
The Role of a Power Sector Regulator to Strengthen Sector Performance in Puerto Rico

**PREPARED BY THE REGULATORY ASSISTANCE PROJECT FOR
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Table of Contents

| | |
|--|----|
| Executive Summary..... | 3 |
| I. Overview and Rationale for a Regulator of Electric Service Providers Serving Puerto Rico..... | 6 |
| A. Puerto Rico Would Likely Benefit from an Electricity Regulator | 6 |
| B. Overview of the Role of Government and a Power Sector Regulator Serving Puerto Rico..... | 7 |
| C. Experience with Electricity Regulation | 10 |
| II. Counterpoint Argument to Address Concerns, Criticisms, and Myths Associated with Establishing a Sector Regulator | 12 |
| A. Creating an Empowered and Independent Regulator | 12 |
| B. Regulation Should Spur Productivity and Efficiency Improvement | 12 |
| C. Regulation Should Spur Distributed Generation and Energy Efficiency | 13 |
| D. Establishment of a Sector Regulator Should Encourage Participation of New Partners | 14 |
| E. Regulation Will Help Manage Costs and Rate Increases, and Protect the Public Interest | 14 |
| F. Implications of Poor Regulatory Design in Legislation..... | 15 |
| III. The Role and Responsibilities for an Electricity Regulator in Puerto Rico | 16 |
| A. Setting Reasonable Rates..... | 16 |
| B. Alternative Ratemaking: Establishing Performance-Based Rates to Provide Utility Incentives | 19 |
| C. Planning Requirements and Oversight: Integrated Resource Planning (IRP) | 21 |
| D. Reliability Standards and Service Quality | 23 |
| E. Consumer Protections | 24 |
| 1. Consumer Bill of Rights | 25 |
| 2. Security Deposits..... | 25 |
| 3. Late Payment Fees | 25 |
| 4. Consumer Bills..... | 26 |
| 5. Extended Payment Plans..... | 26 |
| 6. Disconnection of Service..... | 26 |
| 7. Consumer Dispute Resolution and Complaint Procedures..... | 26 |
| F. Procedures and Operation of the Commission..... | 26 |
| G. The Role of a Regulator in the Advent of Competition..... | 27 |
| 1. Market Oversight and Fair Treatment of Providers..... | 27 |

| | | |
|-----|---|----|
| 2. | Leveraging Market Forces Where They Can Be Effectively Applied | 28 |
| 3. | Independent Entity to Conduct the RFP Process | 29 |
| IV. | Cost and Design Considerations for the Creation of a Regulatory Commission..... | 30 |
| A. | Size of the Regulatory Commission and Budget | 30 |
| B. | Considerations Regarding the Appointment of Commissioners..... | 32 |
| C. | Scope of Commission Jurisdiction and Authority | 33 |
| D. | Hearings and Due Process at the Commission | 34 |
| E. | Regulatory Accountability | 36 |
| V. | Summary and Conclusions | 38 |
| | Appendix: Regulation Preserves Option Value for Later Reform | 40 |
| A. | The Role of Regulation as a Cornerstone of Broader Sector Reforms..... | 40 |
| B. | Regulation Provides Opportunity for Later Reforms, if Warranted..... | 42 |
| C. | Legislation Should be Broad and Enabling | 42 |
| D. | Creation of Competition Can Further Reduce Costs..... | 42 |
| | References | 44 |

Executive Summary

Puerto Rico is confronting a growing list of challenges in the electricity sector. Perhaps chief among them are high rates and inefficient generation. These challenges are increasingly recognized as concerns connected to governance and oversight of the Puerto Rico Energy Power Authority (“PREPA” or “the Authority,” the government-owned, self-regulated, and largely vertically-integrated power company). And indeed, there are now calls for the establishment of an independent electricity regulator to help in that role.

A sector regulator can strengthen the performance of PREPA and establish a policy and institutional foundation that would preserve the options for later sector reforms. A sector regulator with clear mandates would also be a source of sector stability that will serve well the requirements necessary to attract investor commitment of capital over time. This paper explains the role of a utility regulator and why it is essential for a well-endowed institution to deliver on its promise. Regulatory innovations, such as performance-based regulation and “decoupling” (breaking the link between sales and financial performance) can play an important role in stabilizing PREPAs financial performance, while removing disincentives to welcome investments in energy efficiency and distributed generation.

Effective oversight of PREPA can come from a well-designed and properly empowered sector regulator that helps to foster new strategies to moderate rates. Sector oversight would also include appropriate, but likely differential, oversight of the four privately-owned independent power producers that deliver more the 30 percent of PREPA’s generation services even today. This oversight can come through well-formed frameworks for recovering costs coupled with appropriate incentives, and frameworks for planning and regulatory review of long-term capital commitments by an institution capable to asking the right questions in pursuit of a public interest agenda. This will take time to establish. Early success can be accelerated through stop-gap planning initiatives that develop least cost resource strategies for PREPA and by requiring timely review of some of the most promising areas.

The challenge of government ownership and self-regulation is common in all regions and economic strata. Self-regulated authorities can lack perspective. An arms-length overseer with regulatory authority will ask the tough questions and is insulated from the kind of uncritical acceptance of prevailing points of view sometimes referred to as ‘groupthink.’ Puerto Rico is not alone in this respect. Almost all developed regions of the world have taken steps to fundamentally reform their power markets away from this self-regulated model. Steps usually begin with the early establishment of an independent regulator.¹

It is essential for improvements in electricity sector performance in Puerto Rico to establish a robust and independent utility regulator. The institution should be fully staffed and resourced, and enjoy full authority to deliver on expectations for effective oversight. The key characteristics

¹ Examples of government entities that continue to provide electricity services in developed and transitioning regions of the world include the many municipal utilities that exist in the US, the Crown Corporations of Canada, and Eskom in South Africa. Typically, government owned utilities exist under the supervision of an independent regulator or a strong Ministry entity with sector oversight.

of a commission, based on RAP's own experiences in many jurisdictions, are covered in this report. Among the most important features of an effective power sector regulator are the following:

- **Establish Clear Roles and Responsibilities, and Legislative Intent** – The roles and responsibilities, along with legislative intent for the Commission should be clearly spelled out in legislation.
- **Establish Necessary Authority and Tools** – The Commission should have clear authority and the requisite tools to perform its duties in accordance with the legislative intent.
- **Ensure that the Institution is Comprised of Commissioner-Level Experts with Integrity** – Appointments should be based on merit and integrity rather than political affiliation.
- **Ensure Adequate Accountability** – The Commission should be held to the responsibility of fulfilling its mission with the filing of annual reports to the legislature, and through the legislative hearings, among other requirements to earn the public trust. Accountability also includes adherence to the highest ethical standards.
- **Establish High Standards of Fair, Transparent, and Efficient Processes** – The regulator should establish procedures that set high standards for fair, transparent, and efficient process.
- **Establish Adequate Funding and Ensure it is Empowered with Adequate Staff and Technical Support** – The Commission should be adequately staffed and funded to deliver on its mission. The funding of the Commission should be sourced to services from the electricity sector, ideally based on gross revenues generated in Puerto Rico or volume of sales.
- **Promote Sound Long-Range, Least Cost Planning** – The planning framework should broadly frame objectives around minimizing costs through a portfolio of solutions that carefully compare and test a range of options. This is most effectively captured through a robust integrated resource planning (IRP) framework.
- **Promote Energy Efficiency and Customer-Sided Resources** – Strong consideration of alternative sources of energy can help build energy independence in Puerto Rico, which is important given the cost of importing fuel.
- **Promote High Standards of Service Quality, Reliability, and Consumer Protection** – The regulator should promote high standards of service quality, system reliability, and basic consumer protections.
- **Ensure an Effective Consumer Advocate Voice** – The regulator should have the benefit of more than one expert voice and perspective in the hearing room. The legislature should establish a separate consumer advocate with resources adequate to the task.

The establishment of a fully functional regulator will require considerable time, effort, and resources. The challenges ahead require timely, but considered attention. The regulator can accelerate the timetable for review through some early focused investigation, and testing the viability of solutions from other jurisdictions, while side-stepping those that have not succeeded.

The establishment of a sector regulator offers the promise of improving the performance of the incumbent operator, PREPA in its own right, but also promises to provide policymakers and the legislature with a foundation for optional reforms in the future.

I. Overview and Rationale for a Regulator of Electric Service Providers Serving Puerto Rico

A. Puerto Rico Would Likely Benefit from an Electricity Regulator

Puerto Rico is confronting a growing list of challenges in the electricity sector.² Perhaps chief among them are high rates and inefficient generation. These challenges are increasingly recognized as concerns connected to governance and oversight of the Puerto Rico Energy Power Authority (“PREPA” or “the Authority,” the government-owned, self-regulated, and largely vertically-integrated power company). And indeed, there are now calls for the establishment of an independent electricity regulator to help in that role.

A sector regulator can serve to strengthen the performance of PREPA and can establish a policy and institutional foundation that would preserve the options for later sector reforms. As is explained further below, the existence of a sector regulator with clear mandates can also be a source of sector stability that is needed to attract necessary investor capital over time. This paper explains the role of a utility regulator and why it is essential for a well-endowed institution to deliver on its promise. Regulatory innovations, such as performance-based regulation and “decoupling” (breaking the link between sales and financial performance) can play an important role in stabilizing PREPA’s financial performance, while removing disincentives to welcome investments in energy efficiency and distributed generation. The role of a regulator can make a vital positive difference, but in order for that to occur, it must have the authority and tools discussed below.

There is a promising list of potential solutions that fall along the lines of technology options and policy reforms. Promising technology solutions include a vast reservoir of energy efficiency (EE) potential, the declining costs of renewables, and intelligent grid investments, including two-way meter reading technologies. These technology options could be considered to displace some of the aging facilities. Potential policy solutions range from efforts to improve the contribution from cleaner resources and distributed generation, as well as potential market reforms that allow the participation of new categories of third-party partners. The concept of third-party partners may include new entities that provide services to either PREPA to improve operating performance or to end-users, not currently provided in scale. Categories include aggregators of demand response, solar leasing companies, energy service companies, and providers of integrated demand-side management services. Efforts to pursue these options in a systematic, open, and impactful way may require fundamental changes to the sector that start with more effective oversight.

