	Does the Tariff Methodology set out the procedures for major tariff reviews? Yes = 1; No = 0	25%	8%	57%	27%	100%	64%	66%	56%	35%	48%
5	Is the timetable for tariff review clearly spelt out as part of the tariff methodology or in another document? Yes, in Tariff Procedure = 1; Yes, in another document = 0.5; No = 0	25%	8%	43%	27%	75%	51%	47%	51%	31%	39%

Source: World Bank and AfDB, GERI 2021.

for major tariff reviews (Table 5.16). Further, only 39 percent of the countries have a timetable for tariff reviews clearly spelt out as part of the tariff methodology or in another document.

5.1.10 Participation

The RGI indicator on Participation captures the processes for stakeholder consultation and engagement in regulatory decision-making (Table 5.17). For the most part, stakeholder consultation is limited, with stakeholder comments rarely published, and their inputs having limited influence on regulatory decisions. Regulatory authorities in 72 percent of the countries surveyed involve various stakeholders in the decision-making process through written submissions, holding ad hoc meetings or public hearings. However, apart from Sub-Saharan Africa as well as Latin America and the Caribbean, regulators in other

TABLE 5.17
RGI Sub-Indicators on Participation

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	PARTICIPATION	**58%**	**39%**	**69%**	**49%**	**56%**	**66%**	**62%**	**60%**	**57%**	**59%**
1	Is the consultation process of different stakeholders (utilities, Government, consumers, etc.) required by law? Yes, voluntary = 0.5; Yes, mandatory = 1; No, not specified in the law = 0	88%	62%	57%	73%	75%	67%	57%	76%	70%	68%
2	Does the regulator involve the following stakeholders in its decision-making process? SUM (Regulated Utility companies = 0.2; Other industry players = 0.2; Consumers = 0.2; NGO's and Civil Society = 0.2; Other (Please specify) = 0.2)	85%	52%	69%	71%	65%	75%	78%	73%	65%	72%
3	Indicate the approach for involving stakeholders. SUM (Public Hearings = 0.25; Ad-hoc meetings with stakeholders = 0.25; Submission of written comments = 0.25; Other method (please specify) = 0.25)	78%	56%	64%	73%	63%	59%	60%	67%	61%	63%
4	Does the regulator publish comments received during the consultation exercise? Yes = 1; No = 0	13%	0%	71%	27%	25%	100%	90%	58%	49%	61%
5	Does the regulator take into account stakeholders' inputs and responses during the consultation process to influence regulatory decisions? Yes = 1; No = 0	25%	23%	86%	27%	50%	98%	95%	61%	61%	67%

Source: World Bank and AfDB, GERI 2021.

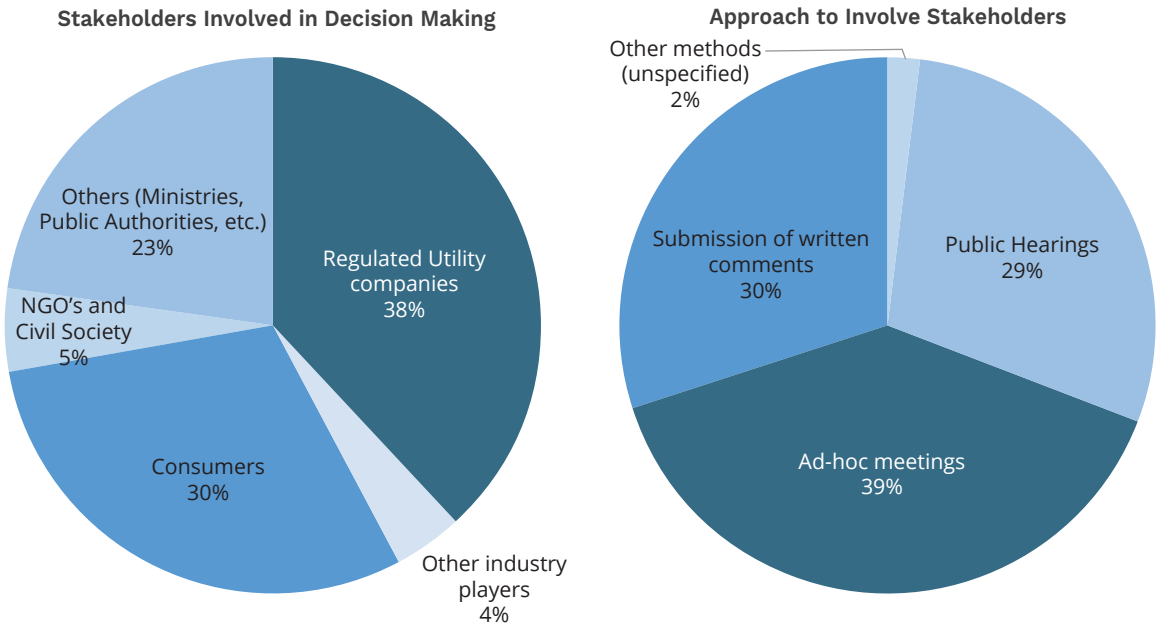
regions barely publish comments received during consultation nor consider the inputs of stakeholders in regulatory decisions. This is partly because in some countries consultation of stakeholders is not included in the sector law and even where it is, there may be no penalty for non-compliance.

According to the complementary data collected, the principal stakeholders that regulators are engaging with are for the most part utility companies and private consumers (Figure 5.9). In terms of the channels of consultation, these divide equally between formal public hearings, ad hoc private meetings, and invitation to submit written comments (Figure 5.9).

5.1.11 Open Access to Information

RGI indicators on Open Access to Information focus on the availability and quality of a regulator's website. Overall, access to sector information seems to be at an intermediate stage of development, with an average score of 68 percent (Table 5.18). Regulators in

FIGURE 5.9
Complementary Data on Participation of Stakeholders in Decision-Making



Source: World Bank and AfDB, GERI 2021.

TABLE 5.18
RGI Sub-Indicators on Open Access to Information

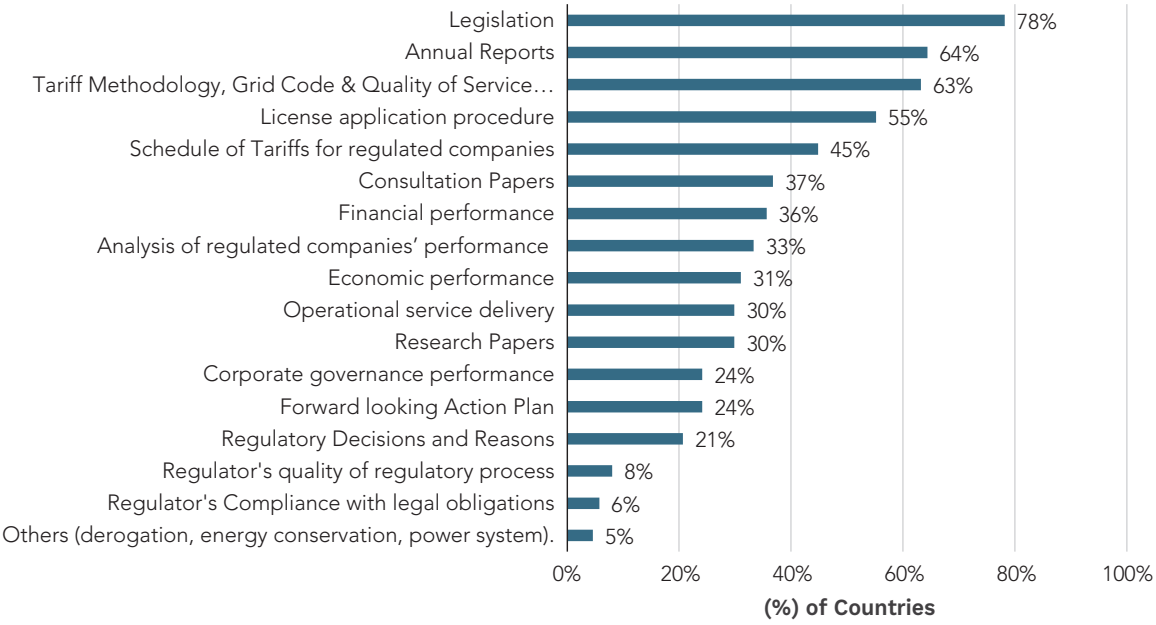
	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	OPEN ACCESS TO INFORMATION	**46%**	**38%**	**63%**	**54%**	**57%**	**74%**	**68%**	**63%**	**57%**	**61%**
1	Does the regulator have a public website? Yes = 1; No = 0	88%	77%	100%	82%	100%	93%	85%	87%	92%	89%
2	How often is the website updated? At least once a week = 1; Between one week and one month = 0.5; More than one month = 0	63%	62%	43%	64%	25%	51%	45%	59%	56%	54%
3	Does the regulator have an IT/Communications officer in charge of the website/website management? Yes = 1; No = 0	13%	0%	57%	36%	50%	81%	76%	55%	40%	52%

Source: World Bank and AfDB, GERI 2021.

