



INDEPENDENT REGULATOR WHITE PAPER

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LIST OF ACRONYMS AND ABBREVIATIONS

ANRE	Romanian Energy Regulatory Authority
ARERA	Italian Regulatory Authority for Energy, Networks and Environment
CA	Central Asia
CAIDI	Customer Average Interruption Duration
CERA	Cyprus Energy Regulatory Authority (CERA)
CoS	Cost of Service Study
DSO	Distribution System Operator
GNERC	Georgian National Energy and Water Supply Regulatory Commission
EMRA	Energy Market Regulatory Authority /Turkey
HERA	Croatian Energy Regulatory Agency
IPP	Independent Power Producer
MEDREG	Association of Mediterranean Energy Regulators
O&M	Operations and Maintenance
OFGEM	Office of Gas and Electricity Market in UK
PBR	Performance Based Regulation
PCA	USAID Power Central Asia Activity
SAIDI	System Average Interruption Duration
SAIFI	System Average Interruption Frequency Index
TSO	Transmission System Operator
US	United States
USAID	The United States Agency for International Development

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INTRODUCTION

BACKGROUND

Modern energy sector regulation is relatively new to most Central Asian (CA) countries. Over the last two years, CA Ministries and Antimonopoly Commissions have sought a deeper understanding of modern regulatory practices and have asked the USAID/Power Central Asia (PCA) team the following questions:

- What is an independent authority?
- Why is an independent regulator preferred?
- How is sector activity regulated in most modern energy sectors?
- How is independence achieved?
- What are the main functions of an independent regulator?

This paper aims to answer these questions for the CA stakeholders.

INTRODUCTION

An independent Regulator is a body that has a distinct legal mandate to regulate the power sector and function autonomously of any other public or private entity. It has the legal functionality, budgetary autonomy, human and financial resources, and independent management to effectively regulate the power sector. It should be the neutral implementer of the government's energy strategy and policy. In addition to being independent, a modern Regulator must be transparent and accountable. The Regulator should be accountable for its budget and performance to the parliament or supreme legislative authority. Its proceedings, regulations, and other workings should be open to public scrutiny. Stakeholders should have input into the agency's regulatory decisions and decision-making process, and the behavior of its officials should be open to scrutiny. These measures will ensure efficiency, competition, transparency, and accountability in the market.

Utility regulation has three primary objectives:

- To protect consumers from abuse by firms with market power;
- To support investment by protecting investors from arbitrary government action;
- To promote economic "efficiency".

International experience has shown the best way to achieve these objectives in the power industry is by establishing an independent Regulator that conducts both technical and economic regulation. For the Regulator to operate with optimal effectiveness, several conditions must be in place to safeguard its independence and ensure protection of the broader interests of consumers and the industry. These conditions are pre-requisites for effective regulatory governance:

- A distinct legal mandate to take decisions and impose them on market participants autonomously and separately of government structures;
- Professional criteria for appointment of the Regulator's management to ensure that decisions "based on expert judgment, free from political interference" (preferably set in the law);

- Regulators are appointed for fixed terms, protecting them from arbitrary removal;
- An exemption of Regulator personnel from civil service salary rules to help attract and retain well-qualified staff;
- A reliable source of funding for the Regulator, typically through earmarked levies on regulated firms or consumers.

International experience demonstrated that the following factors also contribute to establishing effective regulatory governance:

- Establishing collective decision-making body (Commission or Board) that is responsible for issuing decisions and managing and overseeing the Regulator`s performance;
- Use of staggered terms for the Commission (or Board) members to avoid coinciding with the election cycle;
- Involvement of the executive and the legislative branches in the appointment process of the Commission (Board) members.

OBJECTIVE

This paper aims to educate CA stakeholders about the principles of an independent Regulator and its key functions and responsibilities. It also describes the importance of establishing an independent regulatory regime for advancing successful power sector reforms in their countries and the overall positive impacts it can have on the power sector.

Many developing countries in other regions have successfully undertaken sector reforms with the goals of increasing competition, attracting investment in new power supplies, and increasing access to affordable and reliable electricity services. To achieve these goals in CA, it is important to learn from these countries` experiences. Understanding how they developed their regulatory responsibilities and independence and the impact this had on their power sectors can help steer CA countries in establishing their own modern and independent Regulators while avoiding potential pitfalls.

REGULATORY MODEL AND KEY PRINCIPLES

There is no universal or standard regulatory model applicable to all countries. Each country has its own characteristics and regulates the electricity sector based on a model that best suits its needs.

A country's choice of regulatory model depends on several factors such as its historical circumstances, its strategies and policies, and the specifics of its electrical system, among others.

Regulatory authorities may be independent from the outset or be initially subordinated to another entity. If the Regulator is subordinated, it is often a part of the Ministry responsible for Energy or a similar authority.

The regulatory authority could be responsible for different sectors. For example, it may only cover the electricity sector or the broader energy sector (i.e., electricity, natural gas, heat), or be established as a multi-sector regulator covering multiple sectors such as natural gas, district heating, water, and communication. The Regulator's scope, functions, and instruments must be decided upon and the key elements of the regulatory model included in the law governing the sector.

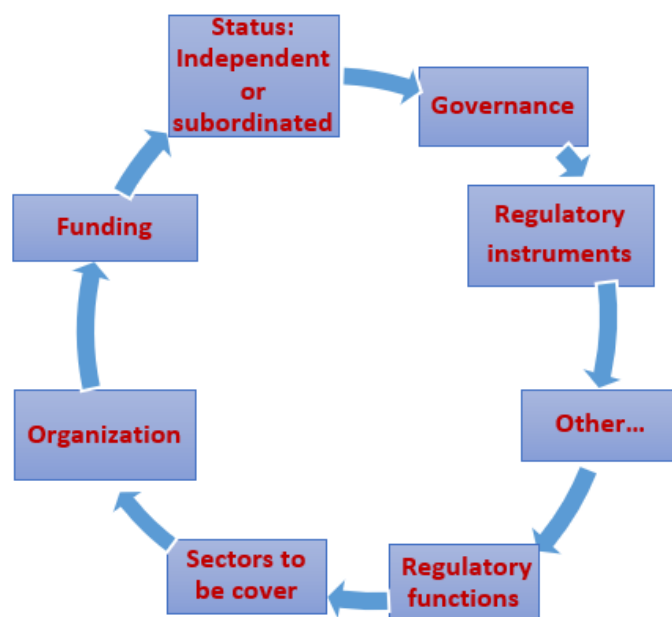


Figure 1. Regulatory Model Characteristics

REGULATORY INDEPENDENCE

Regulatory independence is a necessary condition to ensure politically and commercially neutral, competitive conditions for market participants, attractive to private investment; while also ensuring smooth and secure operation of the energy system. Independence implies autonomy from undue stakeholder influence, which promotes public confidence in the regulatory system and helps to strengthen its operation. A truly independent regulator will have complete independence in deciding utility tariffs and other matters under its jurisdiction. Its decisions can only be appealed in the competent courts. The Regulator is not subservient to political authorities and can raise funds necessary for its operations through mechanisms such as fees charged on the entities it regulates, as opposed to relying on government funding. The Regulators cannot have any financial interest in the entities they regulate and should have no conflicts of interest in terms of relationships with members of an entity's governance structure. As described below, there are several other characteristics that define "independence."

INDEPENDENCE FROM POLITICAL INFLUENCE

Independent Regulators make decisions based on economic, engineering, and public policy considerations, keeping public interest as a primary criterion. They also consider the long-term interest of the electric system, customers, and investors in the power sector. Where decisions are made by ministries, it opens potential for political considerations to trump technical ones and decisions may be made based on election cycles and/or need for a political party to exert short-term influence. While independent Regulators are cognizant of short-term political pressures, their decision

making is more objective and provides confidence to the public and to investors in the Regulatory decision-making process and regulatory outcomes.

However, independence does not mean that Regulators are not accountable for their actions. A Regulator must be held accountable to the executive branch, the legislative branch, and to its consumers. Consumers and the regulated entities should have the right to appeal decisions made by the Regulator and, when necessary, seek redress for instances where a Regulator does not fulfill its function or violates its mandate. Accountability can also be maintained through periodic routine evaluations of the Regulator.

INDEPENDENCE FROM REGULATED UTILITIES

An independent Regulator should not have any financial or other interest in the entities it regulates. For example, a Regulator should not own stocks or bonds or other financial securities issued by the regulated entities, including utilities and Independent Power Producers (IPPs). They should not have any ownership in the regulated entities or their affiliates. They should not hold positions on the Boards of the regulated entities. Furthermore, Regulators should be cognizant that public perception is as important as the reality so they should avoid engaging in any activities that the public perceives as a potential compromise to their independence.

FINANCIAL INDEPENDENCE

Regulators and their staff budgets should be independent of government funding. Best practice suggests that Regulators should be funded by fees on regulated entities. The regulated entities, in turn, recoup these costs from customers. International experience shows that relying on government funding creates problems as the Regulator may then be vulnerable to political pressure that is not in the public interest. Government funding of the Regulator would also erode public confidence in the Regulator being able to act in the long-term interest of the public. Finally, relying on government funding has often resulted in an underfunded and ineffective regulator!

MANAGERIAL INDEPENDENCE

The members of the Regulatory Commission and the Chairperson are proposed by the government (or a select governmental committee) and appointed by the Parliament through a prescribed process normally defined in the law. Their re-nomination, if there is more than one-term, or termination of their terms may depend on the specific laws that established the Regulatory body.