² The list of concerns includes high retail rates, the aged fleet of inefficient generation that is dependent on expensive, foreign-sourced, and volatily priced fossil fuels (largely oil), and fragile financials that make bondholder concerns a central focus. Further, the basis for establishing cost-recovery, along with many other features of the environment, is opaque, and consumer grievances loom large. Planning efforts at PREPA appear to largely center on rehabilitating an aging fleet of inefficient generators. Of the roughly \$104 million in planned investment for 2012, for example, \$100 million was for rehabilitation including dual-fuel capability and environmental improvements (URS, 2011).

Effective oversight of PREPA can come from a well-designed and properly empowered sector regulator that helps to foster new strategies to moderate rates. Sector oversight would also include appropriate, but likely differential, oversight of the four privately-owned independent power producers that deliver more than 30 percent of PREPA's generation services even today.³ This oversight can come through well-formed frameworks for recovering costs coupled with appropriate incentives, and frameworks for planning and regulatory review of long-term capital commitments by an institution capable of asking the right questions in pursuit of a public interest agenda. Some of this will take time to establish. Early success can be accelerated through early stop-gap planning initiatives that develop least cost resource strategies for PREPA and by requiring timely review of some of the most promising areas. Focused attention through effective and timely investigations into PREPA's efforts to deliver energy efficiency and distributed generation, along with replacement of inefficient generation with more modern technology and investigating other options such as smart grid, rate-design, and improving environmental performance in the longer-term can help improve the energy service sector in Puerto Rico.⁴ Other solutions include attention to creating performance-based rates to incentivize PREPA to better support these changes, and decoupling to help break the link between financial performance and larger sales volumes. The precise answers are complex and require expert oversight to ensure that these investigations are sound and the full range of solutions properly considered.

This paper provides an explanation of the oversight role that a well-designed and implemented sector regulator can play in fostering better performance and innovative energy solutions by the Authority. The regulator can be the catalyst to spur improvements in a promising direction, can be used to preserve the option for other policy reforms, and can facilitate the placement of newer technology solutions. The roles that such an entity should play must be understood in creating a legal framework. The institution requires all the powers and responsibilities necessary to fulfill its charge. Anything less than this will inevitably leave it falling short of legislative intent and broader ambitions for improving sector performance.

B. Overview of the Role of Government and a Power Sector Regulator Serving Puerto Rico

There are two fundamental reasons for governments to provide oversight of the electricity utility sector. First, segments of the sector are still recognized as natural monopolies. Second, government has a role to play in curbing the potential for associated abuse.⁵ Further, electricity

³ Two of these companies (AES and EcoElectrica) have actively delivered electricity to Puerto Rico from as early as 2000 and 2002.

⁴ Here, the same least-cost planning principles that are applied more generally in an Integrated Resource Plan can be applied in more focused early initiatives.

⁵ The need for a government regulator is much stronger in the presence of private-sector, investor-owned participants. However, the disenchantment with government ownership and oversight also predominates. Most of the power sector reform initiatives around the globe in the last 35 years have resulted from poor sector performance under a government-owned, ostensibly, self-regulated utility environment.

providers are recognized as providing an *essential service* and, as such, are *affected with the public interest*.^{6,7}

Government oversight is necessary, but in most cases, largely insufficient to address the opportunities and challenges associated with oversight of a natural monopoly like PREPA, even where the government owns the entity. Where government is a provider and provides limited oversight of the sector, it can also present fundamental challenges of its own. Self-regulated authorities can lack perspective. An arms-length overseer with regulatory authority will ask the tough questions and is insulated from the kind of uncritical acceptance of prevailing points of view sometimes referred to as ‘groupthink.’ Puerto Rico is not alone in this respect. Almost all developed regions of the world have taken steps to fundamentally reform their power markets away from this unregulated model. Steps usually begin with the establishment of an independent regulator.⁸ At least half of developing countries have also begun the transition. The drivers of this reform movement are uniformly the disenchantment with the poor performance of state-owned power utilities. Other drivers of reform include the need for new investments and modernization, fiscal pressures, and the desire to protect and help the poor. However, the reforms are generally incomplete, even after decades in some cases⁹, a fact that points to the crucial importance of creating the appropriate regulatory framework at the very beginning of the legislative process.

The fundamental challenges for government in the dual role as provider and overseer is that some actions can harm sector performance because they are comingled with the shorter term requirements of politics, combined with either cyclical or persistent but immediate competing budgetary challenges. Government provision of services can also be associated with the absence of commercial standards of operation. Persistent exposure to short-term political and economic challenges stands in conflict with requirements for stability and long term cost recovery for an industry that is fundamentally capital intensive and requires stable sources of revenues to support long lived assets.

What is required in these instances is the creation of a distinct government institution, largely independent of these concerns, which can focus on the longer-term objectives for the sector. The institution needs to be expert, empowered (i.e., well trained, funded, and able to apply appropriate incentives and enforcement), and must be transparent, fair, and accountable, in order to enjoy ongoing public, provider, and investor confidence and trust.

This paper proposes the establishment of this entity and describes, in a more detailed fashion, the duties and responsibilities that such an institution should be charged with, the tools that it

⁶ Bonbright actually points to four characteristics of the public utility in addition to those listed above, including, that they are capital intensive, sell services rather than goods, experience variable demand with respect to time that leads to a load factor, and are usually granted a territorial franchise with respect to defined services.

⁷Bonbright, 1961; Priest, 1969; Hirsh, 2000; Lazar, 2011.

⁸ Examples of government entities that continue to provide electricity services in developed and transitioning regions of the world include the many municipal utilities that exist in the US, the Crown Corporations of Canada, and Eskom in South Africa. Typically government owned utilities exist under the supervision of an independent regulator or a strong Ministry entity with sector oversight.

⁹ Besant-Jones, 2006.

must use effectively, and the other roles that this institution can be asked to perform. We refer to this institution here as a utility, electricity, or power sector regulator.¹⁰ The institution may have roles that overlap with other types of concerns including, energy security, socio economic concerns, and environmental concerns that extend beyond concerns associated with regulating a market-dominant player. Indeed those roles can be, and probably should be, combined and delivered through a single institution called an electric utility regulator.

The roles and responsibilities for a traditional electricity regulator that are appropriate for the Puerto Rico regulator include: establishing fair and effective prices; ensuring the delivery of high quality and reliable service; protecting consumers; fostering innovation and efficiency; and, where competitive markets emerge, providing appropriate oversight.

The fundamental role of the regulator is to help curb abuses typically directed at retail consumers (e.g., high retail rates and poor service quality). However, it is also critical for the regulator to send necessary assurances to investors in order to attract the capital needed to support the long term investments required in the sector. These capital requirements will play a major role in transforming the sector. The role of the regulator should be to foster confidence in the sector by creating, and reinforcing with actions, a stable policy and operating environment for those investors.

These responsibilities are essential to regulators that have oversight over a monopoly provider of essential services involving retail customers, like PREPA. When other goals, such as energy independence, ambitions for cleaner energy, and electrification, are added to the objectives for sector reform, the responsibilities of and challenges to the entity can be quite considerable.

The framework of tools that are typically applied to a regulator, and need to be available to the Puerto Rico electricity regulator include the following:¹¹

1. Ratemaking authority (ensuring revenues are in line with costs);
2. Rulemaking authority as to the procedures and operation of the commission (to establish fairness, efficient processes, and transparency);
3. Rulemaking authority on substantive policies that will guide all stakeholders;
4. Authority to establish alternative forms of regulation (providing a general framework for encouraging specific outputs);
5. Ability to review and set the terms of service and tariffs (detailed retail and wholesale services);
6. Ability to establish standards (retail service quality, reliability, technical standards over interconnection, among others);
7. Authority over planning requirements (driving down long term total costs, considering public policy priorities through integrated resource planning, and other processes);

¹⁰ The institution is traditionally referred to as an “economic regulator,” to distinguish its role in providing oversight of a monopoly enterprise, as opposed to other regulators more focused on information and environmental concerns tied to various market failures. However, for the remainder of this paper, we will refer to it as a utility, electricity, or power sector regulator.

¹¹ These are discussed in more detail, *infra*.

8. Oversight over market rules and development (if ambitions include broadening the scope of options to include Public-Private Alliances, or additional private players to the sector mix);
9. Authority to create and enforce rules and regulations pertaining to consumer protections and rights;
10. Authority to initiate proceedings and investigations into any aspect of utility service (broad oversight authority);
11. Authority to hear and adjudicate complaints;
12. Authority to appear before any Puerto Rican or federal court, administrative agency, legislature, or executive branch on any matter pertaining to matters affecting the Commission or any entity under its jurisdiction; and
13. Authority to implement and enforce policies and decisions that fall within the scope of its general powers.

These tools typically characterize US regulators and are generally required of European regulators when establishing independent electricity regulators.¹²

C. Experience with Electricity Regulation

There is now a considerable base of experience from which to draw lessons and insights. Utility regulation is more than a century old and lessons abound.¹³ Regulation of some US electric companies is more than a century old. The United Kingdom first established a sector regulator, Office of Electricity Regulation (OFFER) in 1989, and several western European regulators were established during the 1990s. The EU later required all member states to have an electricity sector regulator as early as 2003. Many Latin American reforms began in the early 1980s. Almost half of all nations globally have established some form of an independent regulatory commission.

The impact of the regulator on the sector can probably be better understood by looking at its role and performance in jurisdictions that have existed for many decades. The fifty states in the United States, the District of Columbia, and the federal government may represent perhaps the best example of regulation in isolation of other reforms. All US states have had a form of utility regulation for more than half a century. The first state to regulate the power sector was the state of New York in 1907. Most states established formal regulatory bodies prior to 1920. The Federal Power Commission, a precursor to the Federal Energy Regulatory Commission (FERC), was originally organized as an independent regulatory body in 1930. The performance of the US system, the oldest enduring experience with utility regulation, has been a solid success. Rates in the US have seen a steady decline in real terms over this period until about 1970 when they began to hold steady with a small increase to current levels of roughly 6.9 cents/kWh for industrial electricity, and 11.9 cents/kWh for residential (in current dollars).^{14,15} In

¹² See, European Commission Directive 2009/72/EC.

¹³ In many jurisdictions, the regulator is often only one part of a broader set of initiatives outlined above that accompanies a sector reform. Its impact on meaningful sector reforms is usually difficult to distill.

¹⁴ Historian Richard F. Hirsh notes that residential electric prices dropped from roughly 62 cents to 9 cents per kWh from 1927 through 1969 (A compound average annual rate of decline of roughly 4.5 percent). Between 1970 and the

2012, 91 percent of even the Edison Electric Institute's shareholder controlled members reported a bond rating of investment grade or better. ¹⁶

In short, the framework of strong and effective electricity regulation has existed in the US longer than any other region. During this period the sector has generally outperformed all other regions for service expansion, service quality, and reliability. All this occurred during a period marked predominantly by declining or stable real prices, while also providing a generally safe haven for investment.

present, real prices have remained relatively flat and then slightly inclining in the US, with industrial rates raising from about 4.11 cents per kWh in 1970 to about 6.08 cents per kWh in 2011. See Hirsh, 2000.