89 percent of the countries surveyed have a public website, though the frequency of updating website material seems to be a challenge because many regulators do not have a dedicated IT or Communications person to manage the website, and many countries do not have legal provisions which mandate regulated utilities to submit information to the regulator.

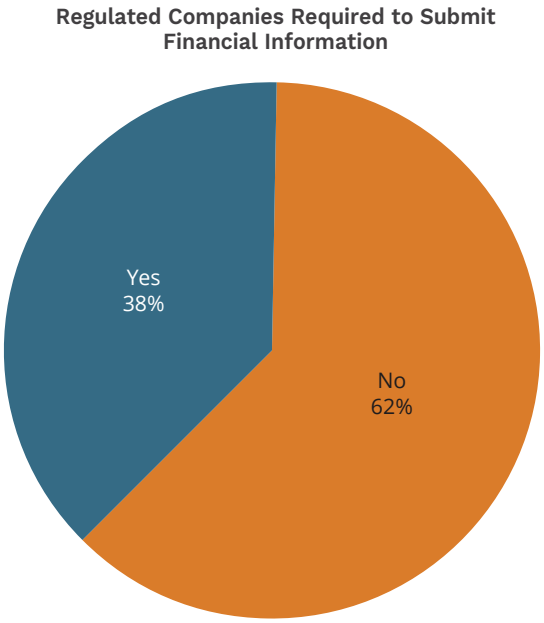
Regulatory websites contain a lot of information on primary and secondary legislation, but much less information on industry operations (Figure 5.10). In approximately 78 percent of the countries surveyed, primary legislation and regulations are available on the regulator's website. On the other hand, regulators in less than half of the countries surveyed have information on the website of tariff schedules, performance of regulated utilities, consultations, financial performance, work action plans, service delivery, regulatory decisions, and regulators compliance with legal obligations. Some of the reasons for limited information on regulators websites include absence of legal provisions to mandate sector players to submit data and information to the regulator. For instance, surveyed countries outside Africa show that 62 percent of the countries do not require regulated companies to submit financial information to the regulator according to regulatory accounting standards (Figure 5.11). Further, regulators in 44 percent of countries outside Africa collect information from regulated companies by compulsory process, yet only 23 percent of the regulators publishing performance reports (Figure 5.12).

FIGURE 5.10
Complementary Data Regarding Information on Regulator's Website



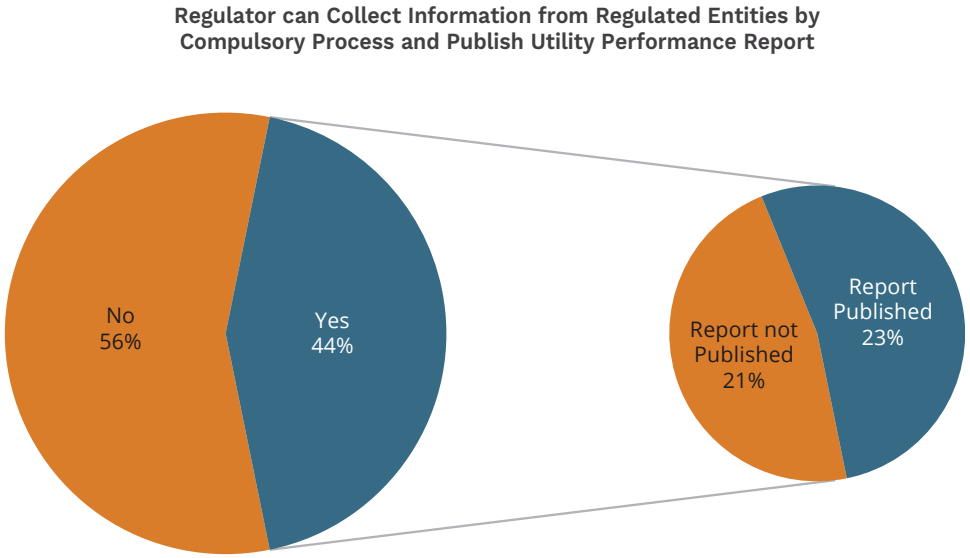
Source: World Bank and AfDB, GERI 2021.

FIGURE 5.11
Complementary Data on Submission of Financial Information of Utilities



Source: World Bank, GERI 2021. No data available for Sub-Saharan Africa.

FIGURE 5.12
Complementary Data on Regulators Compulsory Powers to Collect Utility Data

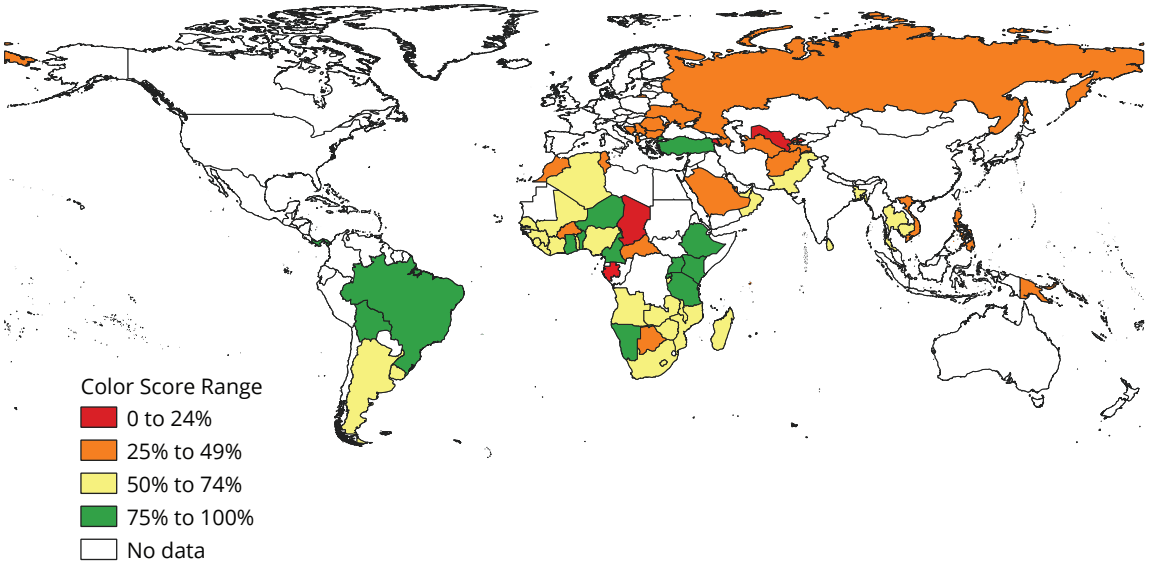


Source: World Bank, GERI 2021. No data available for Sub-Saharan Africa.

TAMARA MERINO / IMF

SIX RESULTS FOR REGULATORY SUBSTANCE INDEX

FIGURE 6.1
Regulatory Substance Index (2021)



Source: World Bank and AfDB, RSI 2021.

Regulatory substance evaluates the content of technical regulation being applied in the electricity sector. It analyzes elements of tariff-setting (tariff level, tariff structure, cost pass-through rules, automatic tariff adjustment mechanisms and schedule for major tariff reviews), quality of service standards, licensing frameworks, guidelines and procedures and human resource capacity of the regulator to carry out its functions. To cover the above aspects, the RSI is broken down into four main indicators, addressing tariff-regulation, quality regulation, licensing, and institutional capacity (Table 6.1).

6.1 Question level Analysis of Indicators under Regulatory Substance

6.1.1 Economic Regulation: Tariff-Setting

The RSI indicator on "Economic Regulation: Tariff-Setting" documents the presence of many important elements of a tariff-setting methodology, including tariff-setting mechanisms, automatic tariff adjustments and social tariffs, as well as treatment of network connection costs, ancillary services, cost pass-through and stranded assets. Economic regulation of tariffs turns out to be the weakest indicator under the regulatory substance pillar, with an average score of just 37 percent (Table 6.2). The most lagging regions under this indicator were Europe and Central Asia as well as East Asia and Pacific, due to poor performance on almost every question.

TABLE 6.1
Regulatory Substance Indicators

INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
REGULATORY SUBSTANCE	**45%**	**37%**	**69%**	**52%**	**55%**	**60%**	**58%**	**57%**	**49%**	**54%**
Economic Regulation: Tariff-Setting	19%	14%	55%	31%	41%	47%	44%	41%	30%	37%
Technical Regulation: Quality of Service	34%	24%	62%	58%	31%	63%	55%	54%	46%	52%
Licensing Framework	75%	55%	81%	66%	75%	73%	78%	72%	62%	70%
Institutional Capacity	52%	56%	77%	52%	72%	56%	53%	61%	58%	57%

Source: World Bank and AfDB, GERI 2021.