Invariably, as members of the Regulatory Commission perform their duty over their terms, they will need to respond to questions and calls from political authorities and appear before these authorities in hearings. Establishing the independence of a regulatory agency begins with how its members and leadership are nominated, appointed, and terminated. The more transparency and clarity in the process, the better the perception and actuality of independence.

INDEPENDENT REGULATORY REPORTING

To increase independence and impartiality, the law should set clear reporting lines to the authority who appointed the members of the Regulatory Commission – the Parliament. The Regulator should report annually to the Parliament about its activities and associated expenditures.

Regulatory Discretion

The level of discretion provided by law to Regulators on decision making varies from country to country. In some jurisdictions in the United States (US), the Regulator is given broad discretion to decide tariffs (rates) under a mandate of establishing “just and reasonable” rates. How to define and determine what is “just and reasonable” – this is left to the Regulator’s discretion. In other countries, the law specifies with a high level of detail how tariffs should be set. For example, in some Southern African countries, the law provides the model that the Regulator should use for determining capital costs on investments and how inputs to the model should be selected. In other jurisdictions, the level of discretion is somewhere between these two extremes.

The higher the level of discretion given to the Regulator, the more flexibility the Regulator has to make decisions. Some may be concerned that such level of discretion could lead to Regulators making unwise decisions if certain details are not provided or specified, or they could demonstrate inconsistency over time in their decision making. Discretion must be managed in a way that minimizes abuse by Regulators through transparency and accountability of the Regulator to the government and its consumers.

Where an industry is dynamic in terms of changing technologies and costs, Regulators require more discretion to adapt to these changes. The energy industry is rapidly evolving into a clean energy industry with increasing penetration of renewable and other clean energy resources, each of which presents changing technologies and costs. The more discretion a Regulator has, the more autonomy and independence it will have to adapting to the dynamics of this changing industry.

KEY REGULATORY PRINCIPLES AND APPLICABILITY

The Regulatory decision-making process

The Regulatory decision-making process is based on professional analysis and the following principles:

- **Communication,**
- **Consultation,**
- **Consistency,**
- **Predictability,**
- **Flexibility,**
- **Effectiveness and efficiency,**
- **Accountability,**
- **Transparency.**

The Regulator increases the acceptability of its decisions by considering and incorporating stakeholders’ comments where appropriate and encouraging their involvement and participation in the process.

The key principles underlying an independent regulatory regime are listed below, along with examples of their application in practice:

Communication. Information should be easily accessible and available to all stakeholders in a timely manner. Regardless of whether such statutory obligation exists, a regulator should create internal procedures to make transparency and consultation a routine part of regulatory work. These should include a rule that ensures that regulatory decisions are always “reasoned” – that is, there is justification for the decision. The reasoning could include

legal, engineering, economic, and public policy criteria. Procedures should be in place for signing off decisions for publication and posting on the Regulator’s website. The Regulator should ensure that decisions are archived in an orderly, visible, and accessible manner for free download. All decisions should cite the relevant legal provisions used in making the decision and provide links to consultations.

Consultation. Stakeholder participation in meetings, commenting on draft regulatory decisions and papers, and other means of communication facilitates information exchange, increases knowledge of those affected by regulatory decisions, and helps promote transparency in regulatory decision making.

If the primary law includes requirements for public consultation during regulatory processes, it is more likely to occur in practice. It is therefore best practice for consultation and increased transparency to be a legal obligation of the Regulator and include such requirements in either the law governing the sector, or that governing the Regulator.

Consistency. The logic, data sources, and legal basis for decisions should be consistent across market participants and over time. The key principles and methodologies upon which major regulatory decisions will be made (e.g., tariff reviews, compliance with service quality requirements, market surveillance, and investment approvals) should be clearly established in advance in appropriate legal or regulatory instruments. To the extent possible, the rules should be thorough, complete, and clear with respect to all the stakeholders' respective rights, responsibilities, expectations, and consequences.

Predictability and Flexibility. Regulatory decisions should be consistent with previous decisions or determinations on similar matters in the past. This leads to predictability of results, which is a fundamental requirement for investors. Predictability means a reputation for predictable decisions. This facilitates planning by suppliers and customers, and reduces risks as perceived by the investment community. For example, when the Regulator issues a license, this process is predictable since the regulation details the licensing procedure, deadline, and outcomes. Flexibility means that the Regulator should use the available instruments most appropriate for responding to changing conditions, balancing this regulatory discretion against the costs associated with uncertainty. An example of flexibility is when the Regulator chooses negotiation rather than mediation as a means for dispute resolution. The Regulator may do so after assessing the complexity of the disputed case and deciding that negotiation would lead to the best outcome. The decision is based on the applicable legislation and the Regulator having the choice of different means for solving the issue so that it can select the one it considers most likely to deliver an effective outcome.

Regulatory predictability “stresses that individual decisions made by regulators should, to a substantial degree, prove predictable for regulated entities, because predictability adds certainty to their operating environment, thus favoring effective decision-making. It also enhances confidence in the impartiality and quality of the regulator’s decisions, but it requires ensuring the principles and rules the regulator follows when making decisions remain explicit, publicly available, and well understood².”

Effectiveness and Efficiency. Effective regulation requires the design of policies that can bring about the most appropriate outcomes for consumers and utilities. The Regulator should perform its functions in accordance with applicable laws and regulations and within established deadlines. However, laws and regulations alone are not sufficient. Even the best designed regulation will be ineffective if it is not credibly supervised and enforced. Through effective regulation and enforcement mechanisms, the Regulator will fulfill the essential role it plays in ensuring market integrity and protecting the interests of both investors and consumers. These two principles are best observed when the Regulator is setting the allowed revenues, defining regulatory

“Effective regulation involves the design of policies, rules and laws that are thoroughly supervised and supported by the credible threat of enforcement to produce an intended or expected result. Such results can be investor protection, more efficient markets or the reduction of systemic risk, to name but a few³.”

¹ Source : Abstract, https://elibrary.worldbank.org/doi/full/10.1596/978-1-4648-1434-1_ch8

² Source : <https://www.cfauk.org/-/media/files/pdf/pdf/5-professionalism/3-research-and-position-papers/effective-regulation.pdf>

parameters, or approving the regulated tariffs and their methodology. Efficiency should be emphasized in data collection and in the policies implemented by the Regulator.

The Regulator will be required to ensure that effective competition is maintained by, for example, preventing anti-competitive behaviour by companies with market power that can harm consumers, utilities, and investors. If regulation is effective and efficient, market integrity will be protected and stakeholders' level of trust in the regulatory regime will rise.

Accountability. Regulators should provide clearly defined processes and rationales for decisions. In addition, appeals procedures need to be specified to provide appropriate checks and balances. To ensure the Regulator stays true to its legally endowed authority, provisions must be made to ensure transparency. This can be accomplished by making the regulatory processes and Commission meetings public record. For example, Commission proceedings should explain utility filings, include stakeholder comments, and present the analysis supporting each of the Commission's decisions. Similarly, the budgeting process should be transparent and clear in its presentation to the public. The Regulator should periodically subject itself to internal and external audits to provide a third-party analysis of its operations.

On at least an annual basis, Regulators should report publicly on their activities to fulfil their mandate in the past year and how they have spent their income. In each case, the Regulator should link its activities, performance, and expenditures to the public benefit and the sector's enhanced operational performance and financial viability, which in turn brings benefits to consumers. This is the best opportunity for the Regulator to ensure continued public support. By keeping accountability at the forefront of its operations, the Regulator can ensure that it is focusing on its mandate and effectively executing its regulatory responsibilities.

Transparency. The openness of regulatory processes to stakeholder observation and participation promotes their legitimacy. A summary of accountability and transparency measures is provided in table I below.

TABLE I. SUMMARY OF ACCOUNTABILITY AND TRANSPARENCY MEASURES

ACCOUNTABILITY AND TRANSPARENCY TO THE GOVERNMENT AND THE LEGISLATURE

Expectations of the Regulator should be clearly defined. These expectations should be published within the Regulator's business plan.

Regulators should report to legislative oversight committees on all major measures and decisions on a regular basis and as requested.

The Regulator needs to have a comprehensive and meaningful set of performance indicators and report on these metrics.³

ACCOUNTABILITY AND TRANSPARENCY TO REGULATED ENTITIES

The Regulator should make information and access to appeal processes and systems easily available to regulated entities. The Regulator should establish and publish processes for arm's length internal review of significant delegated decisions such as those made by inspectors.

Regulated entities should have the right to appeal decisions that have a significant impact on them, preferably through a judicial process. Such right of appeal should be allowable, inter alia, on the grounds that the Regulator has exceeded the powers attributed to it; there has been insufficient consultation; and/or there are material omissions in the evidence and actions that are disproportionate to the issue being addressed.

The appeal may lead to regulators rescinding or modifying decisions.

³ OECD (2017), *Creating a Culture of Independence: Practical Guidance against Undue Influence, The Governance of Regulators*, OECD Publishing, Paris, <https://doi.org/10.1787/9789264274198-en>.

TABLE I. SUMMARY OF ACCOUNTABILITY AND TRANSPARENCY MEASURES

ACCOUNTABILITY AND TRANSPARENCY TO THE PUBLIC

Key operational policies and other guidance material covering matters such as compliance, enforcement, and decision review should be publicly available.