¹⁵ The few interruptions in this steady decline reflect the influence of factors outside the US or sector control, beginning with the oil shocks of the early 1970s, and early 1980s, the precipitous rise in natural gas prices in around 2005, and supply disruptions caused by weather. The response to the oil crisis led to diversification and later planning reforms to include investments in energy efficiency. The natural gas price increases led to separate efforts to diversify sources of gas, diversify sources of fuel (dual fuel), and to further diversify resources, including the establishment of goals for renewables and energy efficiency.

¹⁶ Edison Electric Institute, 2013.

II. Counterpoint Argument to Address Concerns, Criticisms, and Myths Associated with Establishing a Sector Regulator

A. Creating an Empowered and Independent Regulator

Regulatory capture exists when the regulator develops a level of confidence or empathy in the regulated entity and begins to lose neutrality in contested proceedings by favoring the company. This is most likely to occur in situations in which the regulator is fundamentally beholden to the regulated entity for technical information. Regulatory capture is more common in instances in which the regulated entity is a vertically integrated system owned by government, like PREPA, and thus usually has the ear of government. If the regulator lacks either the knowledge or funds to hire the experts, or is unable to access the facts from the regulated entity, regulatory capture is more common. It can also be a product of earlier relationships and positions. Regulators that formerly were employees of regulated entities may be more sympathetic to the point of view of the regulated entity. Even if untrue, the perception of this can be as damaging to the reputation of the regulator as the reality.

Thus, it is important to include remedies that insulate the regulator from regulatory capture. Some of the recommended measures include:

1. Providing the regulator with adequate power to request information, obtain it, and exact penalties for failure.
2. Ensuring a well-staffed and trained regulatory body (including commissioners) capable of functioning with clear knowledge and capacity to perform.
3. Providing adequate funding to ensure that the regulator can supplement staff capabilities with capable experts.
4. Establishing a sound framework for vetting and approving capable individuals as commissioners that are sufficiently separate from PREPA.
5. Creating an independent public consumer advocate to provide an effective counterbalance to PREPA.
6. Establishing ethics requirements that clearly separate the commission from PREPA and other regulated entities.

B. Regulation Should Spur Productivity and Efficiency Improvement

Vertically integrated companies like PREPA are relatively shielded from experience in other jurisdictions. The inertia of management practices and entrenched influence from labor reinforces the existing and old way of doing business. PREPA may have gone even a step further and preserved outdated inefficient technology. Indeed, as evidenced by recent investment plans, this appears to be an accepted planning objective. Traditional cost-based regulation may do little to improve the situation absent further reforms in planning, formal requirements (e.g., IRP), and investment in newer technologies (e.g., smart grid). Effective performance based regulation can also play a role in improving performance.

The absence of a sector regulator means that lessons from other jurisdictions are not being effectively shared and that an effective consumer voice in the conversation is missing.

Potential remedies against monopoly-induced inertia include the following:

1. Establish a robust and independent sector regulator and empower it to perform;
2. Establish a public advocate;
3. Empower the regulator to set forth long range planning requirements as reflected in an IRP focused on least cost provision;
4. Empower the regulator to set requirements for the review of specific technologies (e.g., smart grid and advanced metering infrastructure (AMI) investments);
5. Infuse into the utility elements of commercial standards of management through management contracts and competitive bidding for services;
6. Create a management focused performance-based regulation scheme; and
7. Potentially open segments of the sector to competitive pressure.

C. Regulation Should Spur Distributed Generation and Energy Efficiency

Traditional forms of regulation can leave the current situation unchanged. High usage rates mean that increased sales increase the ability of PREPA to meet its bond coverage ratios. Energy efficiency and distributed generation reduce the ability of PREPA to meet its obligations. Nevertheless, over time these investments are typically sound investments from the standpoint of consumers and the broader system.

New and innovative forms of recovering costs, established by a regulator, can correct inherent disincentives through a decoupling framework.¹⁷ Performance-based rate making combined with “decoupling “ or revenue-cap regulation can help to provide output based incentives for better performance while removing the inherent disincentives that exist under the current PREPA rate regime. In other words, decoupling can adjust the focus from increasing sales to increasing efficiency. This is done by establishing a revenue requirement which PREPA would for the most part be assured of receiving. With decoupling, traditional opposition by the utility to energy efficiency, which decreases sales, melts away as sales are no longer the driver for receiving revenues. Encouraging energy efficiency and distributed generation is important because they are lower cost options than the current portfolio of PREPA's generation and will reduce system costs. Moreover, energy efficiency is a least cost option when compared to other supply-side resources. Encouraging energy efficiency and distributed generation is also important because it empowers consumers with tools to reduce their usage and hence, their bills. (More discussion of this is below in Section III.B)

¹⁷ Decoupling is a tool that focuses on revenues over rates to ensure that the utility's revenue requirements are met even if sales go down. Rates are adjusted periodically – usually annually to allow the utility to recover any revenue shortfalls or to refund to consumers any overpayment above the authorized revenue requirement established by the regulatory authority.

D. Establishment of a Sector Regulator Should Encourage Participation of New Partners

The creation of a utility regulatory commission with broad authority over the electric industry will help instill confidence in other potential Electric Service Providers (ESPs) to enter and do business in Puerto Rico. This is because a regulatory authority will be viewed as a neutral entity that will make decisions based on the public interest and not self-interest. The controversy over the renegotiation of the alternative energy contracts recently granted by PREPA and over the technical requirements imposed upon them illustrate this point. One of the major concerns for a new entrant is whether there will be a level playing field and fair and reasonable opportunities to do business. If there is a perception that the market structure does not provide these necessary ingredients, then the cost to enter and the barriers that may have to be overcome may be viewed as too great and the ESP will go elsewhere.

All independent providers are accustomed to a certain level of regulation, including certifications that demonstrate technical and financial capabilities. This is a typical cost of doing business and is distinguishable from other costs that create barriers to entry. For example, onerous interconnection provisions and costs that are not regulated can be alleviated through commission regulations that require a fair and reasonable approach. The existence of clear rules and guidelines and of an external oversight body will go far to provide the kinds of support that new providers will need to do business in Puerto Rico. Moreover, the presence of a regulator offers these new providers with a neutral forum that has the authority to address any grievances they might have. Without a regulator, charged with creating a fair and reasonable environment for new providers to operate in, there is too much uncertainty and too much risk. By setting forth clear rules and guidelines that enable new providers to do business; the commission will reduce that risk. Thus, a regulator, viewed as a neutral arbiter charged with establishing a fair market for new providers will be viewed as a positive development in Puerto Rico.

E. Regulation Will Help Manage Costs and Rate Increases, and Protect the Public Interest

From the standpoint of customers who must pay for electricity service, the creation of a regulator provides protection for customers. This protection comes in the form of having a knowledgeable expert that can scrutinize and oversee the activities of PREPA to ensure that any rate increase is necessary, just, and reasonable. The new commission can also ensure that the decisions and actions of PREPA are prudent and that management is operating in an efficient and cost-effective manner. In sum, the presence of a commission will require PREPA to be accountable for its actions. If its costs are not justified and its decisions are not prudent, then the cost-recovery from consumers may not be forthcoming.

Without a regulator that has the authority to act in the public interest, PREPA can raise rates as it chooses without the risk of losing its customers, simply because electricity is a necessity and customers have no other options. As discussed below, utility regulation is a substitute for a competitive market. Without either of these in place, customers are captive and at their mercy.

One of the roles of the regulator will be to ensure that costs are justified and that decisions made regarding the supply of electricity are the least-cost, best decisions. This will mitigate and reduce the amount by which rates might go up in the future. Without an independent regulator, is currently free to raise rates when and by how much it alone decides. Jurisdictions that have regulatory agencies require hearings where the proposed cost increases can be scrutinized by experts charged with representing the public interest and the commission. As a result of these proceedings, PREPA must be able to clearly justify the amount it is requesting or the amount requested will be reduced. Typically, where this kind of scrutiny takes place, the amount of any increase is reduced, thereby saving customers money they would otherwise have to pay in the absence of regulation.

F. Implications of Poor Regulatory Design in Legislation

One of the challenges with regulation is the many ways to get it wrong. The risk is that governments may legislate the establishment of an institution that fails to address the real challenge at hand. The establishment of a weak institution at the expense of consumers is only a small part of the harm. The greater impact is that it obscures the real dilemma, which is the perpetuation of a system that produces expensive electricity from noxious sources, and poor services that adversely impacts the public and the economy more broadly.

Perhaps chief among the concerns is that the institution is either led by persons without a real commitment to fulfilling the aspirations for the institution, that the institution does not possess the authority necessary to implement the task at hand, or that the institutions do not possess the financial means and staff resources necessary to deliver on its mandate. Due to a lack of leadership, authority, or resources, the regulator fails to deliver.

The issues around any form of formal regulatory oversight are complex and generally beyond the willingness and patience of the average citizen to penetrate the maze of relatively obscure but important details of effective regulation. If the initial design and commitment to regulation is inadequate, the solutions or proposals to fix existing problems may likely focus in all the wrong places. In those cases, a flawed legal framework will likely be at fault, not the regulatory institution or its staff.

III. The Role and Responsibilities for an Electricity Regulator in Puerto Rico

The responsibilities of an energy sector regulator are significant inasmuch as it is invested with the duty to ensure that utilities provide affordable and reliable electric service – an essential service for modern households and businesses. The role, therefore, of the regulator should be defined by legislation and be broad enough to encompass all aspects of the utility's business. It should be written so as to provide latitude to take appropriate action in the exercise of its duty on issues that may not be envisioned or explicitly set forth in the legislation. Below is a discussion of the key aspects of regulation which regulators should have the authority and duty to address. It focuses first on substantive issues, followed by a discussion of procedural issues that govern the operation of cases and set the tone for how a regulatory agency should conduct its business.