TABLE 6.2
RSI Sub-Indicators on Economic Regulation—Tariff Setting

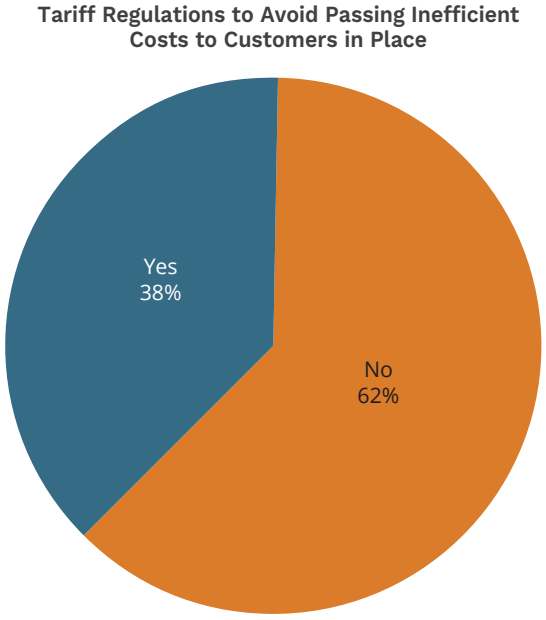
	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
1	**Economic Regulation: Tariff Setting**	19%	14%	47%	31%	41%	47%	44%	41%	29%	37%
2	Has the regulator developed a well-documented Tariff-Setting Methodology? Yes = 1; No = 0	88%	77%	71%	73%	100%	69%	76%	79%	74%	74%
3	Does the Tariff Methodology include an Automatic Tariff Adjustment or Tariff Indexation Mechanism? Yes = 1; No = 0	13%	0%	57%	18%	50%	45%	57%	31%	26%	32%
4	Does the Tariff Methodology include a schedule for major tariff reviews? Yes = 1; No = 0	25%	15%	57%	27%	75%	48%	47%	50%	31%	40%
5	Is there a written formula that prescribes how end-user tariff levels are to be set? Yes = 1; No = 0	0%	8%	43%	36%	50%	62%	48%	55%	31%	42%
6	Are there regulatory mechanisms to compensate generators for the provision of firm capacity or ancillary services (e.g., frequency or voltage control, spinning reserve)? Yes = 1; No = 0	0%	8%	43%	27%	0%	40%	38%	24%	27%	28%
7	Does the regulatory entity ensure utilities are compensated for the costs of stranded assets (i.e., assets that have lost their value due to regulatory changes)? Yes = 1; No = 0	13%	8%	0%	18%	0%	43%	48%	24%	13%	26%
8	Has the regulator developed/validated a network connection policy as part of its tariff? Yes = 1; No = 0	0%	0%	43%	27%	25%	31%	29%	31%	16%	23%
9	Has the regulator carried out a recent (less than 10 years) study on the cost of service? Yes = 1; No = 0	13%	0%	57%	36%	25%	52%	48%	43%	22%	37%

Source: World Bank and AfDB, GERI 2021.

While many countries have well-documented tariff-setting methodologies most lack key requisite attributes. Even though 74 percent of the countries have documented their tariff methodology, the actual formula for prescribing end-user tariff levels is recorded in only 42 percent of the countries (Table 6.2). Less than a quarter of countries surveyed have mechanisms to compensate generators for ancillary services, compensate utilities for stranded assets or have developed a network connection policy as part of the tariff. Further, barely half of the countries surveyed have formulas prescribing how end-user tariffs are set, little more than a third have regulations to avoid passing inefficient costs to customers and only one fifth have adopted policies to make tariffs more affordable for low volume customers.

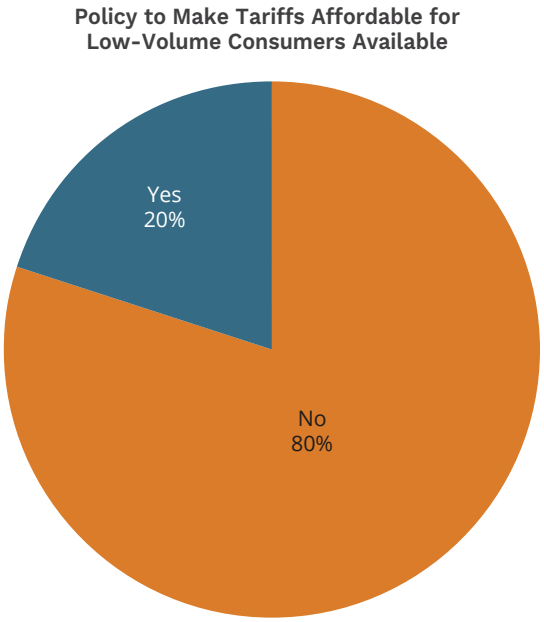
Another prevalent problem is a lack of concrete specification for the timing of tariff adjustments: 85 percent of the countries do not have regular automatic adjustment mechanisms to keep up with inflation, while 81 percent lack schedules for major tariff reviews. Under these circumstances, it is unclear to stakeholder when tariffs will be adjusted and there is the risk that they may remain at the same level for lengthy periods, undermining the utility's ability to recover the full cost of the service. Moreover, the fact that almost two thirds of countries have not carried out a proper cost of service study during the last decade means that, even when tariffs are adjusted, there is no guarantee that they will be set at an adequate cost recovery level. Further, close to two thirds of the countries surveyed lack tariff regulations to avoid passing inefficient costs to customers (Figure 6.2), while one out of four countries have no policies to make tariffs affordable by

FIGURE 6.2
Complementary Data on Regulations to Avoid Passing Inefficient Costs to Customers



Source: World Bank and AfDB, GERI 2021.

FIGURE 6.3
Complementary Data on Policies to Make Policies Affordable to Low-Volume Customers



Source: World Bank and AfDB, GERI 2021.

low volume customers (Figure 6.3). In the few cases where the regulatory framework specifies time periods for tariff-setting, these are typically 6 to 12 months for automatic tariff adjustments and five years for major tariff reviews (Figure 6.4).

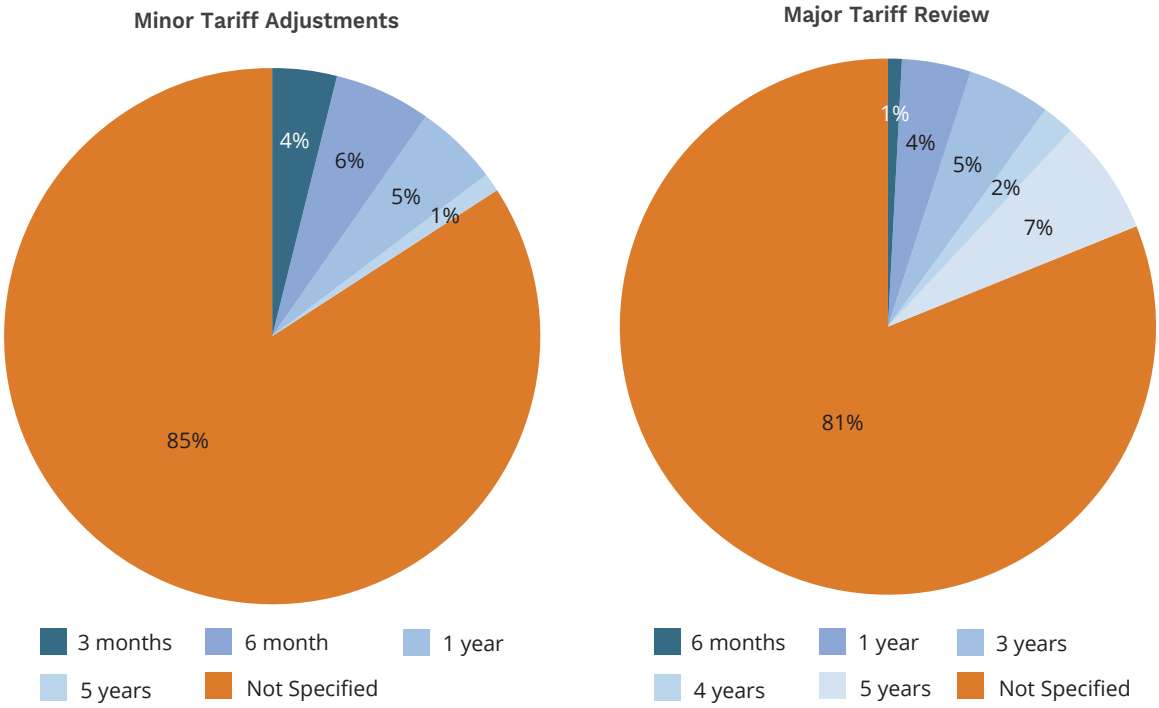
6.1.2 Technical Regulation of Quality of Service

The RSI indicators on Technical Regulation of Quality of Service comprise the determination and oversight of customer service standards as well as technical standards relating to the operation of the grid. This is another area of weak performance with a global score of just 52 percent.

Only 50 percent of the countries surveyed have developed quality of service regulations, and the existing regulations are short of key essential attributes (Table 6.3). For instance, quality of service regulations which include technical performance standards are present in only 55 percent of the countries, those that include quality of service performance standards are available in 54 percent of the countries, and those with grid connection and access technical requirements are found in 53 percent of the countries surveyed (Table 6.3).

Only 48 percent of the countries have developed a national grid code for the interconnected power system while only 37 percent have developed distribution codes for the interconnected power system. This can be a major concern for countries undertaking major expansion of renewables and access through off grid technologies.