The Regulator should recognize its special responsibility in ensuring that members of the public have channels of complaint and possible redress in relation both to the actions of a regulated entity and to the actions of the Regulator.

All major decisions made by the Regulator should be accompanied by sound rationale and be publicly stated.

The opportunity for independent review of significant Regulatory decisions should be available in the absence of strong public policy reasons to the contrary.

The right of appeal of decisions by the Regulator should be extended to members of the public where their standing is recognized by the judiciary.

PURPOSE OF THE INDEPENDENT REGULATOR

The number of independent regulatory authorities, established all over the world, is constantly growing, indicating that functional Regulators with adequate powers and responsibilities enhance investors' trust in the country having a predictable regulatory framework and effective sector oversight.

Regulating utilities is complicated by three interrelated considerations. First, electricity tariffs, utility employment levels, and some aspects of utility operations are often influenced by political forces. Ministries and political forces often encourage utilities to employ more staff while discouraging offsetting tariff increases. Similarly, when costs rise, political forces withhold justified increases. There are numerous examples in which justifiable tariff increases have been withheld at the expense of investors and the long-term interests of consumers.⁴ The result is a utility that is underfunded and unable to attract necessary investment. In the long run, utility performance declines, the system is unable to keep up with demand and the economy suffers.

Second, investors are aware of the potential for government involvement, which can increase investment risk. Without clear, concise, and stable rules of the marketplace, higher risk to investors results in higher capital costs and they are less likely, in this context, to provide the amount of capital needed to develop the sector. Even when a utility is state-owned, there are better ways of achieving the government's political aims such as increased employment than by directly intervening in utility operations. Further, it is common to have a lifeline tariff that subsidizes electricity for low-income households that is often paid through cross subsidies. However, regulating ministries very often simply offer a subsidy to all residential consumers, not just low-income consumers, for some or all their consumption even where it is not necessary. The result again is an underfunded utility.

Third, there are different and sometimes conflicting interests vested in different stakeholder groups, resulting in efforts to influence regulatory processes to advance their own interests. Government has political and legal ownership and other interests in the energy sector infrastructure. Utilities try to maximize the share values of their investment. Consumers desire access to high quality services with low prices. In addition, there are likely to be other interest groups such as NGOs with political, social, or environmental interests. An independent Regulator is in the best position, because of its

⁴ There is a misconception that consumer interests are best served by keeping prices low. This often results in underfunded utilities and subsequently a deterioration in service quality – load shedding and poor quality. Numerous studies have shown that the damage to the economy of underpricing power (and therefore undersupplying it) is far in excess of the justified tariff increase.

independence and impartiality, to balance all these interests for the benefit of all stakeholders and the power sector.

In addition to ensuring a properly functioning market, strong independent Regulators serve several other purposes:

- Separate energy sector economic regulation from developing and establishing energy sector policy and strategy. This is important for investors. In countries where Regulators are nonexistent, or have limited regulatory powers, it is the relevant ministry (often the Ministry responsible for energy) that regulates the energy sector. This does not allow for independent oversight of the sector, separate from policy- and strategy- related matters, and thus reduces investor confidence;
- Ensure effective oversight of implementation of tariffs, licensing, sector monitoring, and investment approval that is independent of any governmental authority or utilities. The electricity, gas and heat sectors are characterized by long term, large capital investments that require a stable regulatory regime. Short term political events and political cycles should not interfere with the Regulatory framework, which should remain consistent and stable over time;
- Ensure a more predictable and consistent regulatory environment, particularly after private sector participation is introduced;
- Ensure certainty of regulatory decisions that are not influenced by political power or changes in government. Separating regulators from ministries, giving them autonomy and responsibility for regulatory functions, and holding them accountable for their performance will improve sector efficiency and enable better power sector regulation;
- Ensure better consumer protection through regulatory independence, particularly with respect to tariffs assessment, dispute resolution, monitoring of tariffs, and establishing Key Performance Indicators;
- Ensure a strong financial standing of the sector through independent assessment of investments and monitoring of tariff implementation;
- Ensure that third-party access is granted in a non-discriminatory manner. An independent regulatory authority is in the best position to ensure this, given their lack of financial or ownership interest in the regulated entities and their affiliates.

ESTABLISHMENT AND STATUS OF THE REGULATOR

ESTABLISHMENT OF THE REGULATOR

The manner in which a Regulator is established will depend on the legislation in the country. Best practice is that the establishment and organization of independent regulatory authorities are defined in energy sector laws. This is because energy sector regulation is complex and encompasses multi-disciplinary functions that require a high degree of expertise in multiple fields.

The Regulator's responsibilities may include the following:

- establish the level and structure of tariffs;
- issue licenses;
- set performance standards;
- review utility investment plans;
- monitor the performance of utilities;
- impose fines for non-compliance;
- resolve disputes among stakeholders;
- reporting; and
- other functions as necessary.

For each function, the Regulator needs sufficient legal authority to carry out its responsibilities. This legal authority can only be ensured through enactment of a relevant law. Countries have used various legal instruments to establish a Regulator, such as the Electricity Law, the Energy Law, a law on sector regulation, or other energy sector laws.

In Turkey, for example, the Energy Market Regulatory Authority (EMRA) was established in 2001 by Article 4 of the Electricity Market Law through the following disposition: "An independent, administratively and financially autonomous public institution, namely the Energy Market Regulatory Authority, is hereby established to perform the duties assigned to it by this law."⁵

Article 7 of the Electricity Law in Romania No. 318/2003 that established the Romanian Energy Regulatory Authority (ANRE), reads as follows: "The competent authority in the electricity sector is the Romanian Energy Regulatory Authority – ANRE, organized as an independent public legal person of national interest under the co-ordination of the relevant ministry. ANRE operates as per its own organization and functioning regulation approved through government decision." The latest legislative changes in the energy sector made ANRE accountable to Parliament.⁶

The Cyprus Energy Regulatory Authority (CERA) was established by the Law on the Regulation of the Electricity Market of 2003 (Law 122(I)2003). This law was later abolished and replaced by the Law on the Establishment and Operation of the Cyprus Energy Regulatory Authority of 2021 (Law 129(I)/2021).

⁵ Law No: 4628, ratified on February 20, 2001, enacted on March 3, 2001, as amended by the Electricity Market Law No. 6446 of 2013

⁶ In 2007 Law was substituted by the Electricity Law No. 13/2007, which was further amended in 2012

The Croatian Energy Regulatory Agency (HERA) was established in 2004 according to the Law on the Regulation of Energy Activities (Official Gazette, No. 177/04 and 76/07 and 120/12, 68/18). (See <https://faolex.fao.org/docs/pdf/cro105025.pdf> as an example.)

As described above, there are various legal instruments which countries can use to establish the Regulator. In these examples, the Electricity law, the Energy Market Law, and Law on the Regulation of Energy Activities were used to create Regulatory authorities. There is a trend of countries increasingly establishing their Regulators through enactment of a separate Law on Energy Regulator or a Law on Energy Market Regulation. These are effective legal instruments as they provide the detail necessary for adequately defining the Regulator's functionality. The more power the law provides the Regulator to act independently in performing its duties, the more independence the Regulator will enjoy.

Given the diversity of functions, responsibilities, and degree of importance of the Regulator to sector performance, a separate law for establishing the regulator is preferred. A separate law strengthens governing principles and defines and clarifies regulatory powers, functions, tools, and responsibilities. As previously noted, establishing the Regulator by a separate law and creating robust energy sector bylaws will help increase investor confidence that regulatory governance is executed by independent Regulators as opposed to political forces.

Countries in the post-Soviet area started with establishing the energy regulatory authorities in the mid-90s. The first country which introduced a regulatory authority separate from the sectorial Ministry in 1994 was Ukraine. Then followed such countries as Armenia, Georgia and Moldova. and gradually, along with amendments to the legal framework regulatory authorities in these countries became powerful and independent. In the Central Asia region energy regulatory authorities in Kazakhstan and Kyrgyzstan were established in the late 90s, and Tajikistan established the Tariff Regulator in 2019 but in neither country regulators have yet become truly autonomous from the legal, financial and political independence viewpoints.

STATUS OF THE REGULATOR

The Association of Mediterranean Energy Regulators (MEDREG)⁷ in June 2018 published the Mediterranean Energy Regulatory Outlook Booklet, stating that 19 out of the 22 interviewed National Regulatory Authorities in the MEDREG region are independent from any other public or private entities.

A comparison of the status and key characteristics of selected regulatory authorities is shown in Table 2.

⁷ MEDREG is the Association of Mediterranean Energy Regulators, which gathers 27 energy regulators from 22 countries, linking the European Union with the Balkans and the Middle East and North Africa region. Member countries include Albania, Algeria, Bosnia-Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Libya, Malta, Montenegro, Morocco, Palestinian Authority, Portugal, Slovenia, Spain, Tunisia and Turkey.