A. Setting Reasonable Rates

Chief among the responsibilities for a regulator of an Energy Service Provider (ESP) that is not subject to competition is the regulation of rates. Without regulation, an investor-owned ESP is essentially free to raise rates as much as needed or desired with little accountability as to profits or efficient management. The only brakes on rate increases could be customer outcries and tipping the affordability point for a significant number of customers such that they could no longer take service. This concern holds special relevance to for-profit monopolies, but is also important for government-owned monopolies without accountability directly to the public or through a regulator, there is a lack of discipline to operate as efficiently as possible to keep costs down. In a competitive market, the failure to invoke such discipline can mean the difference between success and failure as consumers have the power to discipline inferior providers. The goal would be to capture or apply that sense of market discipline through effective regulatory oversight.

Where the utility is government-owned, the key driver of cost increases (apart from volatile fuel costs and the other challenges) are the decisions of management or sometimes elected officials. Municipal electric systems in the United States are in some cases regulated by the state regulatory commission but in most cases, they are not.¹⁸ Where a regulatory commission does not regulate the rates, typically the municipal electric utility must appear before the city council or dedicated municipal electric commission to make its case for raising rates. The city council deliberations are done in an open meeting where the public can participate. Thus, the city council has oversight authority. The theory is that if the public does not like the job that the utility is doing – and by extension, the job that the city council is doing in overseeing utility rates - the public can vote the council members out of office. This provides a powerful incentive for city councils to provide close scrutiny of the rate requests. Consequently, whether government-

¹⁸ Figures reported by NARUC in the mid-1990s, suggest that there are 23 states that have at least some oversight of municipal utilities. Often the oversight is limited to the areas that the utility serves beyond the municipal boundaries. Broad oversight authority over municipal electric exists in 9 state jurisdictions. Foley & O'Connor-Petts, 1996b, Table 172.

owned or investor-owned, oversight for the establishment of rates is tightly woven into the fabric of public policy and consumer protection.

The establishment of rates is generally based on a review of costs. Understanding costs and the factors that drive costs, help to address both fairness and the more efficient use of services by setting rates that reflect their full costs. The responsibility of the regulator is to establish the level of revenues to be collected and the resulting price levels that are used to enable management to fairly recover costs and compensate investors for the commitment of capital.

The electricity sector is one of the most capital intensive sectors in the economy. The recovery of long term investments typically comprises the vast majority of the overall cost of service.¹⁹ Typical investments in the sector can have a useful life in excess of 40 years. In order to attract investment, the sector must be proven to be sufficiently stable to convince bond and equity investors that their investment will be recovered, along with a normal margin sufficient to cover risks, over the decades of their investment. In establishing the revenue requirements of the provider, the regulator must consider these valid investor concerns. Investors deserve a reasonable assurance of cost recovery and a reasonable return. It is also in the ratepayer's long-term interests to ensure that the sector remains attractive to prospective investors in order to assure the necessary additional investment over time.

Ratepayers further value stability in rates and services over time in their own right. It should be noted that the financial health of a utility is closely watched by rating agencies. The bond ratings assigned to any utility will impact the cost of capital, i.e. the interest rates that the utility must pay to debt-holders in exchange for the use of their money to support reliability and service. Since these costs are generally passed on to consumers, both the consumer and the utility have a vested interest in protecting the utility's financial health.

Proposed modifications to electricity rates should generally be subject to a formal rate case proceeding. Under such a system, PREPA would file a formal application to modify rates. The regulatory commission by rule would establish rules of procedure and evidence to guide these proceedings. Embedded in the rules governing rate proceedings would be standard filing requirements that include all the necessary data that PREPA must file before the commission will consider its application. The applicant should provide advance notice to the regulator of the impending filing so that it can prepare for the proceeding. The standard filing requirement rules should include data on the valuation and depreciation of PREPA's property and equipment, all its expenses broken down by categories during a "test year," a cost of service study, the proposed rate allocation, financial information to determine an appropriate rate of return, and any other information the regulator deems necessary.²⁰ To build public trust and to ensure ample time for the staff to review the information and file a report of recommendations based on

¹⁹ Bonbright observed that utilities often have \$3-\$4 of assets for each dollar of sales compared to manufacturing generally, which has about \$0.80 for each dollar of sales. Bonbright, 1988. According to the report of the consulting engineers, PREPA has only \$11.2 billion plant-in-service on roughly \$4.4 billion in revenues for 2011. URS Corp, 2011. The difference may be accounted for by the relatively high proportion of fuels costs.

²⁰ The adjusted test year (also known as the "rate year") can consist of either actual historical performance or projected information for that future test period or some combination of the two. It is essentially a year-long snap shot of the utility that is used to measure and determine the appropriate revenue requirements.

the application, sufficient time must be allocated between the time PREPA's application is accepted as complete by the commission and the time the Commission renders an order. The time frame typically runs between six months and a year and should be included in the law.²¹

As part of any rate proceeding, there should be an opportunity for the public to be heard through open public hearings conducted by the regulator, where members of the public can testify, as well as evidentiary hearings where stakeholder groups representing business, residential, and other groups may intervene, present witnesses, and cross-examine other witnesses. Leading up to the hearing, there should be an opportunity for these stakeholder interveners to conduct discovery in the form of interrogatories, requests for the production of documents, and depositions. Finally the hearing process should include the opportunity for post-hearing written briefs and reply briefs.

The importance of including these formal hearing elements in the process is manifold. First, it provides balance by providing the regulator not only with other perspectives on the issues, but evidence that hopefully supports those perspectives. Second, it provides a needed balance of perspective and record for the regulator. If hypothetically, the regulator is concerned about the impact of a rate increase on the general public, but has no evidence refuting the need for the full increase request granted, it would be difficult for the regulator not to approve the full increase, even though it was not reasonable. However, if for example, an intervener presented testimony demonstrating that an expense item should be disallowed or reduced for various credible reasons, then the regulator would have justification to reduce the increase request accordingly and to order PREPA to take certain appropriate actions with regard to that expense. Allowing interveners with the expertise to represent various stakeholder interests also will help develop public confidence in the reforms.

Once rates are established, the next task of the regulator is to determine how those rates will be allocated and designed among and within the customer classes. A cost of service study is typically required to establish which class or group of customers is responsible for different components of embedded costs. Such a study can also consider forward-looking long run marginal costs.²² A cost of service study is important to determine how each customer class is contributing to the overall costs on the system. Policy considerations are sometimes interjected here that allow the regulator some discretion in the interest of the public interest. If, for example, as a result of the allocation, one customer class will receive a much higher increase that could be considered a rate shock, then the regulators could exercise discretion to reduce or phase-in those impacts. In that case, some of the increase may be allocated to another customer class. Other discretionary considerations include affordability for low-income customers or economic development concerns for large businesses.

²¹ An example of this timeframe is presented in RAP's guide on utility regulation (Lazar, 2011) at p. 39.

²² The commission is also responsible for defining classes of similarly situated customers. All residential customers could be a class, or there could be divisions based on clear distinctions, usage above a certain level, or self-generators over a certain size, or use of electricity for specific purposes. Large customers can be distinguished based on the voltage at which they take service, under the reasoning that taking service at higher voltages avoids losses. Yet, there are inevitable averagings that occur. Probably the most ubiquitous of these is location. Rural and urban consumers may have important distinctions, but are typically averaged to avoid appearance of a value judgment associated with the choice of where a customer lives or works.

Through rate design, the regulator addresses the question of how to assign costs to the individual rate elements. Rates generally will consist of (1) a set monthly customer charge, and (2) a variable charge that covers the amount used. Rate design can also be structured to cover time periods, through peak and off-peak time of use rates. For industrial and large commercial customers, a demand charge is typically included in the bill which tracks the peak usage or draw on the energy system at any one time. A spike in usage can dramatically impact such a customer's usage. As a result, large use customers will attempt to smooth out their usage to the extent possible to avoid these high demand charges, which in turn, will help PREPA plan for the amount of capacity it must have on hand to serve all customers.

Rate designs can also be structured to allow utilities to charge based on the time of day that power is used, such that a higher price is assigned during peak periods of demand on the system and a lower price is charged during periods of low usage. Other issues include whether to make the volumetric rate flat or charge less for the first increment or block of usage to encourage conservation with a correspondingly higher rate for each of the next blocks of usage.²³

B. Alternative Ratemaking: Establishing Performance-Based Rates to Provide Utility Incentives

Traditional cost-of-service regulation fundamentally relies on a periodic review of total costs and resets revenue levels and fixes rates for a period of time, usually multiple years or until the utility files for another rate increase. This process has worked reasonably well in many jurisdictions over time, but has also been criticized for some notable failures.²⁴

Alternatives to establishing rates based solely on traditional cost-of-service regulation exist and can be fruitfully applied to spur productivity, ensure that the benefits of these productivity improvements are passed on to retail consumers, and to achieve other purposes consistent with the intent of the law. Alternative regulation can be used to provide an incentive or reward to the utility for moving in a direction that is warranted by public policy, but may or may not be viewed as beneficial to the utility's self-interest.

Alternative regulation is sometimes referred to as performance-based regulation (PBR), or incentive regulation, price-cap regulation, and RPI-X regulation. As noted earlier, revenue regulation can become embedded in such a framework to help decouple sales volume increases or declines from PREPAs financial performance. This is referred to as decoupling. These other names help to differentiate them from traditional cost of service regulation in some important respects. However, PBR regulation is relied upon here to help underscore the output-based performance nature of the system regulation, and in recognition that all regulation, even

²³ There are a variety of different rate design mechanisms that can be employed to send price signals and reduce demand during peak periods. See Lazar, 2013.

²⁴ Traditional regulation, especially as applied to private utilities, generally has a full arsenal of penalties it can use—disallowances, fines, ROE penalties, and embarrassment. It has fewer positive motivations. Performance-based regulation puts into place a discipline of recognizing and crediting good and bad performance, which has general management benefits, as any manager of people will appreciate.

traditional cost-of-service regulation provides incentives. “All regulation is incentive regulation.”²⁵ The objective of PBR is to align those incentives to better serve the regulator’s performance objectives with the public interest.

PBR, generically, diverges from cost-based regulation in providing electricity distributors a tariff framework that encourages better performance. There are many different approaches to PBR, and all of them begin with identification of how the regulator seeks to change behavior of the firm under regulation. Some are price-cap mechanisms that set a trajectory for prices, leaving the firm to find economies; others are revenue-cap mechanisms that seek to provide predictable revenues independent of sales volumes; still others are tied to specific metrics of service quality, reliability, and environmental performance. While there are differences between regulatory schemes focused on changing incentives, they all share in common the shift from a strictly cost-based incentive framework to one that encourages behavioral changes.