FIGURE 6.4
Complementary Data on Scheduling of Tariff Reviews



Source: World Bank and AfDB, GERI 2021.

Not many regulators analyze the quality of service of regulated utilities. Of the countries surveyed, only 29 percent have regulators who conduct and publish a comprehensive report on the quality of service of regulated utilities (Table 6.3). Further, only 23 percent of the countries have regulators who discuss results of the analysis with regulated companies, highlighting little dialogue among industry players to improve the quality of service and technical performance as well as inadequate human resource capacities in regulatory authorities.

6.1.3 Licensing Framework

The RSI indicator on Licensing Framework considers the existence of a framework for licensing activities, both in the grid and off-grid space. Overall, this was the highest performing indicator under regulatory substance, with 78 percent of the countries surveyed having developed electricity sector licensing frameworks and guidelines (Table 6.4). However, the development of separate, and simplified licensing frameworks for off-grid and small sized systems remains a challenge in approximately 60 percent of the countries surveyed. Despite countries scoring highly here, it is important to note that anecdotal evidence points to significant deficiencies in implementation. Licensing is especially susceptible to political interference where in practice the regulatory approval is based on political pressure and not technical and economic realities.

TABLE 6.3

RSI Sub-Indicators for Technical Regulation: Quality of Service

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	Technical Regulation: Quality of Service	**34%**	**24%**	**53%**	**58%**	**31%**	**63%**	**55%**	**54%**	**44%**	**52%**
1	Has the regulator developed Quality of Service Regulations/Code? Yes = 1; No = 0	25%	23%	57%	55%	25%	64%	52%	52%	44%	50%
2	Is Technical Performance covered under the Quality-of-Service Regulations for monitoring the performance of the regulated firm. Yes = 1; No = 0	13%	15%	43%	73%	25%	76%	67%	61%	36%	55%
3	Is Quality of Service Performance covered under the Quality-of-Service Regulations for monitoring the performance of the regulated fir. Yes = 1; No = 0	13%	15%	43%	55%	25%	79%	67%	61%	40%	54%
4	Is Grid connection and access to technical requirements covered under the Quality-of-Service Regulations for monitoring the performance of the regulated firm. Yes = 1; No = 0	13%	15%	43%	55%	0%	79%	71%	52%	36%	53%
5	Has the regulator developed a national Grid Code for interconnected power system? Yes = 1; No = 0	25%	8%	43%	64%	25%	64%	48%	55%	35%	48%
6	Has the regulator developed a distribution Grid Code for interconnected power system? Yes = 1; No = 0	25%	8%	43%	54%	25%	45%	29%	40%	35%	37%
7	Are there fines for the utility failing to meet quality of service standards? Yes = 1; No = 0	13%	8%	71%	36%	25%	55%	43%	40%	39%	41%
8	What areas of customer connections and service are covered in the Quality-of-Service regulations? SUM (Time for utility company to respond to customer request for new connection = 0.2; Time for actual connection to be made = 0.2; Response time to customer complaints = 0.2; Time given from issuance of "Notice-to-pay" until disconnection = 0.2; Time taken for reconnection after payment is made = 0.2; Response time for metering queries = 0.2)	100%	63%	86%	89%	50%	70%	67%	79%	75%	75%
9	Which of the following performance information does the regulator collect? SUM (Economic performance of the regulated sector = 0.2; Operational service delivery of the regulator = 0.2; Organizational/corporate governance performance of the regulator = 0.2; Compliance with legal obligations by the regulated utilities = 0.2; Financial performance, including cost of operating the regulated utilities = 0.2 ; Others (please specify) = 0.2)	88%	62%	69%	78%	40%	69%	73%	71%	69%	70%

TABLE 6.3

RSI Sub-Indicators for Technical Regulation: Quality of Service (*Continued*)

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
10	Can the regulator collect information from the regulated entities by compulsory process? (Yes = 1, No = 0)	25%	23%	71%	55%	100%	88%	91%	71%	49%	66%
11	Has the regulatory authority carried out and published a comprehensive analysis on utility's commercial (customer satisfaction) quality performance? Yes = 1; No = 0	0%	0%	43%	36%	0%	43%	38%	34%	22%	29%
12	Has the regulatory authority discussed the results of the analysis with the regulated utility? Yes = 1; No = 0	0%	0%	29%	27%	0%	36%	33%	31%	13%	23%

Source: World Bank and AfDB, GERI 2021.

TABLE 6.4

RSI Sub-Indicators on Licensing Framework

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	LICENSING FRAMEWORK	**75%**	**55%**	**69%**	**66%**	**75%**	**73%**	**78%**	**72%**	**59%**	**70%**
1	Are there developed licensing frameworks and guidelines for the electricity sector? Yes, developed by regulator = 1; Yes, developed by other institution = 0.5; No = 0	100%	73%	79%	82%	100%	73%	71%	83%	76%	78%
2	What type of systems does the license framework cover? Only Grid connected systems = 0.5; Only Off-Grid Systems = 0.5; Both Grid and Off-Grid Systems = 1	100%	77%	79%	73%	75%	81%	88%	86%	71%	81%
3	Is there a separate simplified and light-handed license framework and procedure for off-grid and small sized systems? (Yes, No)	13%	0%	43%	36%	25%	62%	62%	37%	22%	41%

Source: World Bank and AfDB, GERI 2021.

6.1.4 Institutional Capacity

The RSI indicator on Institutional Capacity captures the quantity and capacity of technical staff available to the regulator to discharge its duties. The technical assessment of staff competency considers existing staff in the regulatory authority with the ability to conduct financial, economic, and engineering analyses; econometric, financial and tariff modeling; draft legal frameworks and power purchase agreements; collect data and analyze utility company's technical and quality of service performance. The stage of development of the institutional capacity of regulators is at an intermediate level across regions and income groups (Table 6.5). South Asia is the best performing region under this indicator due to a high availability of staff skilled in conducting financial, economic, and engineering analysis, financial and tariff modeling, and the preparation of power purchase agreements.

TABLE 6.5
RSI Sub-Indicators for Institutional Capacity

	INDICATOR	EAP	ECA	LAC	MNA	SOUTH ASIA	SSA	LICS	LMICS	UMICS	GLOBAL
	INSTITUTIONAL CAPACITY	**52%**	**56%**	**73%**	**52%**	**72%**	**56%**	**53%**	**61%**	**58%**	**57%**
1	Does the regulator have adequate staff with the expertise and experience (at senior staff level) to collect data and carry out tariff analysis in the following areas of tariff design? (Economic, Financial, Engineering, Econometric modeling, financial modeling, Tariff modeling and legal issues in regulation). Adequate qualified and experienced staff exist within regulatory commission (at least 3 persons) to undertake analysis = 1; Inadequate qualified and experienced staff exist within regulatory commission (1or 2 persons) to undertake analysis = 0.66; No qualified and experienced staff exist within the regulatory = 0	52%	57%	74%	58%	75%	65%	60%	70%	59%	62%
2	Does the regulator have adequate staff with the expertise and experience (at senior staff level) to collect data and analyze utility company's performance in the following areas (Technical performance, Grid connection and access technical requirements, Quality of service performance? Adequate qualified and experienced staff exist within regulatory commission (at least 3 persons) to undertake analysis = 1; Inadequate qualified and experienced staff exist within regulatory commission (1or 2 persons) to undertake analysis = 0.66; No qualified and experienced staff exist within the regulatory = 0	52%	56%	72%	56%	69%	62%	54%	69%	59%	60%

Source: World Bank and AfDB, GERI 2021.

ABBIE TRAYLER-SMITH / PANOS PICTURES /
DEPARTMENT FOR INTERNATIONAL DEVELOPMENT

SEVEN CONCLUSIONS AND RECOMMENDATIONS

The GERI survey presents indicators and sub-indicators that measure the stage of development of a regulatory system of a country and highlight areas of best performance and areas that require improvements. In the GERI 2022 report, the top 3 performing sub-indicators were legal mandate, clarity of roles and objectives, and decision-making independence—all under the RGI. Three quarters of the countries surveyed recorded a score between 75 percent and 100 percent in the above RGI sub-indicators. The two sub-indicators with poor performance in the GERI 2022 report were independence from stakeholders under the RGI sub-pillar followed by economic regulation of tariffs under the RSI sub-pillar. Less than a third of the countries surveyed have provisions to safeguard against conflict of interest and slightly over two thirds of the countries have well designed tariff methodologies.

Based on these findings, Table 7.1 highlights the main areas where regulatory frameworks fall short and identifies the reforms that would be needed to address each issue.