TABLE 2. STATUS AND KEY CHARACTERISTICS OF SELECTED REGULATORS

Regulatory Authority	Country	Year of Creation	Created	Regulated Sectors	Status	No. of Personnel	Annual Budget in 2016/2017
Cyprus Energy Regulatory Authority (CERA)	Cyprus	2003	By law	Electricity, natural gas and renewable energy sources (RES)	Independent	19	Not available
Croatian Energy Regulatory Agency (HERA)	Croatia	2004	By law	Electricity, natural gas, and district heating	Independ.	68	€3 million
Regulatory Commission of Energy in France (CRE)	France	2000	By law	Electricity, natural gas	Independ.	149	Not available
Regulatory Authority for Energy (RAE)	Greece	1999	By law	Electricity, nat. gas, RES, heat and cogeneration	Independ.	142	Not available
Regulatory Authority for Energy, Networks and Environment (ARERA)	Italy	1995	By law	Electricity, nat. gas, district heating, and water and waste	Independ.	219	€100 million
Energy Regulatory Agency (REGAGEN)	Montenegro	2004	By law	Electricity, natural gas, and water and waste	Independ.	33	€ 1.5 million
Energy Services Regulatory Authority (ERSE)	Portugal	1995	By law	Electricity and natural gas	Independ.	74	€9.8 million
Energy Agency of the Republic of Slovenia (AGEN-RS)	Slovenia	1999	By law	Electricity natural gas, and heating	Independ.	60	€3.3 million
National Commission on Markets and Competition (CNMC)	Spain	2003	By law	Electricity and natural gas	Independ.	500	€60 million
Energy Market Regulatory Authority (EMRA)	Turkey	2001	By law	Electricity and natural gas	Independ.	482	€60 million

KEY CHARACTERISTICS OF AN INDEPENDENT REGULATOR

GOVERNANCE AND GOVERNING OBJECTIVES

The Law that establishes the Regulator should clearly identify its governance structure. Regulators are usually governed by a Commission⁸ that deliberates regulatory decisions through the Commission's meetings (sessions). Sessions should be held transparently and be open to the public, except in the case of confidential matters or when the Commission is deliberating internal issues that do not affect public interest.

In most cases, the Regulator is established as a public agency that consists of Commissioners and staff. The number of Commissioners typically ranges from three to seven. Their selection process and powers are discussed further below. A Managing Director oversees staff and their work, acts as the Chief Executive Officer (CEO), and reports to the Commission. Through its Commission, the regulatory authority enacts guidelines and methodologies.

Good governance practices will help achieve regulatory objectives related to public participation, transparency, accountability, independency and impartiality, efficiency, and effectiveness. Effective regulatory governance requires having good governance objectives and practices, particularly related to collective decision making, clarity of a regulator's roles in regulation and in policy making, development of a regulatory strategic (business) plan, performance ethics, and remedies and appeals of a regulatory decision. These key regulatory principles are described in the following sections.

COLLECTIVE DECISION MAKING

There are many reasons for a collective body such as the Commission heading the Regulator. The most important is that the Regulator addresses multifunctional and sometimes difficult energy sector issues. A Commission having members with a diversity of experience and expertise is most effective for discussing and deciding on complex energy sector matters that may require an understanding of multiple fields such as finance, engineering, economics, and the technical operations of energy systems. Collective decision making by Commissioners with relevant and diverse backgrounds and occupations can lead to more effective decision-making addressing complex and sometimes politically sensitive issues such as tariff increases.

CLARITY OF ROLES IN REGULATION AND POLICY

The law should provide for clear and comprehensive provisions concerning the allocation of rights, powers, and responsibilities between the Regulator and other governmental bodies having authority over the sector and utilities. Basic policy for the regulated sector should be set out formally in law and be made binding on the Regulator. The Regulator should implement and enforce public policy as required by law and relevant government regulation consistent with other legal obligations. While the Regulator's responsibilities relate to economic regulation, the Ministry and/or other government bodies responsible for energy will define the overall power sector strategy and policy at a macro level.

⁸ Commission (or a Board) is a collective decision-making body made up of individuals with different areas of expertise that bring their distinct perspectives to a regulatory issue. Collegial decision making by a Board of Commissioners is considered best practice in energy sector regulation.

STRATEGIC (BUSINESS) PLAN

The Regulator should develop a strategic plan that covers its operations for a period of, for example, five years that rolls over on an annual basis. The plan should achieve the Regulator's vision for its mission and the sound and sustainable development of the sector. It should describe key strategic goals, activities and their costs, as well as performance indicators. The plan should be developed internally to give personnel a sense of ownership and in-depth knowledge of the plan as well as be made accessible to the public.

ETHICS AND CONDUCT

To the extent not already covered by other laws, the Regulator should enact a binding code of ethics and conduct applicable to all personnel, including directors and Commissioners. The Code of Ethics and Conduct sets forth the guiding ethical principles and rules of conduct that govern the Regulator's Commissioners and personnel. Personnel integrity is indispensable for effectively discharging the Regulator's responsibilities. Employees should participate in establishing, maintaining and enforcing high standards of conduct so that the honesty, fairness, and impartiality of the Regulator are preserved and public trust is strengthened. The code provides guidance for upholding their ethical and legal responsibilities, avoiding actual or apparent conflicts of interest, maintaining confidential information, and applying fundamental principles related to transparency, impartiality, independence, and respect for all citizens regardless of ethnicity, among others.

REMEDIES AND APPEALS OF A REGULATORY DECISION

It is fundamental that the legal framework establishing the Regulator clearly state the process and institutions that will be involved in an appeal against a regulatory decision. Any parties who believe they were adversely affected by a regulatory decision should have the right to make an appeal of that decision within a reasonable period after the decision was made (for example, 30 days). However, that right should only belong to a party who formally participated in the associated proceedings and who raised that issue during the proceedings, including any rehearing process. All appeals against a regulatory decision should be directed to a single, independent appellate forum such as a court or tribunal, whose decision should be final.

The decision of the Regulator should remain in effect for the duration of the appeal unless the authority or the appeals tribunal decides otherwise. If the court reverses or changes the decision of the Regulator, the matter should be sent back to the Regulator to formulate a remedy consistent with the decision of the appellate forum.

Figure 2 gives an example of successful power sector regulation governance, as applied by the UK Regulatory authority, the Office of Gas and Electricity Market (OFGEM).

Principles of the Successful Power Sector Regulation Governance



Figure 2. Example of Governance Principles for successful Power Sector Regulation

GOVERNANCE STRUCTURE

REGULATORY COMMISSION

As noted previously, best practice is for the Regulator to be governed by a collective decision-making body, either called a Commission or a Board, rather than a sole individual. The law that establishes the Regulatory authority should describe the key elements of the Commission such as its size, functions, Commissioners' terms, and criteria for Commissioners' appointment and dismissal.

SIZE OF COMMISSION

The number of commissioners can vary from one (e.g., UK) to seven (e.g., New York, US, Argentina, Mexico).⁹ The number may depend on various factors including the scope of activities (e.g., how many industries such as gas, water, and electric would be regulated) and the diversity of opinion believed appropriate to properly represent public opinion. Three to five members may be an ideal size based on regulatory best practice. An odd number of commissioners is preferred to allow a majority result when there are differences of opinion.

Several countries in the European Union including the Energy Community countries have a regulatory Commission consisting of five members nominated and appointed in accordance with the qualification criteria and procedures established in applicable laws.¹⁰ This is considered optimal for effective decision making and will not unduly affect the Regulator's budget. In general, more members of the Commission (e.g., seven or more) is the structure commonly used for the multi-

⁹ Designing an Independent Regulatory Commission, by Sanford V. Berg, Ali Nawaz Memon, and Rama Skelton, 2000

¹⁰ <https://www.energy-community.org/aboutus/whoware.html>

sectorial regulatory authorities (e.g., regulatory authorities responsible not just for energy but also for water, telecommunications, etc.)

Staggered terms of four to five years are often used to ensure that the Commission retains institutional memory and historical knowledge and that there is continuity in decision making and safeguarding of the Commission from political influence arising from changes in administration. Applicable laws may require that the end date of Commissioners' terms cannot be the same for all members.

LENGTH OF COMMISSIONER TERMS

The length of Commissioners' terms, as defined by the law, is important for ensuring that the Regulator has the power to fulfill its functions. Countries vary with respect to term length. For example, the Croatian Energy Regulatory Agency (HERA) is governed by a Board of five Commissioners elected by the Parliament for a term of seven years, with possible re-election for one additional term. The Italian regulatory authority, ARERA, consists of a President and four members appointed by Presidential Decree for a non-renewable seven year term.

The Commissioners' terms are often set to a five-year period with a possible one-time extension. As shown in this example from Kosovo, a typical provision for setting terms in the law that establishes the Regulator is phrased as follows:

“The term of each member of the Commission should be five (5) years, with the possibility of appointment for one more consecutive term. The term of each member of the Commission should commence on the date of the appointment by the Parliament. The end date of the term of office of the Commission members cannot be the same for all members.”¹¹

CRITERIA FOR COMMISSIONERS' APPOINTMENT

The law should state that the process by which Commissioners are nominated and vote is transparent and public. The criteria for nomination vary widely among jurisdictions around the world. In some cases, the qualifications required are broad and general and, in some cases, they are very specific, calling for certain academic and industry experience. Ideally, members should have academic training and experience in the fields of engineering, economics, finance, law, or public policy. Furthermore, they should be committed to keeping an open and unbiased mind and pledge to make decisions based on facts, logic, and the broader public interest. They should have curiosity to learn and keep up to date with changing industry dynamics.