For utilities that are driven by a profit motivation, there is usually some incentive to drive down costs to improve profitability. However, utility revenues in a rate case are based on a rate multiplied by either projected or an assumed level of sales. If sales go down, the utility does not recover the revenues necessary to cover projected costs, hence creating a disincentive to support any customer behavior such as energy efficiency or the installation of distributed generation that reduces potential sales. Further, under traditional ratemaking the utility receives a return on its investment necessary to provide an equity return (in the case of an investor-owned utility) or bondholder premium plus necessary margins (in the case of a government-owned utility).

For utilities that are not driven by a profit motive, as is the case of most government owned-utilities like PREPA, the motives for management to innovate, control costs, or otherwise improve the cost performance may be lacking, or at least are obscured by the other cost drivers. Performance incentives can be designed to provide bonuses to staff for reaching goals, as an example of a mechanism to make performance incentives meaningful. Public recognition associated with achieving key public objectives can also be valuable. The key is to recognize the drivers to which the utility will respond in a positive manner.

Examples of areas where performance-based regulation may be useful for PREPA include interconnecting small generation projects associated with net metering, reducing system line losses, and reducing theft. Other areas where PREPA’s performance may be strengthened include cutting waste and operating more efficiently to drive down costs, execution of a comprehensive energy efficiency program, improving service reliability, and reducing the number of customer complaints. Performance goals and associated metrics could be structured over a period of time and include milestones toward the achievement of certain longer-term objectives.

The other important component of a performance-based plan is the use of appropriate performance incentives and penalties. Financial penalties and incentives are typically used as

²⁵ Quote often attributed to Alfred Kahn.

the motivators for private, for-profit, companies delivering services. Motivating management in a publicly-owned institution may require more subtle and complex modes of encouragement, especially when there are potential risks to investor interests and bond covenants in the process. Financial penalties and incentives can also play a role, but there is a need to recognize their limitations in a not-for-profit entity. To work effectively, either additional elements of commercialization of PREPA is needed (e.g., award a management contract to a third party entity that is better able to accept and absorb a system of financial penalties and incentives contained in a plan), or work is needed to better understand and apply a set of relevant penalties and incentives that will motivate management.²⁶ A decoupling plus framework might be useful here. Under such a framework, PREPA would be allowed to keep a share of savings from cost reductions and innovation, or all of such savings over a defined term.

To summarize, utility incentives in a well-designed PBR plan developed by a regulatory body external to PREPA will serve to encourage effective cost management and better performance by rewarding the utility for its performance in meeting the objectives set forth by the regulator.

C. Planning Requirements and Oversight: Integrated Resource Planning (IRP)

The long-term resource commitments that providers make to invest in new facilities or contracts represent a long-term commitment to future bondholders on behalf of all consumers. These investments may hang together as a strategy and/or loosely as a series of impulsive choices. Collectively they are multi-billion dollar decisions that warrant oversight by an expert body able and empowered to ask the right questions in a public setting and render an independent judgment. Closely related to this review are the planning efforts and screening criteria that lead to these decisions.

The objective of a sound long range planning framework is to minimize the long run costs of service. Legislation can be used to help clarify the scope of costs to consider. Ideally the scope should be defined broadly to include consumer and environmental concerns.

Many states have adopted Integrated Resource Planning (IRP) as a tool to understand an ESP's system and needs. IRP is a planning process that requires consideration of all reasonable resources for meeting the demand for an ESP's retail services during the forecast period (usually 20 years). It provides an essential planning framework in an environment where there is a single buyer. This can include focusing on existing and new supply-side resources as well as focusing on demand-side resources such as energy conservation and efficiency, demand response, and customer-sited distributed generation.

The objectives of an IRP can include, among other things: maintaining safe, adequate, and reliable energy services; promoting economic efficiency; maintaining the financial health of the utility; mitigating risks; mitigating environmental impacts and related cost risks; achieving consistency with governmental regulations and policies; and, accommodating and taking

²⁶ Long-Island Power and Light (LIPA) provides an example of this mechanism, following on the challenges that were presented to their system by Hurricane Sandy.

advantage of changes in technology. The process results in the selection of the portfolio of existing and new resources that best meets the IRP's objectives over the long run. The selected portfolio should represent the best performing combination of resources to meet forecasted load requirements at the lowest present value total cost given the objectives, range of uncertainties, risks, and constraints identified in the IRP.

In this case, an IRP developed by a regulatory board would require PREPA to provide a long range forecast (typically 20 years) coupled with an appropriate level of scenario planning around key uncertainties. Key uncertainties may include those outside the control of Puerto Rico, like fuel costs and weather, but can also include policy uncertainties. Ideally, the range of uncertainties would capture anticipated growth in demand and energy categorized by customer class. In order to track recent trends, the historical growth in demand over at least the preceding five years is also included. Factors that are ideally included in the forecast development, or otherwise accounted for as uncertainties in the analysis, are projected economic growth in the service territory that can increase the demand, as well as building codes, appliance efficiency standards, energy efficiency and demand response programs, and projected proliferation of customer-installed distributed generation that can concomitantly reduce the demand for electricity. It is understood that the further in time the projection is made, the less reliable the forecast will be, but it nevertheless provides a useful benchmark of how much electric capacity will potentially be needed over the more distant periods so that least cost strategies (including potentially longer lived or more capital intensive projects) incorporate more distant requirements. Given this, IRP proceedings generally occur every three to five years in order to revise the plans based on changes in circumstances. PREPA should file IRP plans with the regulatory board on a regular basis even if earlier versions do not receive a formal regulatory review and approval.

Even while the IRP process provides a valuable view of "the plan" at a given point in time, its real value may be in providing a window into the underlying planning framework, the analysis and framework that are driving decisions, and the process for reaching out to incorporate alternative viewpoints in the planning process. The document itself can also prove valuable in future project or contract reviews by the regulator.

Once the estimated base-case forecast of demand for electricity has been established, the information on the resources available to meet electricity needs is compared. Data on the capacity factor, fuel source, and age of each power plant along with a host of other information, is also provided in order to project which plants may be retiring when. The full cost of existing resources should be included in the analysis to ensure that these remain lower cost relative to newer resources that could replace them. The type of fuel is important in determining economic viability due to projected increases in the cost of fuel or regulations affecting the power plant using that fuel. An IRP should also include a system reliability assessment to ensure that the system can withstand the loss of each unit or line due to a planned or forced outage (this may simply report how reliability standards are being met). The system should reserve adequate capacity and contingency resources (including available lines) to ensure that high standards of system performance and reliability are met.

With all of this information assembled, the commission and the stakeholders participating in the IRP proceeding can then model and evaluate the system to determine the least cost options. In this analysis, the commission should consider energy efficiency as a resource option, because it reduces the growth in demand thereby forestalling or obviating the need for the construction of additional capacity.

Commissions have generally taken two different approaches with respect to IRP's. One approach is to review the IRP analysis and issue a ruling as to whether the filing is complete without necessarily approving a particular plan. The second and more proactive approach would be for the commission to approve or reject the actual IRP such that its decision serves as advance guidance for utility resource planning decisions. Approval of the IRP under this second approach, however, should ideally not be confused with approval of the detailed projects, or even categories, identified. Ideally, approval applies to the framework, the methods, and the process so as to give an ESP confidence that it is approaching the planning and later decision-making process with confidence.

The benefit of an IRP framework, and the plan itself, is demonstrated when an ESP files before the commission for approval of a resource option. Given the enormity of the decisions made in the context of resource acquisitions due to both the cost and the period of time upon which such resources will be relied, having a complete IRP that provides all the needed critical information. A poorly-conceived decision on a resource option based on the lack of availability of the kinds of comprehensive data contained in an IRP can have significant impacts down the road due to costs of construction, changes in environmental regulations that add new costs and the cost of fuel – all of which depend on the option selected. Commission approval becomes important to the ESP in order to ensure that all reasonable and prudently incurred costs will be recovered. By the same token, having an IRP in place provides the commission with the kinds of information it needs to ensure that the utility's chosen option is needed and if so, whether it is (1) the least cost and (2) likely to meet the reliability needs of assuring adequate capacity.

At the end of the day, the IRP is the single-most important resource, and the associated IRP framework the most important process, to move Puerto Rico on the road towards reducing and containing cost increases in the future. This is especially so given that PREPA has a number of aging expensive units that may need to be retired in the near future. The decisions made regarding these units and their potential replacements will therefore be crucial and an IRP can serve as a highly valuable tool in assisting stakeholders and the commission to reach the best decision.

D. Reliability Standards and Service Quality

Assuring reliable service is one of the cornerstones in regulation in that reliable electric service is vital to the economy. When electricity shuts down, so does a predominant percentage of commerce.²⁷ The Puerto Rican regulator will therefore need to have authority over the

²⁷ Outages in South Africa during 2007 and 2008 were responsible for reduction in the mining sectors that accounts for a substantial share of GDP. South Africa is the world's largest producer of platinum, gold, and chromium, and the

establishment of technical standards. This would include the establishment of standards over service quality, network reliability, interconnections (e.g., net metering), and for the repair of service during system outages.

Service quality and reliability are closely interlinked in the electric industry. While this is an issue that concerns all groups of customers, especially for sustained outages, it is particularly important to industrial customers, who can experience damage or destruction of the product they are manufacturing by even a momentary outage. Outages of longer durations also cause retail operations to close, resulting in the loss of business revenues. For residential customers, the loss of food in refrigerators can be costly, lost wages and inconvenience of waiting for an activation call that does not transpire can be expensive, and the absence of electricity can present further threats to health and well-being. Therefore, it is incumbent upon the regulator to establish reasonable reliability standards of services. Many US state commissions have held proceedings to establish these service quality and reliability standards for their ESPs. Under these proceedings, minimal levels of reliability are established that the utility must meet with respect to the frequency and duration of outages that will be accepted, barring certain *force majeure* circumstances that the utility could not have been reasonably expected to foresee or control. Theoretically bonuses can be offered for exceptional performance.

E. Consumer Protections

It should be within the purview of the sector regulator to establish policies, rules, and regulations designed to protect the public with respect to the adequacy and provision of service. It is important to note that the regulator must possess not only the authority to establish these rules, but also the authority to effectively enforce them. This authority should also extend to providing the regulator with a means to informally settle disputes through mediation, and formally if necessary, adjudicate certain disputes, including consumer complaints. Further, the regulator should have the authority to initiate investigations or open a proceeding if it discovers a pattern of abuse on the part of the ESP or if there are a significant number of customer complaints with regard to a matter. The regulator should also have the necessary staff resources to successfully execute this endeavor. Customers knowing that there is a place to seek redress for concerns that are not resolved at the ESP level will help build customer support for regulatory reform. Moreover, an ESP's knowledge that if it does not resolve the issue first with the customer, it will be elevated to the regulatory level, serves as a catalyst for the ESP to work more closely with customers to resolve their concerns.