TABLE 7.1
Recommendations of Reforms to be Implemented to Improve the Regulatory System

SN	CHALLENGE	RECOMMENDATIONS
1	***Independence from stakeholders was the indicator with the weakest score on regulatory governance with an average score of 29%.*** Across regions, few countries have provisions to safeguard conflict of interest.	Legal frameworks in all regions should be updated to include restrictions on cross appointment of higher management between utilities and the regulator.
2	***Staggering the tenure of board members is a weakness faced by regulatory authorities across the world.***	To preserve institutional memory and to allow for the transfer of knowledge, provisions for staggering the tenure should be included in sector legal frameworks in all regions—especially in South Asia, Europe and Central Asia, and the Middle East and North Africa which are highly deficient.
3	***There is high political influence exerted on boards of regulatory authorities in many countries.*** Board appointments and dismissals are by the head of state in many countries, leaving it open to undue influence.	Regulators are more effective when they are independent and have less political interference. Provisions in legal frameworks on the appointment and dismal of the board should align with international best practice.
4	***Incentivizing staff of regulatory authorities remains a challenge in many countries across the regions***.	The way in which regulators attract, retain, and motivate staff is a key determinant of the ability of the regulator to fulfil its functions, act independently and take decisions that are objective. Best practices show that the salary scales of regulatory authorities should be as high as those of the regulated utility companies, and staff in regulatory authorities should be appraised following agreed key performance indicators.
5	***Regulators are not always involved in decisions to propose and control budget expenditure.*** Regulatory authorities in 44% of the countries surveyed do not propose the budget. This is prevalent in Latin America and the Caribbean, East Asia and the Pacific, South Asia and Europe and Central Asia.	Regulatory authorities should have budgetary autonomy to function effectively.
6	***Publishing regulatory decisions with supporting explanations is a challenge in many regions—****except Latin America and the Caribbean and Sub-Saharan Africa****.***	Legal frameworks should make it compulsory for regulators to publish all decisions with explanations making the system transparent, accountable, and more predictable

(*continues*)

TABLE 7.1

Recommendations of Reforms to be Implemented to Improve the Regulatory System (*Continued*)

SN	CHALLENGE	RECOMMENDATIONS
7	***The regulatory process is unpredictable because the principles and rules followed by regulators in decision-making remain undocumented in many countries across regions.***	Legal frameworks should be updated to include the procedures and rules followed in decision-making and amending regulatory documents. This will make the regulatory process more predictable as stakeholders will be aware of the relevant regulatory procedures.
8	***Tariff review procedures are severely missing in many countries except South Asia. Tariff review schedules are also missing in over half of the countries.***	The tariff regime, tariff review procedures and the timetable must be clearly stipulated in the regulatory framework across all regions. Tariff schedules should be included in the tariff methodology.
9	***Comments of stakeholders are hardly published, and their inputs barely considered in regulatory decisions in many regions—except in Latin American and the Caribbean and Sub-Saharan Africa.***	Consultation of stakeholders and the publication of consultation documents should be prescribed in the sector law, with penalties included for failure to follow consultation procedures.
10	***Updating information on the websites of regulators is a challenge in many regions especially in South Asia and Latin America and the Caribbean. Further, websites have a lot of information on primary and secondary legislation, but much less information on industry activities.***	Regulators must recruit a dedicated IT and communications staff to manage the website and disseminate all information. Further, legal frameworks should be amended to include compulsory submission of data and information to regulators on specified dates as well as penalties for non-submission to increase compliance.
11	***Economic regulation relating to tariff-setting was the weakest indicator under regulatory substance across regions.***	Revise tariff methodologies to include all important attributes relevant for a country's own context.
12	***Half of the countries surveyed lack Quality of Service Regulations.*** Only 50% of the countries surveyed have developed quality of service regulations, though short of key attributes. Only 48% of the countries have national grids. The lack of quality-of-service regulations is prevalent in East Asia and the Pacific and Europe and Central Asia.	Particular attention should be made to ensure that quality of service codes cover technical performance, quality of service performance and grid connection and access requirements. Countries should develop national grid codes for the interconnected power system.
13	***Few regulators analyze the quality of service of regulated utilities.*** Only 29% of regulators conduct and publish a comprehensive report on the quality of service of regulated utilities. Countries in East Asia and the Pacific, Europe and Central Asia and South Asia do not analyze the quality of service of regulated utilities.	Regulators should recruit the requisite staff to undertake technical analysis and quality of service performance of regulated companies. This will assist regulators meet this function and publish the results of industry assessments.

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ANNEX A

ERI Methodology

ERI Methodology

The ERI is a composite index of the three indices, namely the Regulatory Governance Index (RGI), the Regulatory Substance Index (RSI) and the Regulatory Outcome Index (ROI). The first pillar, the Regulatory Governance Index (RGI), assesses the institutional and legal design of the regulatory framework regarding the level of development of the laws and other regulatory texts. It also assesses the procedures that will ensure good oversight and monitoring of activities in the electricity sector. The second pillar, the Regulatory Substance Index (RSI), assesses the content of regulation and measures actual decisions and actions by the regulators in executing their mandate and how regulators perform their including development and implementing appropriate regulatory instruments to facilitate their oversight of the power sector. The third pillar, the Regulatory Outcome Index (ROI), is used to measure the regulatory effect on the electricity utility companies or on the consumers who are directly impacted by the regulators' decisions and actions.

The steps for calculating the ERI are as follows:

- **Step 1:** Identification of indicators and sub-indicators for regulatory governance, regulatory substance and regulatory effect.
- **Step 2:** Design of the survey questionnaire to obtain information from regulatory authorities and electricity companies.
- **Step 3:** Verification and validation of responses obtained from regulatory authorities and electricity companies by checking all the proof where necessary.
- **Step 4:** Determination of RGI and RSI.
- **Step 5:** Aggregation of the RGI and RSI results to calculate the ERI_{gs}.
- **Step 6:** Determination of the regulatory outcome index (ROI) from the results of the questionnaire administered to the electricity utility company concerned.
- **Step 7:** Aggregation of the results of the ERI Governance and Substance (ERI_{gs}) and of the ROI to calculate the ERI.

Similarities and Differences between ERI and GERI

1. Unlike the GERI which has two sub-pillars (RGI and RSI) and 12 indicators, the ERI has a total of 18 indicators under three sub-pillars (RGI, RSI and ROI). See Figure A.2.
2. The RGI is identical under both the ERI and the GERI.
3. Under the ERI, the RSI contains additional sub-indicators relating to electrification and clean energy transition but is otherwise identical to the GERI.
4. Under the ERI, the third pillar on regulatory outcomes collects information from regulated utilities.
5. Under ERI, data is collected from regulators and regulated utilities, whereas under GERI data for non-African countries is collected by independent sector experts in each country.
6. The latest GERI tends to lag one year behind the ERI due to the data collection process.
7. The color classification of scores under the two indices is based on a different scale (see Tables A.1 and A.2).

FIGURE A.1
Calculation of ERI

The ERI for Governance and Substance (ERI_{GS}) is calculated by aggregating the results of RGI and RSI as follows:

$ERI_{GS} = (\alpha \times RGI) + (\beta \times RSI)$

Where:

ERI_{GS} = Electricity Regulatory Index (Governance and Substance)

α = Weight for RGI = 1/2

β = Weight for RSI = 1/2

RGI = Regulatory Governance Index

RSI = Regulatory Substance Index

The ERI was calculated by aggregating the results of ERI_{GS} and ROI using the geometric mean of the two values as follows:

$ERI = (ERI_{GS} \times ROI)^{1/2}$

Where:

ROI = Regulatory Outcome Index

Source: AfDB, ERI Methodology, 2021.

FIGURE A.2
Pillars Under ERI and GERI

ERI			GERI	
Regulators		Electricity Utility Companies	Regulators	
RGI	**RSI**	**ROI**	**RGI**	**RSI**
1. Legal mandate 2. Clarity of roles and objectives 3. Independence 4. Accountability 5. Transparency of decisions 6. Predictability 7. Participation 8. Access to information	1. Economic regulation 2. Technical regulation 3. Licensing framework 4. Institutional capacities 5. Development of renewable energies 6. Mini grids and off-grid systems 7. Development of energy efficiency	1. Financial performance and competitiveness 2. Quality of technical and commercial service 3. Facilitation of access to electricity	1. Legal mandate 2. Clarity of roles and objectives 3. Independence 4. Accountability 5. Transparency of decisions 6. Predictability 7. Participation 8. Access to information	1. Economic regulation 2. Technical regulation 3. Licensing framework 4. Institutional capacities

Source: AfDB, ERI Methodology, 2021. Source: World Bank

TABLE A.1
ERI Classification of Scores

COLOR CODE	SCORE	INTERPRETATION
	80%–100%	High level of regulatory development. Most of the elements of a strong political, regulatory, legal and constitutional framework are in place.
	60%–79%	Substantial level of regulatory development. Setting up several elements of a framework favorable regulatory framework, although with gaps that do not allow the regulatory authority to have strengthened institutional and legal capacities and structures.
	50%–59%	Average level of regulatory development. Existence of basic elements of a regulatory framework. However, the capacity of the regulator is limited due to the weak evolution of institutional and legal structures.
	0%–49%	Low level of regulatory development. Little or no regulatory framework in place. Lack or insufficiency of institutional or legal structures limiting the capacities of the regulatory authority.