The nomination and appointment process typically begins with the relevant Ministry's public announcement of vacancies for the Commissioners' positions, including selection criteria and application deadline. After receiving the applications, the Ministry should deliver applications of the two best candidates for each post to the Parliament. Parliament elects the Commissioners by voting for one of the proposed candidates. The candidate who receives the majority of votes by the members of Parliament is appointed as Commissioner. The President of the Parliament will then sign the appointment decision, which will then be published on the Parliament's website.

¹¹ From the Law 05/L – 084 on Energy Regulator in Kosovo, enacted on July 14, 2016

DISMISSAL OF COMMISSIONERS

Dismissal of the Commissioners must only happen for reasons clearly indicated in the law. Dismissal should be limited to circumstances such as neglect of duty or fraud and abuse but not for differences of opinion on matters related to policy. This protection from termination allows Commissioners to speak freely regarding their policy preferences.

Establishing both appointment and dismissal procedures is important for preserving the independency and impartiality of the Commissioners. Example of criteria for appointing and dismissing Commissioners are shown in Figure 3:

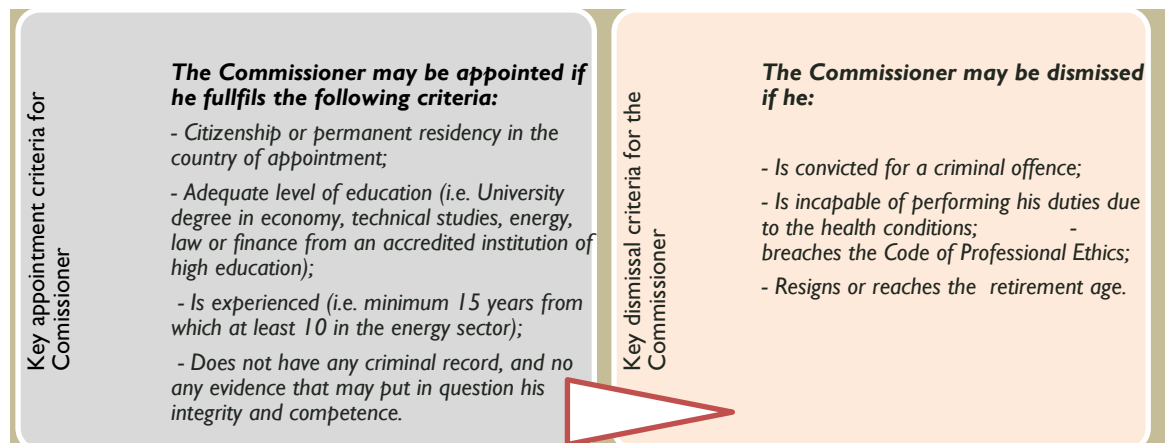


Figure 3. Example of criteria used for appointments and dismissals of the Commissioners

PERSONNEL AND EMPLOYMENT

The Regulator should be adequately staffed with highly qualified personnel covering a wide range of professional fields. The Regulator should have enough qualified employees with skills related to engineering, law, economics, accounting, finance, and public policy to perform the regulatory functions set forth in energy sector laws. The law should explicitly authorize the Regulator to employ a number of personnel sufficient for executing its duties and to pay salaries commensurate with those of the regulated companies. The Regulator's organizational structure and its personnel's duties and skills are defined in detail in the Regulator's internal regulations, in accordance with the law.

The Regulator should hire staff based on selection criteria defined in applicable employment laws. Regulatory staff typically require advanced academic training and expertise in engineering, economic and legal fields to be able to support the Commission's work, particularly with respect to reviewing and analyzing utility tariff applications, licensing, and other complex regulatory tasks.

The Regulator is considered a public entity and not a profit-making private entity. Salaries to attract qualified regulatory staff must be competitive. Generally, government salaries are not competitive with those in the private sector and it can be difficult to attract talent with existing civil service rules. Exceptions should be made to the typical civil service hiring process to ensure that qualified candidates can be hired by the Regulator. This is especially important given the high level of public interest vested in the sector and the large amounts of money regulated. Paying higher salaries would easily pass a benefit-cost analysis. Best practice is to allow the Commission to set employees' salaries to be commensurate with those of the regulated utilities.

The Georgian National Energy and Water Supply Regulatory Commission (GNERC), for example, derives funds for salaries from income generated from fees collected from regulated utilities. The Law of Georgia on Labor Remuneration in the Public Sector governs remuneration for public sector servants but makes exceptions for the members and personnel employed by national regulatory authorities.¹² To maintain the Commission's independence from other state structures and to enhance its financial independence, the Regulatory Commission can independently determine the remuneration of each employee as it is not held to the ceiling on salaries imposed by national legislation.

ORGANIZATIONAL STRUCTURE

The Regulator's organizational structure must be effective to enable its proper functioning. An optimized organizational structure enables the efficient execution of the Regulator's functions without creating unnecessary financial burdens on the typically small budget of a newly established Regulator. This may arise from, for example, creating and filling unnecessary positions.

The design of the Regulator's organizational structure is largely determined by its regulatory functions as well as the number of the sectors that it regulates. It will also depend on the size of the market and the utilities' financial standing. Its organizational structure includes departments, managed by the respective department heads, that are defined by functions that fulfil the Regulator's professional, administrative, and technical tasks. Depending on the types of regulatory functions assigned by law, there may be departments for tariffs and pricing, quality of services, licensing and legal, market operation, consumer protection and general administration and/or support services, including finance, procurement, IT, human resources.

BUDGET OF THE REGULATOR AND FUNDING

The source of funding for the Regulator varies significantly from country to country. Licensing fees are the most common source but it can be also derived from other sources such as grants from donors or a combination of two or more of its basic sources, defined below. A well-balanced funding scheme may include one or a few different funding sources with adequate procedures for collecting fees or taxes appropriate for an independent regulatory regime. The funding scheme for the Regulatory activities should not be overly costly as it will become a financial burden and not promote efficiency in the sector.

Regulators should be financed from funds outside the state budget, either through licensing fees, regulatory fees on regulated entities (who in turn will collect them from customers in the regulated tariffs), grants from international donors, and other regulatory fees collected for certain activities such as dispute resolution service, imposing penalties on regulated entities for failure to comply with rules and regulation, etc. Funding may come from a combination of two or more of these basic sources.

Licensing fees are set by the Regulator on an annual basis and should be made public. These fees should enable the Regulator's financial self-sustainability and effective operation in line with benchmarks set for regulatory authorities operating under similar conditions. This method achieves the following: (i) integrates regulatory costs into the industry, (ii) treats regulatory assessments as fees for service rather than taxes, (iii) is a stable source of funding, (iv) is relatively easy to administer, (v) is consistent with regulatory independence, and (vi) is transparent to industry players.

¹² <https://factcheck.ge/en/story/35974-salaries-in-georgia-s-regulatory-commissions-reach-gel-14-000-16-000-and-a-wage-ceiling-has-not-been-established>

Funding levels should be sufficient for the Regulator to meet all its responsibilities competently, professionally, and in a timely manner. Licensing fees are often set to be up to two percent of the relevant utilities' gross turnover.¹³ The majority of Regulators in South East Europe, established within the last 20 years, selected this method of funding. The fees that the Regulator charge are included in tariffs and should not significantly affect the utilities or consumers. Furthermore, these fees are almost negligible given the significant benefits that an independent Regulator brings to the sector.

The law should authorize the Regulator to define an annual budget that is independent of the state budget, except for an initial transition period, as discussed below. The Regulator should prepare its budget sourced from its dedicated revenue and any supplemental appropriations requested so that it can discharge its responsibilities and duties in the most effective manner possible. The Regulator develops its annual budget according to the regulations and methodology on fees. Unspent balances at the end of the year are at the Regulator's disposal for use in the following year for the same purposes. The Regulator should execute its annual budget autonomously.

In several countries, the Regulator receives funding, in whole or in part, from the state budget. This weakens its financial independence and may negatively impact its ability to make independent, market-oriented decisions. However, newly established Regulators may require funding from the state budget in its initial years, until the Regulator is fully established and functional. This is used in several countries where the law establishing the regulatory authority clearly indicates that the activities of the Regulator should be funded by donor grants and fees set and collected by the Regulator.¹⁴ However, for the initial period of two calendar years after establishment, the Regulator should be funded from the state budget.

Fines that the Regulator may impose on the licensee for violations of licensing conditions, laws or regulations are typically not included as a funding source for the Regulator. Instead, they are paid to the state budget. This is an appropriate approach given that fines as a source of funding may incentivize the Regulator to impose fines even in cases where it is possible for an operator to improve performance and avoid a monetary penalty.

REPORTING

The Regulator should report annually on its regulatory activities and financial conditions to the President of the country and the Parliament. To promote transparency, the report should be made public. However, reporting should not be limited to annual reports. Reporting is a broader concept critical to the successful implementation and conduct of regulatory processes. It includes public disclosure of records, evidence, meetings and hearings and opportunity for public participation so that all stakeholders have access to relevant information from regulator's proceedings and from regulated utilities.

For there to be confidence in the regulatory system, the Regulator's process, reasoning, logic, mathematics, transactions, administration, and mechanics of regulation must be fully transparent to all. Without that confidence, regulation will be but an empty shell as investors will not risk their

¹³ The percentage of gross turnover will depend on the size of the market and utility revenues, as well as the scale and scope of the regulator. Two percent represents the upper limit.