Having uniform rules in place that fairly balance the needs of the ESP and the consumer are an important part of regulation. These rules can provide everyone with knowledge of how consumer issues will be handled, avoid arbitrary and discriminatory treatment, and promote fairness and transparency. Further, it provides a means of protecting individual consumers in a manner that is fair to them and to all other customers. In so doing, it manages the risks to both the ESP and the consumer by setting forth expectations and consequences. A good set of

mining sector was required to bear its share of the rolling blackouts of 2007 and 2008. The magnitude of the impact on GDP is still speculative.

consumer protection rules will not only set forth rights and obligations but will also assign costs as appropriate between the ESP and the consumer.

Having said this, it is important that the process is efficient from both the provider's side and the consumer's side. There should be an end so that a consumer without a viable complaint gets to the end efficiently and resources are not used beyond those needed to fairly address the concern. Discipline is an important part of regulation.

There are a number of areas of consumer protections where it may be important for the Commission to establish rules of procedure and policy. The main consumer issues that should be addressed are discussed below. The caveat is that this is not an exhaustive list, as other issues specific to Puerto Rico may need to be addressed.

1. Consumer Bill of Rights

It is not uncommon for organized consumer groups to set forth a bill of rights. The concept of such rights dates back to the sector reforms of the 1990s when consumer groups were concerned that sector reforms planned in some states would yield stranded benefits of the traditional utility. The concept, however, gained significance in other jurisdictions that also place high value on fair treatment of end users, but had not formalized the features of that framework. Having the commission set a bill of rights as a preamble to any rules will help build public confidence in the process. A Consumer Bill of Rights can run the gamut and include such items as the right to reasonable rates, a prohibition on unduly discriminating against any customer, the right to notice on matters affecting the consumer's service, the right to dispute or be heard on a matter, the right to reasonable quality of service, the right to reliable service, and the right to consumer protections, among others.²⁸

2. Security Deposits

When connecting a customer for the first time, the ESP will often want assurance that the customer is creditworthy and in the absence of that, it may want a deposit to protect against a customer default, the cost of which would otherwise be borne by all other customers. Rules regarding that the amount of the deposit is fair (not so onerous so as to create an unaffordable barrier for a customer to initiate service, but not so little as to cover substantially less than the service that would have been delivered prior to default) need to be established. Rules also need to address how long the ESP can keep the deposit and interest on the deposits.

3. Late Payment Fees

ESPs want recognition of the time value of money and the impact on its cash flow of late payments. Reasonable due dates for a bill are important to ensure that consumers have enough time to pay a bill and may be tied to receipt of paychecks issued bi-monthly or monthly. Once a

²⁸ For example, Pennsylvania adopted a bill of rights for consumers, which is available online at http://www.puc.state.pa.us/general/consumer_ed/pdf/Consumer_Bill_Of_Rights.pdf. The Kentucky Cooperatives Association adopted one available online as well at <http://www.kaec.org/stand/billofrights.htm>. Arizona and other states have similar declarations of consumer rights.

due date is determined, a small one-time late fee may be appropriate, but notice of the fee should be clearly marked on the customer's bill.

4. Consumer Bills

Consumer bills represent an important tool to communicate with the consumer and should include in addition to the amount due, information on late payment fees, who to call if the consumer cannot pay the full bill, the consumer's right to an extended payment plan (see below), and other pertinent information. Consumer bills should be easy to read and understand.

5. Extended Payment Plans

Disconnections are costly in terms of sending an employee to a consumer's home to disconnect and then reconnect. There is also a lost revenue issue if the ESP is not selling electricity to a disconnected customer. Many states have therefore implemented policies that allow the consumer to pay arrearages over time to avoid disconnection. Some states have also established debt forgiveness programs to encourage consumers to make timely payments by writing off a portion of the debt. These programs include criteria to avoid abuse.

6. Disconnection of Service

Disconnection should be a last resort for nonpayment. Prior to disconnection, the ESP should be required to provide the customer with notice as prescribed in the rules along with a reasonable amount of time to contact the ESP to make payment arrangements prior to disconnection. Other issues include how to address a situation where the utility service is included in the rent that the end-use consumer pays, but the landlord defaults. Many states have included a medical certification to avoid disconnection over a period of months if a member of the household has a serious illness. There also should be provisions enabling the ESP to bypass notice requirements for discreet issues like safety, meter-tampering, etc. Rules on reconnection are also important to ensure that once payment or partial payment is made, the service will be restored within a reasonable period of time. Advanced metering infrastructure can help improve response times and the need for the movement of trucks to service disconnections and reconnections.

7. Consumer Dispute Resolution and Complaint Procedures

It is critical that the commission's rules include a process whereby a consumer can dispute a bill amount or seek redress for any action by the ESP that the customer is unable to resolve informally. As noted above, the process should be efficient and resolution timely.

F. Procedures and Operation of the Commission

Much of the function of a well-designed regulator is tied to process and transparency around its activities. Assurance of fairness comes through: the right to be heard by neutral experts that understand the issues; the procedures employed to protect the rights of parties; the publication of decisions containing findings of fact, conclusions of law, and rationale; and finally, the rights of the parties to respond and appeal decisions. A regulator that is perceived to be fair and competent can add stability to a society.

The regulator provides a role that is distinct from other bodies with judicial responsibilities. The regulator is an administrator and possesses a level of expertise that should ideally match the complex character of the industry. The role of this body is typically referred to as quasi-judicial. Expert regulators are typically comprised of engineers, lawyers, economists, financial analysts, and accountants. These regulators need to be able to balance the interests of multiple stakeholders, public policy, the law, and the facts to achieve an outcome that will help meet the legislative objective of reasonable rates and reliable service.

The Puerto Rican regulator will require the full complement of tools required by regulators everywhere. Consumer, public, and provider confidence in the regulator is paramount, and so, perhaps most important to its success is the ability to utilize procedures that ensure fair treatment and transparency. The regulator will need to establish rules of procedure as well as rules governing particular kinds of case matters that are presented, such as for example, rules for ratemaking proceedings, Integrated Resource Planning, complaints, and so forth. A portion of the rules may be dedicated to setting forth the documents and information that must accompany an application. Generally, as with all the regulator's rules, the rules governing procedure and specific case matters should be codified into the administrative code. All parties should be able to rely on the uniform application of these rules, with the regulator reserving the right to waive any rule for good cause. The creation of the rules themselves should also be subject to public comment by interested stakeholders and the regulator should issue an order adopting rules and setting forth the reasoning behind the rules adopted.

G. The Role of a Regulator in the Advent of Competition

1. Market Oversight and Fair Treatment of Providers

Currently Puerto Rico has four long-term power contracts with long-standing independent power producers in the Territory.²⁹ Recently, PREPA engaged in solicitations to determine successful bidders for long term contracts with renewable project developers. In the future PREPA may use competitive bidding to procure long-term power purchase agreements or for the construction of generation to be owned and operated by PREPA. The competitive wholesale market framework that exists in much of North America through the establishment of independent system operators is a concept that could be explored further down the road. Regardless, the regulator has a critically important role in overseeing the sector and in keeping future options open.

a) Encouraging New Energy Partners and Services

One of the benefits of creating an independent regulatory body is to broaden the spectrum of options open to both PREPA and Puerto Rico. Policy reforms may involve strategies that more effectively leverage the existing vertically integrated structure of PREPA through management reforms, planning, and effective oversight. As just noted, policy reforms can involve a commitment to introducing formal levels of competition into segments of the business as a

²⁹ PREPA has engaged in long-term power contracts with co-generation facilities in Puerto Rico. Long term power contracts for independent power currently exist with AES and EcoElectrica. The former is for a coal generating facility and the latter a natural gas facility. The first was a 22 year contract that began in 2000, and the latter a 25 year contract that began in 2002. URS Corp, 2011. Two other power contracts were recently subscribed with alternate energy

means of driving efficiency. Another strategy involves efforts by the regulated entity to encourage entry of new third party service providers or partners that complement the activities of PREPA. Such initiatives can encourage innovation in the sector. Examples of industries that have grown up quickly include an industry of demand-response aggregators, suppliers of distributed PV systems using leasing arrangements, and an energy efficiency industry. Earlier examples over the history of the sector include the development of industries around independent power and energy efficiency.

b) Ensuring a fair and competitive playing field

If policy makers in Puerto Rico decide to evolve the sector, the regulator will play a role in ensuring a fair and competitive playing field. This may involve the establishment of open market rules and comparable access to information. Examples of steps that the regulator takes to overcome the inherent advantages of the incumbent operator include forms of unbundling the dominant provider in terms of its distribution, transmission, and generation functions, and requiring codes of conduct governing interactions between the regulated and competitive affiliate entities.

c) Ensuring no one entity can exert undue influence over markets

If Puerto Rico eventually decides to establish formal wholesale markets, it should also create regulatory oversight mechanisms to ensure that there is robust competition. Formal markets in the US are typically accompanied by some form of a market monitor that is accountable to regulators. Regulators have the authority to impose appropriate penalties such as fines in the face of market.³⁰

2. Leveraging Market Forces Where They Can Be Effectively Applied

Once a decision is made as to what the portfolio of resources should consist of, it is not axiomatic that the ESP – in this case PREPA - should be responsible for constructing the resource or transmission lines supply-side options that are contained in the approved IRP. This is particularly critical given PREPA’s financial situation.

A first step that decision-makers may want to consider is competitively bidding for additional resources. That can be done by specifying the amount of megawatts needed. Other decisions include whether to specify the kind of facility. For example, policymakers may want to specify a renewable energy plant to avoid the cost of importing expensive fuels. Another decision point is whether PREPA, as host ESP, can or should participate in the bidding process. If so, the bidding process must be conducted by an independent entity in order to avoid giving it a competitive advantage and ensuring a fair playing field.

A competitive bidding process has the advantage of assuring the lowest cost from a reliable source in the marketplace while still enabling PREPA, the regulated utility, to control the provision of electricity. Further, unlike traditional resource construction where cost overruns are

³⁰ For example, PJM and ISO-NE both have external market monitors.

routinely passed through to the consumer, a bidder in a Request for Proposal (RFP) process is bound by the price bid and must absorb any cost overruns, with the exception of any regulatory-out provisions. Thus, the bidder will usually include a contingency fee in its bid, but the end result is that it insulates consumers from most cost-overruns. Another aspect of the bid product in addition to the type of generation is whether the bid is for a turn-key power plant that will be owned and/or operated by PREPA or for a purchased power agreement in which a certain amount of capacity is purchased.