TABLE A.2
GERI Classification of Scores

COLOR CODE	SCORE	INTERPRETATION
	75%–100%	Strong performers in the top quarter of the 0–100 score range
	50%–74%	Good performers in the second top quarter of the 0–100 score range
	25%–49%	Medium performers in the third quarter of the 0–100 score range
	0%–24%	Weak performers in the bottom quarter of the 0–100 score range

ANNEX B

Overview of Indicator Structure for RGI

INDICATOR	SUB-INDICATOR
A. Legal mandate	8 | Does your country have an Energy sector law? Yes = 1; No = 0
	If yes, what is the name of the Law and in which year was it passed (Please indicate year)
	9 | Was the regulatory authority established by Legislation? Yes = 1; No = 0
	If yes, please provide the legislation name and number and the year the legislation was passed.
B. Clarity of Roles and Objectives	1. Is your institution's regulatory function clearly defined in primary legislation? Yes = 1; No = 0
	Select all the options that apply regarding the areas where the entity has a mandate to regulate-
	2. Are the regulated utilities' obligation formally set out? Yes = 1; No = 0
C. Formal Independence from Government and Legislature	1. Is it required that specific institutions or representatives of specific sectors be represented on the Board? Yes = 1; No = 0
	2. Who is the appointing authority for the Commissioners/Board Members? The Executive (i.e., President or Prime Minister) = 0.33; The Legislature = 1; Mixture of legislature and executive = 0.66; Other (please specify) = 0
	3. Who appoints the Chairperson of the Board/Commissioners? Board Members = 1; The Executive (i.e., President or Prime Minister) = 0.33; The Legislature = 0.66; Others (Please specify) = 0
	4. What is the duration of the first term of the Commissioners or Board Members? 2 to 4 years = 0.5; 5 to 7 years = 1; More than 7 years = 0; No fixed term or at the discretion of the appointing authority = 0
	5. Is the term of office of Commissioners/Board Members renewable? No = 100%; Yes, once = 50%; Yes, more than once = 0
	6. Is there any mechanism/provision in the regulatory law or act that ensures continuity, ie. Staggering the terms of the Commissioners to allow for institutional memory and transfer of regulatory knowledge to new Commissioners? (Yes/No)
	If yes, provide a brief explanation of the approach and the reference (article/clause) in the law. (300 words)
	7. Who is the appointing authority for the Chief Executive Officer (CEO)/Director General (DG) of the Regulatory Authority? The Board Members = 100%; The Executive (i.e., President or Prime Minister) = 33%; The Legislature = 66%; Other (please specify) = 0%
	8. Are there provisions in the regulatory law that prohibit the Director General/CEO or any Commissioner from holding other offices in the government or private sector within the energy sector during their tenure? Yes = 1; No/Not specified/Yes, but with permission from the Executive = 0
	If yes, provide specific reference for such provision in the law (legislation name, and section)? If reference provided then 1, else 0
	If the provision is not included in regulatory law, is it included in other secondary legislations/administrative instruments? (Yes, No, N/A) Yes = 1; No = 0
	If yes, provide specific reference for such provision in the law (legislation or instrument name, and section)? If reference provided then 1, else 0
	9. Are the criteria for dismissing agency head/board members during their term of office published? Yes = 1; No = 0

(*continues*)

INDICATOR	SUB-INDICATOR
D. Independence from Stakeholders	1. Are there provisions in the Law that prohibit the appointment of Commissioners/CEO/Director General of the Regulatory Authority, if any of them has previously held a position in the regulated utility company? Yes = 1; No = 0
	If yes, provide specific reference for such provision in the law (legislation name, and section)? If reference provided then 1, else 0
	2. Are there provisions in the Law that prohibit the Commissioners or CEO/Director General of the Regulatory Authority from accepting employment in the regulated utility company after the end of their term in office? Yes = 1; No/Not specified = 0
	If yes, provide specific reference for such provision in the law (legislation name, clause, article and section)? If reference provided then 1, else 0
	If yes, indicate the number of years after the term that the prohibition holds (Cooling off period). Less than 1 year = 0; 2 to 3 years = 0.66; More than 4 years = 1
	3. Are there any provisions in the Law prohibiting the CEO/Director General or Commissioners, from having any personal interest in the regulated electricity utility? Yes = 1; No/Not specified = 0
	If yes, provide specific reference for such provision in the law (legislation name, clause, article, and section)? If reference provided then 1, else 0
E. Decision-Making Independence	1. Are there formal provisions in the Law that allows a government entity (e.g., Ministry) to overturn Regulatory Decision? Yes = 0; No = 1
	2. What is the regulator's role in approving tariffs? No role = 0; Decision-making role with sector ministry or other government body = 0; plays a consultative = 0; Final decision-making body = 1; Other (please list other roles if not covered by above) = 0
	3. What is the Regulatory Authority's role in issuing and amending licenses? Plays a consultative role = 0; Shares the decision-making authority with sector ministry or other government body = 0; Final decision-making body = 1; No role = 0; Other (please list other roles if not covered by above) = 0
	4. What is the role of the Regulatory Authority in resolving disputes between companies, and between companies and their customers? Plays a facilitative role = 0; Final decision-making body = 1; Shares the decision-making authority with another institution = 0; No role = 0
	5. Are decisions of the regulatory entity legally binding or intended as advisory recommendation? Legally binding = 1; Advisory = 0
F. Financial Independence	1. What are the regulator's major source(s) of funding? SUM (Fees levied on regulated utilities = 50%; License/Certification Fees = 50%; Penalty Fees = 0%; Government budget allocation = 0%)
	2. Is the source of the financial budget stated in the establishing legislation? (Yes, No)
	3. Who controls the approved budget and is responsible for decision making in regard to expenditure? The Government and the Regulatory Authority = 0; The Regulatory Authority = 1; The Government (i.e., Minister of Finance or Minister of Energy) = 0
	4. Who decides on the regulatory authority's staff salary level? Government or Sector Ministry = 0; Government and regulatory authority board = 0.5; Regulatory Authority Board (i.e., Commissioners) = 1
	5. What is the basis for setting the salary level for employees of the Regulatory Authority? Civil Service Salary Scale = 0; Public Utility Salary Scale = 1; Others (If Reg. Authority's own) = 1
	6. Is the average level of the salaries of the regulatory staff lower than those of the utilities? Yes, lower = 0; No, higher = 1; Equal = 0.5

(*continues*)

INDICATOR	SUB-INDICATOR
G. Accountability	1. To whom is the regulator directly accountable or reports to? Sector Minister = 0.33; Presidency = 0.33; Parliament through Sector Minister = 0.66; Parliament directly = 1 ; No one = 0 ; Others: Specify = 0
	2. Does the Regulatory Authority have a legal obligation to produce an annual report on its activities? Yes = 1; No = 0
	If yes, what are the formal obligations, regarding dissemination of the annual report? Presentation of annual report to Executive (Sector Minister, Prime Minister etc.) = 0.66; Presentation of annual report to Parliament = 1; Public dissemination of annual report = 0
	3. Is there a formal mechanism for regulated utilities (or other parties), to challenge/contest the regulatory decisions? Yes = 1; No = 0
	Please specify _____. Specialized body = 1; Existing Judicial System = 0.5; Other, (Please specify) =
	Please specify _____. Sector Minister = 0.33; Presidency = 0.33; Parliament through Sector Minister = 0.66; Parliament directly = 1; No one = 0; Others: Specify = 0
H. Transparency of Decisions	1. Are all decisions taken by the regulatory agency accessible to the public? Yes = 1; No = 0
	2. Is the publication of major decisions supported by explanations or rationale? Yes = 1; No = 0
	3. Is publication of regulatory documents and decisions voluntary or mandatory/compulsory under the law? Yes, voluntary = 0.5; Yes, mandatory = 1; No, not specified in the law = 0
I. Predictability	1. Do you have a documented Tariff Methodology? Yes (With year of adoption) = 1; No = 0
	If yes, indicate where the Tariff Methodology document is published? If provided then 1, otherwise = 0
	2. By whom and how can the Tariff Methodology be changed? By Ministerial decision = 0; By the Regulator, in consultation with regulated firms and stakeholders = 1; By the Regulator, based on unilateral decision, without consultation with stakeholders = 0; Others (specify if not included in the above) = 0
	3. How can key regulatory documents such as licenses, contracts, authorizations etc. be modified? By mutual agreement between parties to the regulatory instrument = 1; By both regulatory and Ministerial actions = 0.5; By regulatory decision = 0; By Ministerial decision = 0; Others (specify if not included in the above) = 0
	4. Does the Tariff Methodology set out the procedures for major tariff reviews? Yes = 1; No = 0
	5. Is the timetable for tariff review clearly spelt out as part of the tariff methodology or in another document? Yes, in Tariff Procedure = 1; Yes, in another document = 0.5; No = 0
J. Participation	1. Is the consultation process of different stakeholders (utilities, Government, consumers, etc.) required by law? Yes, voluntary = 0.5; Yes, mandatory = 1; No, not specified in the law = 0
	2. Does the regulator involve the following stakeholders in its decision-making process? SUM (Regulated Utility companies = 0.2; Other industry players = 0.2; Consumers = 0.2; NGO's and Civil Society = 0.2 ; Other (Please specify) = 0.2)
	3. Indicate the approach for involving stakeholders. SUM (Public Hearings = 0.25; Ad-hoc meetings with stakeholders = 0.25; Submission of written comments = 0.25; Other method (please specify) = 0.25)
	4. Does the regulator publish comments received during the consultation exercise? Yes = 1; No = 0
	5. Does the regulator take into account stakeholders' inputs and responses during the consultation process to influence regulatory decisions? Yes = 1; No = 0
K. Open Access to Information	1. Does the regulator have a public website? Yes = 1; No = 0
	If yes, provide website address. If provided then 1, otherwise = 0
	If yes, indicate the type of information available on the website (select all that apply). SUMMAX1(Primary and secondary legislations = 0.1; Regulatory documents = 0.1, License application procedure = 0.1; Etc.) and SUMMAX = 0.9 if no "License application procedure"
	2. How often is the website updated? At least once a week = 1; Between one week and one month = 0.5; More than one month = 0
	3. Does the regulator have an IT/Communications officer in charge of the website/website management? Yes = 1; No = 0