¹⁴ From local or international donors, excluding regulated utilities licensed by the Regulator and lobby groups or associations of customers

capital, consumers will not tolerate adverse tariffs changes, and the government will not refrain from interfering in regulatory processes.

The Regulator should be transparent about the implications for stakeholders of tariffs, pricing, quality standards, service obligations, license fees, and public support through subsidies. This will help ensure that stakeholders' expectations are realistic. The Regulator should also inform consumers of their rights and obligations, thereby allowing them to be more informed about their roles in assessing the performance of service providers and in contributing to regulatory processes.

REGULATORY FUNCTIONS

KEY REGULATORY FUNCTIONS

This section describes the key regulatory functions of a typical independent Regulator, the rationale for why the Regulator should perform them, and how each function contributes to the power sector.

The energy sector law empowers the Regulator to:

1. Regulate prices and tariffs;
2. License utilities, including their issue, amendment, suspension, or termination;
3. Set quality standards;
4. Monitor and supervise utilities' performance;
5. Provide consumer service and dispute resolution;
6. Impose fines/ penalties on sector participants; and
7. Approve investment programs of the Transmission System Operator (TSO)/ Distribution System Operator (DSO) and regulated producers.

In some countries, the Regulator is also responsible for:

8. Market development and oversight; and,
9. Approval of technical and commercial codes.

During the last few decades, Regulators have become increasingly engaged in market development and oversight as well as gained powers to approve technical and commercial codes.

The following sections describe typical regulatory functions, based on international best practices:

TABLE 3. FUNCTIONS OF SELECTED REGULATORS

Regulatory authority	Regulate prices and tariffs	Issue licenses	Set quality standards	Monitor and supervise	Impose fines / penalties	Consumer protection /dispute resolution	Investment programs approval
Cyprus Energy Regulatory Authority (CERA), Cyprus	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Croatian Energy Regulatory Agency (HERA), Croatia	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regulatory Commission of	Yes	Yes	Yes	Yes	Yes	Yes	Yes

TABLE 3. FUNCTIONS OF SELECTED REGULATORS

Regulatory authority	Regulate prices and tariffs	Issue licenses	Set quality standards	Monitor and supervise	Impose fines / penalties	Consumer protection /dispute resolution	Investment programs approval
Energy in France (CRE), France							
Regulatory Authority for Energy (RAE) Greece	Only advises	Yes	Only Monitors	Yes	Yes	Yes	Yes
Regulatory Authority of Energy, Network and Environment (ARERA), Italy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Energy Regulatory Agency (REGAGEN) Montenegro	Yes	Yes	Yes	Yes	No	Yes	Yes
Energy Services Regulatory Authority (ERSE), Portugal	Yes	No	Yes	Yes	No	Yes	Issues opinion
Energy Agency of the Republic of Slovenia (AGEN-RS), Slovenia	Yes	No	Yes	Yes	No	Yes	No
National Commission on Markets and Competition (CNMC), Spain	Only advises	No	Yes	Yes	No	Yes	Issues opinion
Energy Market Regulatory Authority (EMRA), Turkey	Yes	Yes	Yes	Yes	No	Yes	Yes

PRICES AND TARIFFS

Tariffs are used to ensure “service cost recovery” and “cost reflectivity” for various customer classes. Cost recovery ensures the utility is collecting its average costs, ideally with no subsidies from the government. Cost reflectivity ensures that different customer classes pay their fair share of the costs they impose on the utility. Setting tariffs requires the Regulator to perform the following three activities:

STEP I: REVENUE REQUIREMENT DETERMINATION FOR THE UTILITY

This step determines how much money a utility is allowed to recover annually from its customers to meet the costs of the services it provides. There are several methods for determining revenue requirements, each with its own pros and cons. (Note that a discussion of these is beyond the scope of this document).

RATE BASE/RATE OF RETURN REGULATION

In this approach (also known as cost-based or cost-plus), the Regulator evaluates utility costs and allows prudent costs.¹⁵ The return allowed on the assets deployed by the utility (rate base) is administratively determined by the Regulator.

PERFORMANCE BASED REGULATION

Performance Based Regulation (PBR) is an umbrella term that refers to a range of regulatory tools that establish incentives to utilities for aligning shareholder interests with those of its customers. These tools focus on increasing the efficiency of utility operations to reduce expenditures on items within the utility's control, reducing the risk of excessive expenditure on items that are outside of the utility's control, and ensuring utilities provide safe and adequate service quality to customers. The tools can be broadly categorized into two groups – implicit and explicit. The implicit tools include mechanisms such as revenue or price caps, increasing regulatory lag time (between tariff changes), utilizing excess earning sharing mechanisms, and reconciliation for Operations and Maintenance (O&M) and capital expenditures, among others. Explicit tools include establishing performance- related incentives and penalties for items such as service quality as well as public policy priorities such as promoting clean energy and energy efficiency. Cross-sectional benchmarking (i.e., company to company and or time series comparisons) can be used to provide incentives and penalties to utilities on various performance metrics.

The Price and Revenue Cap Mechanisms, examples of implicit tools, are described briefly below.

PRICE/REVENUE CAP REGULATION

Some jurisdictions use price or revenue cap regulations in the context of a long-term tariff plan. This approach is more macro in nature and prices or revenues can be capped based on certain formulas. Caps are set as annually adjusted rates based on an existing methodology and indexed to changes in variables such as inflation, productivity, and other uncontrollable external factors.

For example, the following is a commonly used formula for establishing a price cap:

Price Cap Index = Inflation – X factor + Z factor

Where:

- Price Cap Index = Percent change allowed in price;
- Inflation = Percent change in a published inflation index;
- X factor = Predetermined annual productivity factor; and
- Z factor = Factor applied (ex-post) to deal with exceptional costs not in utility's direct control (e.g. changes in tax law).

¹⁵ This refers to cost being reasonable at the time they were incurred

Prices for each period are capped and adjusted over time based on the above formula. The incentives provided to the utilities under price cap and revenue cap approaches are different. For example, under a price cap approach, if actual sales in each period increase beyond forecasted levels during the tariff setting process, utility profits will increase (as every unit sold includes a profit element) although per unit prices are capped, everything else being equal. This situation provides an incentive to utilities to pursue increased sales.

Under a revenue cap approach (also known as revenue decoupling mechanism), utility profit is indifferent to sales levels because revenues are capped. That means if a utility sells more than forecasted levels, it is obligated to return the money to the customer. As revenues are capped, this approach incentivizes utilities to pursue policies such as ‘energy efficiency’ that tend to reduce electricity sales. Given the increased importance of energy efficiency today, many jurisdictions are taking this approach.

Under both approaches, the utility will still have an incentive to be efficient and cut costs to make more profit. The reconciliation of various revenue and cost elements after the fact also affects incentives to the utility and impacts utility behavior.

STEP 2: COST ALLOCATION

Once the Revenue Requirement is established, it should be assigned to various service classes. Cost of Service Studies (CoS) help design the specific tariff structures to price electricity in an economically efficient manner. A CoS study identifies the cost of providing utility service to each class. In general, there are two types of cost studies. The first is an ‘embedded cost’ study where the costs are examined on an accounting basis. The other is a ‘marginal cost’ study that determines the marginal cost of a product (i.e., cost to produce the next unit), including both short run and long run marginal costs. Short run marginal costs typically refer to variable costs that change with output in the short term (i.e., fuel expenses, variable O&M costs, etc.) and do not include changes to existing capacity. Long run marginal costs refer to costs that change over the long run, including capacity costs. Each method has advantages and disadvantages. A CoS study is important because regulators are obligated to ensure that the prices that monopoly utilities charge customers are reasonable and economically efficient. One primary measure of reasonableness is ensuring that prices are based on the costs incurred to provide the product.

As noted, CoS studies are typically used to determine how the allowed annual revenue requirement should be collected from the various customer classes. The primary driver for cost allocation is cost causation – identifying the customer class that caused the expense to be incurred. In short, if there are no cost studies to guide cost allocation, there is no confidence that the prices to customers are economically efficient and reasonable. A CoS study should be completed by the utility and submitted along with its application for a change in tariffs. The regulatory authority can then evaluate the application and establish the revenue requirement as well as evaluate the methodology used in the CoS study and the allocation of costs to customer classes.

STEP 3: RATE DESIGN

The final step in determining the tariffs is to design specific charges to customers. Collecting these charges allows the utility to meet its revenue requirement. The typical elements of a tariff include a fixed customer monthly charge, an energy charge based on kilowatt-hour consumption, and a demand charge (per kilowatt) based on demand imposed by the customer. There could be other specific charges such as for reactive power, among others. The sophistication of tariffs varies based on service class, utility, and regulatory policy objectives. There should also be special protections for

vulnerable customers (e.g., low-income) in tariff design. CoS studies are also used to determine how the tariff for a customer class should be designed to ensure that the costs assigned to a specific customer class are recovered from customers in that class.

DETERMINE AND ENFORCE QUALITY OF SERVICE STANDARDS

Independent regulators must also be endowed with the authority to determine a utility's service quality standards, which includes reliability of service. Aside from price, reliability of service is of paramount importance to customers and there are many metrics for measuring this aspect. Besides the technical standards specified in codes for maintaining frequency and voltage levels, utilities are measured on how consistently they provide needed power. This consistency is measured using the following metrics: the System Average Interruption Frequency Index (SAIFI); the Customer Average Interruption Duration Index (CAIDI); and System Average Interruption Duration Index (SAIDI).¹⁶ Collectively, these metrics measure the frequency and duration of power outages to customers. If the utility fails to meet the service quality standards, there can be financial consequences. It should be noted that improvement in service quality is not free of cost. Utilities require capital and O&M expenditures to improve service quality and operational efficiency.