To ensure a robust market of bidders, the commission should establish clear rules governing the process. Participation in a bidding process requires a substantial amount of work for potential participants who will be unwilling to do so if they believe the process is not fair or favors the incumbent ESP or anyone else. Having a greater pool of bids increases the opportunity to receive lower bids. Fairness and transparency are key components for competitors in a bid process. The commission can simplify the matter by not allowing the incumbent to participate in the bid process. However, if the incumbent wants to participate and the Commission believes it is in the public interest to allow them to do so, then separation of businesses and codes of conduct are necessary as well as an independent entity to run the RFP process and make a recommendation for commission approval. The following options would allow for PREPA's participation while ensuring a level playing field:

a) Corporate Separation

The best way to provide equitable treatment in a bid for generation or transmission services in which the incumbent is participating is through corporate separation where the competitive business unit is spun off into a separate affiliate. Alternatively, another viable mechanism that offers less assurance to competitors is functional separation in which the competitive entity remains within the company, but must sever its activities and communications with the rest of the corporation. This mechanism is more difficult to police and to demonstrate its fairness. Yet it is often used. By creating separate entities the goal is to make sure that the entity participating in the bidding process does not have input into any aspect of the process nor access to any inside information.

b) Codes of Conduct

Whether there is functional or corporate separation, codes of conduct are important to ensure a level playing field. This can include requiring the separate entities not to communicate on business matters; prohibitions against the use of the same name or logo; the maintenance of separate business record; the use of shared services being priced to the competing entity at market price as opposed to embedded cost; and other matters.

3. Independent Entity to Conduct the RFP Process

To provide a transparent and fair process, having an expert entity that has no pecuniary or other interest in the outcome is vital. The commission should have the authority to bring in such an entity that can draft the RFP, qualify the potential bidders, oversee the process for submitting bids, and evaluate the bids to provide a recommendation to the commission for approval. This is the best way to demonstrate impartiality in the bid process.

The commission should establish the selection criteria, including cost, reliability of the technology, experience and technical capabilities of the bidder, and financial capability, among other attributes.

IV. Cost and Design Considerations for the Creation of a Regulatory Commission

A. Size of the Regulatory Commission and Budget ³¹

The cost of establishing a regulatory body is offset by the gains in performance, efficiency and fairness. The size of a regulatory commission is conditioned upon the number of entities regulated and the scope of authority. In the early stages of the commission office, a base of at least 32 staff to do the core work would probably be sufficient with a budget of \$6 million or more once the commission is fully ramped –up and staffed.³² The costs of operating a regulator fall into the categories of operating costs, comprised of personnel, office supplies, training, and outside technical assistance. During the period of organizing and establishing the regulatory commission, it is estimated that the first six months would require a budget of approximately 50 percent of the full budget, or \$3 million, and that the following 12 months would require about 80 percent or roughly \$4.8 million. The third year costs would approach approximately \$6 million. With regard to staffing, it needs to be determined who is responsible for hiring – the executive director of the staff or the commission. One alternative would be for the executive director to do the initial interviewing and screening with the chairman of the commission deciding among the finalists.

As the regulatory process proceeds and expands in accordance with the jurisdiction and authority of the commission as set forth in legislation, the size of the commission staff may need to be expanded to handle such matters as integrated resource planning, which requires a different expertise than that needed to analyze rate cases.³³ Another issue that will require additional staffing would be any movement towards wider private sector participation or more ambitious competition (currently four independent power producers service the system). This would increase the number of entities subject to non-price regulation, in addition to time and attention dedicated to creating an affective competitive market structure, which will also need to be monitored. Further, if the commission takes on the function of handling consumer complaints, that would require different staff dedicated to addressing consumer concerns.³⁴

³¹ See also RAP memo to CNE, dated January 14, 2014.

³² The estimate is based on a power sector regulator only. The estimate of at least 32 is based on a preliminary analysis of core functions and staff that should be in place. They are intended as a rough initial guide. The figures will change based on the more detailed requirements established in the law. The figures reflect 3 commissioners, 21 professional staff, and 8 support staff. The figures do not include separate professional staff and support for each of the commissioners as can exist in some larger jurisdictions and at the level of FERC.

³³ In order to ensure that the staff is accountable to the commission, we recommend that either the staff appointments of professionals be from the chair of the commission or that the executive director in charge of staff appointments also serve that the pleasure of the chair.

³⁴ Another option on consumer complaints is if a consumer advocacy agency is created, that agency could be empowered to work directly with the Electric Service Provider (ESP) on behalf of the customer as its statutory

We recommend that the capacity of the organization broadly include both the development of capable staff within, but also captured in the network of capable contractors and experts that the commissions relies upon. There should be a robust budget for outside technical experts. The goal would be to train a versatile set of staff members to be adept at handling multiple issues in the same ways as interveners must do when participating in a variety of cases. Also there should be some ability of advocates to bill back for some services provided in formal proceedings. Some states allow for advocate compensation, which is approved by the commission. All these measures ensure robust and independent oversight capacity.

There should be flexibility to expand the budget as needed so that the commission has adequate resources to do the job well. In this light, a dollar amount for the budget should not be set forth in statute; rather the budget should be determined and considered as part of the Governor's proposed budget to the legislature, even if the source of funds is not derived from the general revenues of Puerto Rico. Further, legislation should consider providing the commission with the opportunity to request additional funds if needed in any given year. This would require the commission to demonstrate why more funds are needed and would require approval.

The source of funds for the budget is an important issue. The bulk of the funding to sustain the daily operations of the commission can come from the general revenue fund; however, considering all the competing needs for that source of revenue, Puerto Rico might want to consider following in the footsteps on a majority of state commissions that obtain their funding through an assessment on a minimal percentage of the intrastate gross revenues of the regulated entities. This may have practical value in terms of distinguishing the pool of sector revenues from general tax receipts, but it also recognizes that the cost of regulation is a fundamental part of the cost of services. The cost of regulation should not be bypassed. Customers will ultimately benefit even if they ultimately pay for this protection through a broad-based sector-specific fee. Almost all states have authority to collect revenues through a broad fee on utility services.³⁵

In Ohio, which is subject to competition, the assessment on intrastate gross revenues extends to any certified competitive provider. In order to provide the commission with additional flexibility in terms of funding, the legislature may want to consider adding a provision that grants the commission the authority to seek supplemental funds through federal government grants and other sources for special projects as long as the entity from whom the grant is sought is independent and has no self-interest in the activities of the commission. Finally, the commission should be able to further supplement its costs through reliance on fee-for-service arrangements, such as charging a reasonable application fee to new entrants into the market. However, such fee for service should not extend to any services provided to end-use consumers.

representative, with the commission getting involved only if the dispute is not satisfactorily resolved. In this case, the commission staff would mediate and if that did not work, adjudicate the dispute.

³⁵ In 1996, NARUC's survey of the commissions recognized 43 of the 50 states had such authority. Foley & O'Connor-Petts, 1996a. Table 14.

B. Considerations Regarding the Appointment of Commissioners

Questions such as how many commissioners, their qualifications, length of term, and political affiliation should be set forth in the law. Typically commissions function with three to five commissioners, however, in some instances, there have been as many as seven. Given that this commission would be confined to regulating only one industry – electricity – three could be sufficient and would probably encourage a closer working relationship among the commissioners in their deliberations. The length of the term is tied to the number of commissioners in order to ensure an orderly transition when a new commissioner comes on board. Ideally, it is best to replace only one commissioner at a time in order to retain institutional knowledge of case matters and the operation of the commission. Thus, if there are five commissioners, it would work well to have terms set on a staggered basis with five year terms so that every year one commission position opens up for reappointment or replacement. By the same token, with three commissioners, either a three year term or six year term with one position open for reappointment or replacement every year or two years respectively would be appropriate.

In order to assure some diversity of views without too much control residing within one political party, the legislature might want to consider not allowing more than two with a three member commission or three with a five member commission to serve from one political party as is done in many states.

Appointment and qualifications are important. In many states the governor appoints the commissioners. In other states, the commissioners are elected by the general public, making the commissioners more sensitive to the public that elected them. This can be a good thing, but can also cause problems when difficult decisions that may not be popular need to be made. Other variations include a nominating committee providing a slate of candidates to the governor which the governor may or may not have the ability to reject; or, the reverse in which the governor submits a list of candidates to a nominating committee which in turn determines whether the candidates are qualified. In the latter case, legislation would need to determine if the governor would have the authority to override the nominating council and appoint someone not deemed to be qualified. The most common mechanism is direct appointment by the governor. Typically, there is a requirement that no appointees to the commission shall have any pecuniary interest in the entities they will regulate and if they do, they must divest themselves of that interest. Some state statutes go further and state that no commissioner shall have worked for an entity subject to commission regulation. Further, there should be a duty for the commissioners and perhaps high level staff to file annual financial disclosure statements with the Office of Government Ethics for Puerto Rico.

Because of the complexity of utility regulation, it is important to incorporate in the statute minimum qualifications to serve as a commissioner. Ironically, not all states do this. Nevertheless, this should not be a patronage appointment or merely a stepping stone for the politically ambitious. Rather, commissioners should possess minimum qualifications in the field and should be as unbiased as possible in order to render thoughtful decisions based on the law and the facts of a case. In Nevada, commissioners are required to have at least 2 years of

experience in one or more of the following fields: accounting, business administration, finance or economics, administrative law, or professional engineering.³⁶ Massachusetts law simply requires background or expertise in electricity matters.³⁷ In addition to having similar requirements to those in Nevada, Minnesota also requires that at least one of its five commissioners must be domiciled outside the metropolitan area, thereby creating geographic diversity that recognizes that there may be differences in the needs of consumers residing in rural areas.³⁸ The appointment process is vital to creating effective decision-makers and leaders who can be relied on to make public interest-driven and politically and socially-aware decisions that connect to the real challenges and opportunities Puerto Rico faces.

C. Scope of Commission Jurisdiction and Authority

The jurisdiction of the commission should be broad and should extend to each and every entity that produces or provides wholesale or retail electricity as a provider of distribution, transmission, or generation service within Puerto Rico, including jurisdiction over any plant or property owned or leased by an ESP that is located on the Islands. The commission's jurisdiction should extend to having the right to initiate an investigation and to take any action in any court of law, to appear before any Puerto Rican or Federal administrative or judicial tribunal, or any legislative or executive body in order to carry out its duties.