ANNEX C
Overview of Indicator Structure for RGI

INDICATOR	SUB-INDICATOR
A. Economic Regulation: Tariff-Setting	1. Has the regulator developed a well-documented Tariff-Setting Methodology? Yes = 1; No = 0
	2. Does the Tariff Methodology include an Automatic Tariff Adjustment or Tariff Indexation Mechanism? Yes = 1; No = 0
	3. Does the Tariff Methodology include a schedule for major tariff reviews? Yes = 1; No = 0
	4. Is there a written formula that prescribes how end-user tariff levels are to be set? Yes = 1; No = 0
	Please provide the reference in the methodology document. _____ If provided then 1, otherwise = 0
	5. Are there regulatory mechanisms to compensate generators for the provision of firm capacity or ancillary services (e.g., frequency or voltage control, spinning reserve)? Yes = 1; No = 0
	6. Does the regulatory entity ensure utilities are compensated for the costs of stranded assets (i.e., assets that have lost their value due to regulatory changes)? Yes = 1; No = 0
	7. Has the regulator developed/validated a network connection policy as part of its tariff? Yes = 1; No = 0
	If yes provide reference section of the tariff methodology where this could be found. If provided then 1, otherwise = 0
	8. Has the regulator carried out a recent (less than 10 years) study on the cost of service? Yes = 1; No = 0
	If yes, is the current tariff level cost reflective? (Yes, No)
B. Technical Regulation: Quality of Service	1. Has the regulator developed Quality of Service Regulations/Code? Yes = 1; No = 0
	If yes, provide link or attach document. If provided then 1, otherwise = 0.
	2. Is Technical Performance covered under the Quality-of-Service Regulations for monitoring the performance of the regulated firm. Yes = 1; No = 0
	If yes, provide link or attach document. If provided then 1, otherwise = 0
	3. Is Quality of Service Performance covered under the Quality-of-Service Regulations for monitoring the performance of the regulated fir. Yes = 1; No = 0
	If yes, provide link or attach document. If provided then 1, otherwise = 0
	4. Is Grid connection and access to technical requirements covered under the Quality-of-Service Regulations for monitoring the performance of the regulated firm. Yes = 1; No = 0
	If yes, provide link or attach document. If provided then 1, otherwise = 0
	5. Has the regulator developed a national Grid Code for interconnected power system? Yes = 1; No = 0
	If yes, indicate the date of the national Grid Code and provide link or attach document. If provided then 1, otherwise = 0
	6. Has the regulator developed a distribution Grid Code for interconnected power system? Yes = 1; No = 0
	If yes, indicate the date of the distribution Grid Code and provide link or attach document. If provided then 1, otherwise = 0
	7. Are there fines for the utility failing to meet quality of service standards? Yes = 1; No = 0
	If yes, briefly describe the most recent incident (including date and level of fine)
	Indicate if the utility paid the fine

(*continues*)

INDICATOR	SUB-INDICATOR
	8. What areas of customer connections and service are covered in the Quality-of-Service regulations? SUM (Time for utility company to respond to customer request for new connection = 0.2; Time for actual connection to be made = 0.2; Response time to customer complaints = 0.2 ; Time given from issuance of "Notice-to-pay" until disconnection = 0.2 ; Time taken for reconnection after payment is made = 0.2 ; Response time for metering queries = 0.2)
	9. Which of the following performance information does the regulator collect? SUM (Economic performance of the regulated sector = 0.2; Operational service delivery of the regulator = 0.2; Organizational/corporate governance performance of the regulator = 0.2; Compliance with legal obligations by the regulated utilities = 0.2; Financial performance, including cost of operating the regulated utilities = 0.2; Others (please specify) =0.2)
	10. Can the regulator collect information from the regulated entities by compulsory process? (Yes = 1, No = 0)
	11. Has the regulatory authority carried out and published a comprehensive analysis on utility's commercial (customer satisfaction) quality performance? Yes = 1; No = 0
	If yes, please indicate when it was and provide evidence (documents, legal references, news articles, websites, . . .). If provided then 1, otherwise = 0
	12. Has the regulatory authority discussed the results of the analysis with the regulated utility? Yes = 1; No = 0
	If yes, provide evidence (documents, legal references, news articles, websites, . . .). If provided then 1, otherwise = 0
B. Licensing Framework	1. Are there developed licensing frameworks and guidelines for the electricity sector? Yes, developed by regulator=1; Yes, developed by other institution = 0.5; No = 0
	2. What type of systems does the licence framework cover? Only Grid connected systems = 0.5; Only Off-Grid Systems = 0.5; Both Grid and Off-Grid Systems = 1
	3. Is there a separate simplified and light-handed licence framework and procedure for off-grid and small sized systems? (Yes, No)
C. Institutional Capacity	1. Does the regulator have adequate staff with the expertise and experience (at senior staff level) to collect data and carry out tariff analysis in the following areas of tariff design? (Please indicate your responses on a level of scale between 1–3, as defined here. Adequate qualified and experienced staff exist within regulatory commission (at least 3 persons) to undertake analysis = 1; Inadequate qualified and experienced staff exist within regulatory commission (1or 2 persons) to undertake analysis = 0.66; No qualified and experienced staff exist within the regulatory = 0
	Financial Analysis (i.e., determine value of asset base, return on regulatory asset base, interest service coverage, gearing ratio, debt service coverage etc.)
	Economic Analysis (i.e., determine impact of macro-economic factors such as inflation, interest rates, fuel prices, on the tariffs, and also investigate the impact of tariffs on the economy and various customer groups etc.)
	Engineering Analysis (i.e., ability to determine technical parameters which affect the tariff design such as power factor, load factor, coincident and non-coincident factors, network losses at the various voltage levels, determination of the KVA, kvar components of the industrial tariff, treatment of ancillary services etc.)
	Econometric Modelling (cost, generation and demand/load forecasting, master plan including system least cost plan design, cost benchmarking).
	Financial Modelling (Use of discounted cash flow techniques and determination of unbundled tariffs for generation, transmission, distribution and sale/retail segments of the electricity sector)
	Tariff Modelling (End-user tariff determination for the various customer classes, cost allocation, quantifying of subsidies for policy decision making etc.)
	Legal Issues in Regulation (Legal drafting, Power Purchase Agreements (PPA) design and reviews, energy laws etc.)

(*continues*)

INDICATOR	SUB-INDICATOR
	2. Does the regulator have adequate staff with the expertise and experience (at senior staff level) to collect data and analyze utility company's performance in the following areas? (Please indicate your responses on a level of scale between 1–3, as defined here. Adequate qualified and experienced staff exist within regulatory commission (at least 3 persons) to undertake analysis = 1; Inadequate qualified and experienced staff exist within regulatory commission (1or 2 persons) to undertake analysis = 0.66; No qualified and experienced staff exist within the regulatory = 0
	Technical Performance (examples such as power plant availability, Operating ratio, network availability, Capacity Factor, Load Factor, System Reserve Margin, Distribution System Technical and Commercial Losses, Transmission System network losses etc.)
	Grid connection and access technical requirements (example such as connection procedures, connection conditions commonly applied, commissioning testing and inspection procedures, etc.)
	Quality of Service Performance (examples such as calculation of Duration of outages, frequency or number of outages etc.)

ANNEX D

GERI and WGI Correlation

VARIABLES	GERI	RG	LM	CR	IND_G	IND_S	DM_IND	F_IND	ACC	TRANS	PRED	PART	OPA
(1) Voice and Accountability	0.190*	0.268**	0.091	0.025	0.286***	0.088	0.117	0.175	0.231**	0.271**	0.083	0.369***	0.199*
(2) Political Stability and Absence of Violence	−0.016	0.102	−0.001	−0.052	0.179	0.154	0.026	0.126	0.172	0.091	−0.053	0.175	0.136
(3) Government Effectiveness	−0.021	−0.025	−0.003	0.007	−0.031	0.204*	0.047	−0.033	0.047	0.030	−0.233**	−0.052	0.048
(4) Regulatory Quality	0.031	0.046	0.051	0.087	0.039	0.202*	0.065	0.028	0.154	0.102	−0.224**	−0.025	0.035
(5) Rule of Law	0.105	0.132	0.000	0.046	0.143	0.227**	0.167	0.088	0.242**	0.182	−0.127	0.117	0.121
(6) Control of Corruption	0.043	0.101	0.076	0.070	0.128	0.156	0.017	0.007	0.213*	0.094	−0.184*	0.110	0.115

Source: World Bank and AfDB, GERI 2021.