REVIEW UTILITY DECISIONS TO RAISE CAPITAL/ ASSET INVESTMENT PROGRAM REVIEW

Utilities are capital intensive companies, requiring huge investments in generation, transmission, and distribution assets. Private investor-owned utilities raise funds in the capital markets to meet their investment needs. Regulators ensure that the capital structure the utility maintains (debt/equity ratio) is reasonable and that its borrowing practices are sound. Utilities typically seek regular approval from regulators for major issuances of securities to raise capital.

Investments are guided by needs in the electric system, including programs to improve reliability, to meet new customer load growth, to replace aging infrastructure, and to meet environmental mandates, among others. The investments must be justified within the company following a cost-benefit analysis and according to a budget prioritization process that weighs need versus available funds. Regulators conduct routine reviews of asset bases to determine which investments would be eligible (or likely) to guarantee a return on investment and return of investment (depreciation) in the context of a tariff determination process. They also need to monitor and review utility capital budgets periodically, outside the tariff setting process.

LICENSING

Regulators issue licenses to new entrants on the market, to companies applying for generation, transmission and/or distribution/supply. Further, incumbent utilities seek regulators' approval to build major projects such as transmission or distribution lines or new generation projects.

PURPOSE OF LICENSING

Licensing is used to safeguard interests and ensure responsibilities and rights of both consumers and operators /investors, while fulfilling the government's strategic objectives. It is used as the most appropriate form of intervention where markets cannot be relied upon to produce outcomes that

¹⁶ These three measures are widely accepted metrics of system reliability. SAIFI measures how often the average customer is interrupted per year; CAIDI describes the average time it takes to restore power to a customer after an interruption; and SAIDI describes how long an average interruption lasts.

are in the long-term interests of consumers. It is a regulatory tool used to enhance a number of important energy policies and goals, such as to:

- Enhance competition;
- Ensure safety and security and protection of human life and property;
- Enhance environmental protection;
- Ensure health, employment, and labor protection;
- Enhance energy efficiency;
- Accelerate the use of new renewables facilities; and
- Widen the diffusion and use of advanced energy technologies.

Licenses are used to ensure:

- **Capability of the operators (Producers, TSO, DSO, Suppliers).** The initial license process is used to establish eligibility of the licensee to perform the licensed activities (e.g., has the applicant established appropriate corporate form, have adequate financial resources and technical ability to perform the licensed activity). Documents required during the application for a license should contain requirements such as business plan of the company, CVs of the management, financial and technical information, etc.
- **Control over power sector operation.** A certain level of control is established and maintained over entities that are engaged in strategic industries which are not fully competitive. For example, minimum operational standards are established in the network operation license and the monitoring of the licensees' compliance with their license conditions is performed by the Regulator. Another example is the situation in which the Government / Regulator exercise control over the construction of new power plants. After the commencement of new generation facilities, the Regulator will issue the license and monitor licensing compliance by the licensee.
- **Compliance with the legislation.** Through licenses, the companies engaged in the electricity business are obliged to comply with energy sector, environmental, labor law and other laws or regulations applicable in the country.
- **Technical and safety standards.** The licensing process may be used to establish the obligation of sector participants to comply with national and international technical and safety codes to ensure that the quality and safety standards are applied.
- **Commercial obligations.** A key element of the license is to strike a balance between encouraging investors to invest and protecting consumers, while fulfilling governments' strategic objectives. The Regulator should ensure that both suppliers and consumers uphold their obligations relating to commercial operations. For example, the utility has the obligation, via licensing, to provide services under the approved tariffs and quality standards. Consumers have an obligation to pay for services supplied to ensure the financial viability of the sector.

- **Sound business practices.** Licenses often contain requirements regarding accounting practices and the right of the government (Regulator) to review and audit a company's books and records. These conditions may assist the Regulator during its review of a company's tariffs and may help protect investors and consumers. For example, the Regulator ensures that tariffs for access to transmission and distribution networks are applied based on transmission or distribution tariffs methodologies or regulation.
- **Protect consumers.** Various consumer protection arrangements, such as the contracts form, customer service charters, and supplier of last resort provisions are enforced through the licensee. Consumer protection is also provided through service quality standards as well as monitoring compliance of the licensee's performance in conformity with the technical and commercial codes and procedures. For example, the Regulator may use licenses to increase transparency or to request power sector operators to publish their tariffs and prices, codes, and procedures. Licensing can ensure that customers are able to switch their supplier free of charges and within a short period of time.
- **Increase information exchange.** Licenses are an important tool for ensuring that consumers are well informed of their rights and obligations. For example, the license can require that the DSO publish certain information (that is not confidential) but enhances third party access and network connection, including connection methodologies and network use prices.
- **Ensure new assets satisfy public interest.** Typically, regulators provide a permit to a new entrant after examining the Generation or Transmission application to ensure that the asset is needed and is in the "public interest." As these assets take up precious public resources (e.g., land, rights of way, water, emit air and other pollution etc.), regulators need to evaluate whether the benefits of the asset outweigh these costs, and that the new assets are consistent with any needs previously identified and agreed upon in system expansion plans.

QUALITY STANDARDS

MONITOR AND SUPERVISE UTILITY PERFORMANCE

When developing performance indicators, Regulators monitor and review utilities' performance by comparing their level of service, number of employees per customer, number of complaints, etc. to other "comparable utilities" in the country and in the region. As it may take some time for the Regulator to collect a sufficient amount of information to track changes and trends, it should begin its benchmarking work early in the regulatory process with a view that it will continue for several years.

The monitoring report should provide performance details, establish benchmarks, rank the utilities, and be published on the web site. Such public disclosure may force the utilities through competition to make continual improvements.

The Regulator monitors the performance of regulated entities with respect to the availability, quality, and standards of services, cost of services, efficiency of production, investment levels, and distribution of services, as well as the utilities' compliance with tariffs and licensing requirements. To conduct effective monitoring, the Regulator should develop a monitoring guideline with clear objectives and descriptions of its monitoring procedures and processes. Based on these monitoring guidelines, the Regulators develop monitoring programs of three to five years duration as well as

annual monitoring programs that align with the longer monitoring program.

CUSTOMER SERVICE AND DISPUTE RESOLUTION

While reliability of electric service is important to customers, the level of customer service the utility offers is also important. Customer service consists of many utility operations such as billing, meter reading, service installations, and resolving customer complaints. One of the principal elements of good regulatory processes is establishing a mechanism to resolve stakeholder complaints in an intermediate, administrative body. When customers are unsatisfied with any aspect of a utility service, the Regulator is the agency that provides a forum for resolving that complaint.

RULES ON CONSUMERS COMPLAINT/ DISPUTE RESOLUTION

Including a definition of “complaint and dispute resolution” in primary law increases the likelihood that it will be performed in practice. It is therefore best practice to place such definitions in either the law governing the energy sector or in the law related to consumers protection. Regardless of whether such statutory obligation exists in the law, it is necessary to create internal procedures to make complaint and dispute resolution a fixed part of processes, often performed by the Regulatory authority.

Executing a complaint handling function without rules and without a strategic plan will make the process much more difficult and reduce the chances of success. Putting a clear and effective dispute resolution framework in place is essential for dealing with disputes as they arise. It will provide a documentation process and guide customers and the Regulator’s personnel, while ensuring that both consumers and utilities’ rights are fully defended and supported.

In Italy, the Regulator, ARERA, performs the dispute resolution procedure only after the consumer has first filed a complaint with the supplier and received a negative response or no response from the supplier for 50 days. The complaints and dispute resolution procedure performed by ARERA is described in Figure 4 below.

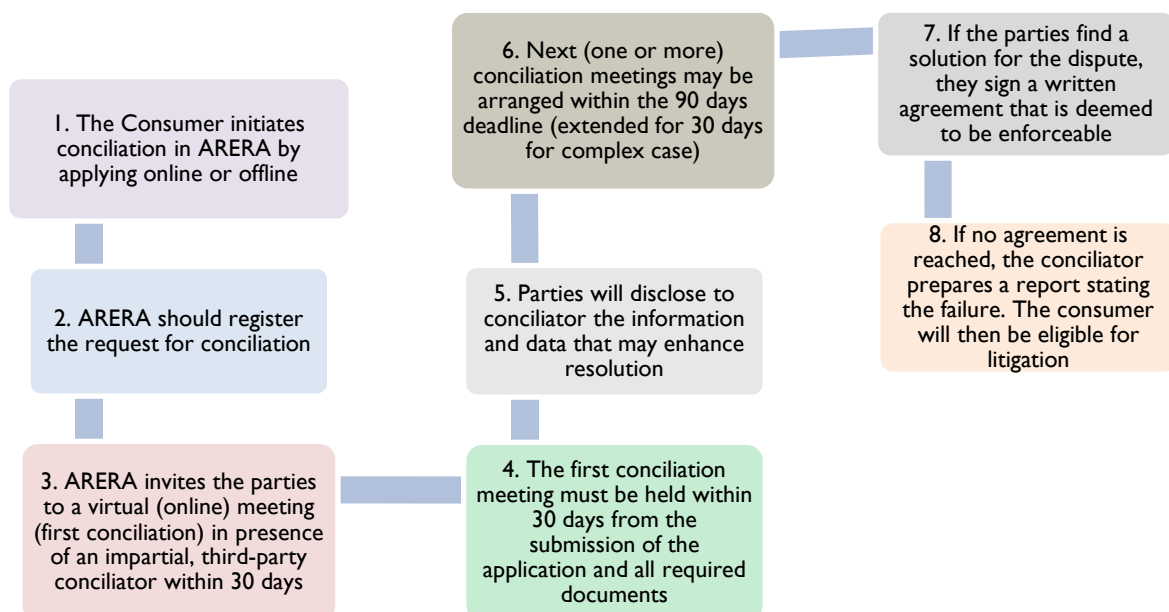


Figure 4. Complaints and Dispute Resolution in Italy

INFORMATION AVAILABLE TO CONSUMERS

Consumers should be informed about their right to complain or to use dispute resolution with respect to the services provided by their distribution company or supplier. The availability of comprehensive information for consumers and the transparency of procedures used to handle complaints and disputes are key for ensuring the effectiveness of out of court procedures.