RG = Regulatory Governance
LM = Legal mandate
CR = Clarity of roles and objectives
IND_G = Independence from government
IND_S = Independence from stakeholder
DM_IND = Decision-making independence
F_IND = Financial independence
ACC = Accountability
TRANS = Transparency
PRED = Predictability
PART = Participation
OPA = Open access to information

ANNEX E

Tables on Country De Facto and De Jure Responses

SRI LANKA			
INDICATOR	**DE JURE SCORE**	**DE FACTO SCORE**	**VARIATION**
GERI	**76%**	**72%**	−4%
REGULATORY GOVERNANCE	78%	69%	−9%
Legal Mandate	50%	**50%**	0%
Clarity of Roles and Objectives	100%	**100%**	0%
Independence	67%	**71%**	4%
Formal Independence from Government and Legislature	65%	**62%**	−3%
Independence from Stakeholders	67%	**67%**	0%
Decision-Making Independence	80%	**100%**	20%
Financial Independence	57%	**57%**	0%
Accountability	78%	**78%**	0%
Transparency of Decisions	100%	**100%**	0%
Predictability	80%	**50%**	−30%
Participation	77%	**81%**	4%
Open Access to Information	73%	**25%**	−48%
REGULATORY SUBSTANCE	74%	**74%**	1%
Economic Regulation: Tariff setting	63%	**63%**	0%
Technical Regulation: Quality of service	76%	**78%**	2%
Licensing Framework	63%	**63%**	0%
Institutional Capacity	94%	**94%**	0%

Note: Orange color depicts variation of 10% and above

VIETNAM			
INDICATOR	**DE JURE SCORE**	**DE FACTO SCORE**	**VARIATION**
GERI	**48%**	**54%**	6%
REGULATORY GOVERNANCE	54%	60%	6%
Legal Mandate	50%	**50%**	0%
Clarity of Roles and Objectives	13%	**33%**	20%
Independence	68%	**60%**	−8%
Formal Independence from Government and Legislature	75%	**92%**	17%
Independence from Stakeholders	25%	**25%**	0%
Decision-Making Independence	100%	**100%**	0%
Financial Independence	71%	**24%**	−48%
Accountability	33%	**33%**	0%
Transparency of Decisions	100%	**100%**	0%
Predictability	60%	**50%**	−10%
Participation	60%	**80%**	20%
Open Access to Information	50%	**73%**	23%
REGULATORY SUBSTANCE	41%	**47%**	6%
Economic Regulation: Tariff setting	13%	**14%**	2%
Technical Regulation: Quality of service	27%	**50%**	23%
Licensing Framework	75%	**75%**	0%
Institutional Capacity	50%	**50%**	0%

Note: Orange color depicts variation of 10% and above

TAJIKISTAN			
INDICATOR	**DE JURE SCORE**	**DE FACTO SCORE**	**VARIATION**
GERI	**28%**	**69%**	41%
REGULATORY GOVERNANCE	30%	68%	38%
Legal Mandate	100%	**100%**	0%
Clarity of Roles and Objectives	73%	**93%**	20%
Independence	14%	**81%**	67%
Formal Independence from Government and Legislature	10%	**73%**	63%
Independence from Stakeholders	25%	**50%**	25%
Decision-Making Independence	20%	**100%**	80%
Financial Independence	0%	**100%**	100%
Accountability	0%	**50%**	50%
Transparency of Decisions	0%	**50%**	50%
Predictability	0%	**60%**	60%
Participation	0%	**75%**	75%
Open Access to Information	53%	**37%**	−16%
REGULATORY SUBSTANCE	26%	**70%**	44%
Economic Regulation: Tariff setting	0%	**60%**	60%
Technical Regulation: Quality of service	1%	**42%**	40%
Licensing Framework	25%	**100%**	75%
Institutional Capacity	79%	**79%**	0%

Note: Orange color depicts variation of 10% and above

ROMANIA			
INDICATOR	**DE JURE SCORE**	**DE FACTO SCORE**	**VARIATION**
GERI	**54%**	**72%**	18%
REGULATORY GOVERNANCE	65%	73%	8%
Legal Mandate	100%	**100%**	0%
Clarity of Roles and Objectives	67%	**100%**	33%
Independence	69%	**56%**	−12%
Formal Independence from Government and Legislature	78%	**68%**	−10%
Independence from Stakeholders	25%	**25%**	0%
Decision-Making Independence	100%	**75%**	−25%
Financial Independence	71%	**57%**	−14%
Accountability	67%	**100%**	33%
Transparency of Decisions	67%	**100%**	33%
Predictability	20%	**50%**	30%
Participation	80%	**45%**	−35%
Open Access to Information	50%	**33%**	−17%
REGULATORY SUBSTANCE	43%	**71%**	28%
Economic Regulation: Tariff setting	13%	**67%**	54%
Technical Regulation: Quality of service	33%	**64%**	30%
Licensing Framework	75%	**83%**	8%
Institutional Capacity	50%	**71%**	21%

Note: Orange color depicts variation of 10% and above

PHILIPPINES			
INDICATOR	**DE JURE SCORE**	**DE FACTO SCORE**	**VARIATION**
GERI	**49%**	**72%**	23%
REGULATORY GOVERNANCE	57%	77%	21%
Legal Mandate	100%	**100%**	0%
Clarity of Roles and Objectives	47%	**100%**	53%
Independence	81%	**71%**	−10%
Formal Independence from Government and Legislature	73%	**70%**	−3%
Independence from Stakeholders	50%	**55%**	5%
Decision-Making Independence	100%	**100%**	0%
Financial Independence	100%	**57%**	−43%
Accountability	33%	**67%**	33%
Transparency of Decisions	67%	**100%**	33%
Predictability	40%	**80%**	40%
Participation	60%	**51%**	−9%
Open Access to Information	25%	**50%**	25%
REGULATORY SUBSTANCE	41%	**66%**	25%
Economic Regulation: Tariff setting	13%	**83%**	71%
Technical Regulation: Quality of service	27%	**73%**	46%
Licensing Framework	75%	**17%**	−58%
Institutional Capacity	50%	**92%**	42%

Note: Orange color depicts variation of 10% and above

URUGUAY			
INDICATOR	**DE JURE SCORE**	**DE FACTO SCORE**	**VARIATION**
GERI	**61%**	**60%**	−2%
REGULATORY GOVERNANCE	61%	57%	−5%
Legal Mandate	100%	**100%**	0%
Clarity of Roles and Objectives	100%	**90%**	−10%
Independence	42%	**35%**	−7%
Formal Independence from Government and Legislature	60%	**57%**	−2%
Independence from Stakeholders	25%	**0%**	−25%
Decision-Making Independence	40%	**50%**	10%
Financial Independence	43%	**33%**	−10%
Accountability	44%	**33%**	−11%
Transparency of Decisions	67%	**100%**	33%
Predictability	0%	**0%**	0%
Participation	66%	**52%**	−14%
Open Access to Information	73%	**45%**	−28%
REGULATORY SUBSTANCE	61%	**63%**	2%
Economic Regulation: Tariff setting	56%	**100%**	44%
Technical Regulation: Quality of service	60%	**25%**	−35%
Licensing Framework	73%	**63%**	−9%
Institutional Capacity	57%		−57%

Note: Orange color depicts variation of 10% and above

CAMBODIA			
INDICATOR	**DE JURE SCORE**	**DE FACTO SCORE**	**VARIATION**
GERI	**59%**	**15%**	−44%
REGULATORY GOVERNANCE	63%	30%	−33%
Legal Mandate	100%	**100%**	0%
Clarity of Roles and Objectives	100%	**100%**	0%
Independence	64%	**23%**	−41%
Formal Independence from Government and Legislature	61%	**52%**	−9%
Independence from Stakeholders	67%	**0%**	−67%
Decision-Making Independence	100%	**25%**	−75%
Financial Independence	31%	**17%**	−14%
Accountability	33%	**0%**	−33%
Transparency of Decisions	100%	**0%**	−100%
Predictability	60%	**0%**	−60%
Participation	4%	**17%**	13%
Open Access to Information	43%	**0%**	−43%
REGULATORY SUBSTANCE	56%	**0%**	56%
Economic Regulation: Tariff setting	38%	**0%**	38%
Technical Regulation: Quality of service	36%	**0%**	36%
Licensing Framework	100%	**0%**	100%
Institutional Capacity	50%		50%

Note: Orange color depicts variation of 10% and above


ESMAP
Energy Sector Management Assistance Program


WORLD BANK GROUP


AfDB