Suppliers should provide clear information on how to make complaints and should address enquiries and complaints promptly and efficiently. Consumers must be informed that complaint procedures are free of charge and the duration of the procedures is relatively short. The consumer should be aware that their first contact point is the supplier.

The supplier`s website should be easily accessible, and consumers should be regularly informed about any modification of their contractual relations with the utility. The utility should advise consumers of how information will be communicated such as through media (TV and newspapers), Facebook, leaflets, publication consumers protection guidelines, among others. The supplier should establish a call center to handle less grievous consumer complaints.

IMPOSE FINES/ PENALTIES TO SECTOR PARTICIPANTS

The authority that issues licenses, often the Regulatory authority, should supervise and monitor whether the licensees are performing their activities in compliance with their license terms and conditions. If the utilities do not perform these in accordance with the key performance standards, license conditions, tariffs methodology, and energy sector laws and regulations, the Regulator should impose fines and penalties, appropriate to the severity of committed violations.

The fines and penalties that the Regulator imposes on the licensee are usually determined in the energy sector laws. Details of the manner, the procedure, and criteria for imposing penalties and fines are further described in a regulation (rule or guideline).

The law may empower the Regulator to issue administrative measures to utilities, such as to:

- oblige the licensee to stop carrying out the activities constituting the violation of the license criteria and obligations;
- declare any act or decision constituting a violation to be null, void, or unenforceable;
- oblige the licensee to take any actions necessary to ensure that the negative effects of such violation are eliminated or reversed, and such violation is not repeated; and
- set temporary measures to prevent violations by the licensee.

If the Regulator concludes that the licensee is violating their licensing terms, the Regulator may impose administrative measures, penalties or fines on the licensee. Reasons for violation may be related to non-compliance with either:

- applicable laws and regulations established in accordance with these laws;
- relevant technical standards or codes;
- Regulator`s decisions; or
- terms of licenses.

In the case of a violation, the Regulator may apply one of the following penalties: i) issue a warning to a licensee, ii) issue a fine, iii) suspend the license, iv) initiate the claim to annul license in the competent court, and v) terminate the license.

When imposing penalties and fines, the Regulator will evaluate if they might be adjusted given any mitigating factors such as if the licensee had tried to prevent or diminish the damage caused by the violation; the degree of social harm of the violation; the prior behavior of the licensee; the licensee's financial standing, and other similar factors. If the fine is not paid by the licensee within the deadline set by the Regulator, the latter should initiate a court procedure for payment of the fine as civil debt. Sanctioning non-compliance by withdrawing or terminating a license is generally disproportionate to the violation and should be replaced by financial penalties that can compensate for damage caused to the economy in general or to other market participants.

COMPETITIVE MARKET DEVELOPMENT AND OVERSIGHT

As competitive wholesale and retail markets develop and evolve, the Regulator should approve the market rules, monitor the behavior of market participants, and ensure that the market is functioning as intended. The market rules should be transparent and facilitate private sector investments in new generation. They should enable cross border trade and third-party access to the grid. It should be noted that this activity, in particular, requires personnel with appropriate skill sets for market analysis and forecasting.

LEGISLATIVE POWERS AND POWER TO APPROVE TECHNICAL AND COMMERCIAL CODES

Regulators typically have the legislative powers to develop rules, procedures, methodologies, and guidelines to address issues for which they are competent. As previously described, these may include setting tariffs methodologies, regulating licensing, monitoring and reporting, dispute resolution, issuing fines and penalties, determining procedures for consumer switching of suppliers, and setting rules on the general conditions of energy supply. However, this authority can be expanded to include approving technical and commercial codes. In most countries of the European Union, the US, many Asian countries (e.g., India, Pakistan, Vietnam) and the former Soviet Union countries of Georgia, Armenia and Ukraine, Regulators are empowered to approve technical or commercial codes developed by utilities or to guide the development of these. These may include, for example, the Grid Code, Distribution Code or Metering code and commercial agreements such as Market Rules or the transmission services agreement.

IMPLEMENTATION / TRANSITIONAL ISSUES

While establishing an independent regulator should be done quickly to reap its benefits, it should also be done methodically to ensure its success and to build credibility with stakeholders in the country. As a first step, a law or at least a special decree of the President or the Government authorizing the creation of an independent regulator must be enacted. These acts should codify the powers and responsibilities of the Regulator, the functions that the Regulator should perform, the obligations of utilities in responding to regulatory orders, and an appeal process for disputing regulatory decisions. In post Soviet jurisdictions a number of amendments to several laws and regulations may also be necessary to support the creation of the Regulator and enable the regulatory regime consistent with the best international practice.

Once the legal instruments are in place, steps for formation of the Commission and putting regulatory personnel in place should be undertaken. The use of expert external consultants might be necessary in the transitional stages of the organization until internal staff capacity is built. During its establishment, the Regulator will need the full support of the government, especially from the Ministry responsible for Energy. This government support may include organizing office space and purchasing furniture and computers as well as transferring employees with relevant energy sector expertise and experience to the Regulator to support its initial operations.

Depending on the legal requirements, the Regulator may be funded from an appropriation from the state budget in its first couple of years of operation. This should not extend to a longer period of time since it is important for the Regulator to gain autonomy through the creation of a balanced funding scheme that may include one or more mechanisms with procedures for collection of fees or taxes. The scheme must be adequate for executing its regulatory activities and have the support of the government and the regulated companies. A funding scheme that is overly costly will not promote efficiency in the power sector.

Donor support is highly valuable for initially establishing the Regulator as well as for providing subsequent assistance on specific regulatory functions. This assistance may take a number of forms such as funding selected staff positions, capacity building, and technical assistance for developing bylaws and procedures that will enable the Regulator to successfully discharge its responsibilities.

The Regulator will need to build the capacity of its personnel, especially in the following key areas: tariff setting, financial analysis, licensing, energy economics, dispute resolution, and handling appeals against regulatory decisions. This is particularly important given the advanced levels of academic training and expertise in engineering, economics, and law required to conduct regulatory processes such as reviewing and analyzing tariff and license applications, investment plans, and quality standards. Staff training may be provided through on-the job training or through delivery of targeted workshops or courses.

CONCLUSIONS

Independent regulatory oversight of utilities provides substantial benefits to the sector and economy by reducing political interference and increasing investor confidence in the governance of the sector. A regulator should be independent from political forces and from affiliation with those it regulates. In this way, an independent regulator will make decisions based on engineering, economic, and legal factors and be guided by broader public interests.

An independent Regulator is necessary for a properly functioning market as it separates energy sector economic regulation from sector policy and strategy. This is critical for increasing investor confidence. An independent and competent Regulator will ensure effective regulatory oversight of licensing, tariff setting, sector monitoring, and investment approval. At the same time, it will establish a more predictable and consistent regulatory environment that will add certainty for investors.

Consumer protection is a core regulatory function, achieved through regulatory tools that the Regulator applies independent of any political interests or influence by utilities. These tools include tariffs assessment and monitoring of their implementation, dispute resolution, licensing and monitoring of compliance with licensing conditions, and sector monitoring, using key performance indicators. These also assist the Regulator to strengthen the financial standing of the sector through independent assessments of investments and monitoring tariff implementation.

An independent Regulator will balance consumer and investor interests, which should advance the long-term sustainability of utilities, enhance the efficient utilization of resources, and lower overall costs to consumers. Independent regulatory actions should provide the investor community with confidence that they can recover their investments as the regulatory decision-making process is more certain and independent of political influence. It will also ensure non-discriminatory third-party access as it doesn't have an ownership or financial interest in the regulated entities or their affiliates. Consumer trust in regulatory decisions will also increase as regulations are made in their long-term interests of reducing costs and improving service.

Creating and sustaining a credible independent regulatory organization requires continued effort. Clear and transparent laws and an effective regulatory framework are needed to establish its authority and obligations. This is followed by the formation of the Regulatory entity, including the selection of Commissioners and personnel. Extensive capacity building will be required to ensure that regulatory staff can competently execute their responsibilities. This should be coupled with efforts to educate stakeholders about the changes being implemented and how these will benefit them. The Regulator should be transparent in its processes and decision making and work diligently to adopt best practices to meet stakeholder expectations and achieve the benefits of an independent regulatory regime.