Equally, the authority of the commission also needs to be broad so that it can have full and meaningful oversight and supervision of the entities under its jurisdiction. The legislative language creating the commission authority should be crafted broadly enough to encompass what is known and what may occur in the future that is not foreseen but for which regulatory oversight would be appropriate. Moreover, the legislation should authorize the commission to promulgate rules with input from the public on all matters affecting the details of regulation. The authority of the commission should extend over rates, the financial stability of ESPs, management, resource planning, terms and conditions of service, consumer protections, reliability, service territory boundaries, adequacy of service, and any other matter affected with the public interest. Consideration should also be given to authority over siting matters which would address the issue of need and environmental compatibility and impacts. Should any form of competition develop, the commission's authority should extend to oversight of the competitive market as well as all its participants and should include the authority to require certifications and set forth rules guiding consumer interactions and protection.

Further, commission authority should extend to all the books and records of an entity under its jurisdiction, including the right to audit and investigate. All tariffs issued by PREPA or any ESP should be subject to commission approval if the rate is regulated or if it addresses terms and conditions of service. The commission's authority should be broad so as to be able to request any information or documents from any ESP it believes it needs in order to fulfill its duty to

³⁶ Commissioners: Appointment; terms; qualifications, Nevada Revised Statutes, NRS 703.030 (2013).

³⁷ Commonwealth utilities commission; membership; appointment and terms; quorum; salaries; annual report, The Commonwealth of Massachusetts, Part1, Title II, Chapter 25 (2012).

³⁸ Public Utilities Commission, Minnesota Statutes, 216A.03 §1 (2013).

regulate. The commission should also have the authority to issue any rule or order necessary to protect the public safety.

In order to be an effective regulator, the commission will also require enforcement authority. This can include issuing penalties or fines for noncompliance with a commission order or rule that is payable to the general revenue fund. These violations of commission rules or orders should be subject to treble damages. In addition, the commission should have the express authority to take other appropriate action, such as filing in the courts for injunctive relief to require specific performance or to prevent certain utility actions. A few states have laws that would hold the executives of a utility personally liable for certain offenses which can include prosecution and incarceration if found guilty.

To further aid the commission in the performance of its duties, one option is to require all entities regulated by it (whether that regulation is partial over terms and conditions of service or full regulation including rate issues) to submit annual compliance reports describing and attesting to their full compliance with all commission regulations.

D. Hearings and Due Process at the Commission

In administrative proceedings, the role of the commissioners is to carefully consider the facts and render a decision that is fair, just, and balanced and takes into account the interests of the ESP, those of the parties that have intervened, as well as the general good. As to intervention by parties, it should be subject to commission approval but the commission should err on the side of inclusiveness without redundancy so that all viewpoints are heard.

In order to promote the best outcomes, it is important that applications filed by any entity be subject to a hearing as necessary. As a preliminary matter, any application for an increase in rates should include a verification of notification through any number of means that the commission requires, including, newspaper notice, notice in bill inserts and on the applicant's webpage, etc. All matters affecting the establishment of rates or utility planning must be decided based upon the evidence presented in a hearing and consistent with the law. Other matters may potentially be left to the commission's discretion regarding whether a hearing is required, but any party should be permitted to request intervention and a hearing. A hearing may not be necessary in instances where it is a question of law on which parties can file briefs and there are no material facts in dispute. Rulemaking proceedings can be done through legal briefs instead of a hearing as well.

Hearings are critical for a number of reasons. First, it provides the commission with more of the facts than might otherwise be presented by a single party. Cross-examination allows parties to test the veracity and reasonableness of arguments advanced, thereby making witnesses a little more cautious about what they allege and again providing the commission with useful insights that might not otherwise be gleaned. Furthermore, having testimony from other parties provides the commission with different additional perspectives for its consideration when deliberating to achieve an appropriate balance. Importantly, by giving the public – those who will be personally impacted by the decisions made, an opportunity to participate and be heard, the commission will

help increase public trust and confidence in the regulatory reform by giving them a voice for the first time.

With respect to the conduct of hearings, they should be preceded with ample opportunity for interveners to conduct discovery to prepare their case. This can include serving interrogatories and requests for the production of documents along with depositions. Limiting the rights or the time necessary for interveners to prepare their case will consequently limit the quality of the commission's decisions as it will not necessarily have all the information available to it. Thus providing sufficient time and compelling cooperation in the discovery process is crucial. It should be recognized that the response to one set of interrogatories may lead to follow-up questions, so that time should be built in for several rounds of discovery. Regulators should be cognizant that when a utility files an application, it knows all its facts and information and has put its best foot forward. Discovery is the process by which interveners attempt to level the playing field by obtaining the same or at least sufficient information. In order to ensure that cases proceed in a timely manner, there should be timelines for cases and the opportunity for expedited proceedings under emergency circumstances if the utility demonstrates just cause. In such a case, the utility would be required to expedite discovery requests so as to not impede the due process rights of interveners.

The commission can also use workshops as a mechanism for encouraging discussions and reaching consensus among stakeholders; however, these workshops should be followed up with a formal docket and order that memorializes the areas of agreement and seeks further input through comments or a hearing as appropriate. In this way the matters agreed to can become enforceable.

The role of the commission staff in hearings is very important and is handled differently in different jurisdictions. In some jurisdictions, the staff conducts an investigation on an application and issues a report which they may sponsor through testimony. Concurrent with this might be representation by a staff attorney who may also cross-examine witnesses. Under this scenario, the staff acts more like an intervener. Under another scenario, the staff is more of an observer who advises the Commission. They may or may not do a report. Some commissions bifurcate the staff so as to have a core group of advisors while at the same time having a separate division of the staff to participate in proceedings.

With respect to the hearing, in some states the commissioners preside over the hearing from beginning to end. In other states, the commissioners may be present but appoint a hearing officer to officiate and rule on motions and otherwise run the hearing. In yet other states, the commissioners are not required to be present although they might decide to attend the hearing from time to time to hear a particular witness. In that instance, the hearing officer prepares a draft order and meets with commissioners to discuss its content. It is usually best when the commissioners can be present to hear the evidence first hand and to ask questions of witnesses should they so desire. A more active commission is more likely to understand the nuances of its decisions as it is getting its information first-hand and unfiltered and is more accountable.

Commissioners can ask questions to witnesses and counsel to complete the record.³⁹ A hybrid of this would be for the commissioners to sit in on major cases and allow the hearing examiner to adjudicate smaller cases, if the case load is such that attending all the hearings becomes problematic in terms of having timely resolution of case matters.

Another consideration is within the context of a hearing to set aside the first day of hearing to determine if the parties can reach a settlement of some or all of the issues. One of the benefits of a settlement is judicial economy that saves all the participants both time and money if an agreement can be reached. Another benefit is that settlements allow parties to be more creative and go beyond what a commission might be authorized to order. For example, in a proceeding to increase rates a low income advocate might agree to a certain level of rate increases provided the ESP creates a fund to help low-income customers threatened with disconnection, pay their bills; or, an environmental advocate might agree if there are energy efficiency programs established as a means to defray system costs or an agreement to remove barriers for the installation of distributed generation, etc. Should a settlement agreement not be unanimous in whole or in part, the dissenting party should nevertheless have its day in court and be able to present its case for the commission's consideration with respect to its deliberations on whether to accept the settlement. The commission may want to consider rules or policies requiring that all parties be present and aware of settlements so that there are no side-deals that benefit one party to the exclusion of others. For example, a settlement that gives one group of stakeholders a discount or some other kind of individualized benefit in exchange for accepting a utility plan should have to be disclosed, if not prohibited. The commission should also have the ability to make changes to settlements it deems necessary; however, if a party believes that in so doing, the *quid pro quo* in the settlement is undermined, it should have the ability to present that information to the commission.

The commission should establish rules of a procedure to guide practice before it, but inasmuch as there may be higher priorities as the commission first gets established, general administrative rules of procedure could be used in the interim.

E. Regulatory Accountability

Just as the ESPs must be accountable to the utility, the commission must also be accountable to the public so that public confidence in the ability of the commission to act in accordance with the goals set forth by the legislature is established. This accountability can come in many forms. One tool is to require the commission to file an annual report with the governor and the legislature detailing its activities and accomplishments over the preceding calendar year. From the commission's standpoint, it is an opportunity for them to tell their story.

Further, the legislature should under its own powers reserve the right to call the chairman of the commission or any commissioner before the legislature to testify on any topic ranging from a substantive issue concerning electric policy in Puerto Rico to the operation of the commission.

³⁹ Also, some commissions occasionally hire independent experts if they feel the record warrants it. This is exceptional, but, if permitted, can help to assure that the commission has a complete record on which to rule.

Other forms of accountability include requiring commissioners to take an oath of office. If a commissioner is interested in serving a subsequent term, doing a good job and voting on matters either as part of the majority or as a dissent, will also be a factor. The commissioner's imprimatur on cases will act as a sound method to assess the actions of the commissioner in office.

In order to promote transparency, public meetings with a quorum of the commissioners present should be encouraged on an as needed basis. This time can also be used to invite interested parties from time to time to attend and speak on an issue, creating an open, public forum. This becomes more important if the commissioners are not attending hearings.

Another measure of accountability is to prohibit *ex parte* communications with a commissioner on any currently pending matters. This insulates the commissioners from being "lobbied" by any party with an interest in a case and also preserves fairness, so that all arguments and evidence are presented in the hearing room with the opportunity for all parties to be present and address the information imparted. Other options are to require that the party who engages in an *ex parte* communication disclose that communication in a letter that is docketed in the case or to require that the opposing party be present.

Regulators can also be proactive in holding public meetings outside of the main offices that are typically in the jurisdictional capital.

V. Summary and Conclusions

In summary, it is essential for improvements in electricity sector performance in Puerto Rico to establish a robust and independent utility regulator. The institution should be fully staffed and resourced, and enjoy full authority to deliver on expectations for effective oversight. Among the most important features of an effective power sector regulator are the following:

- **Establish Clear Roles and Responsibilities, and Legislative Intent**—The roles and responsibilities, along with legislative intent for the commission should be clearly spelled out in legislation.
- **Establish Necessary Authority and Tools**—The commission should have clear authority and the requisite tools to perform its duties in accordance with the legislative intent.
- **Ensure that the Institution is Comprised of Commissioner-Level Experts with Integrity** —Appointments should be based on merit and integrity rather than political affiliation.
- **Ensure Adequate Accountability** —The commission should be held to the responsibility of fulfilling its mission with the filing of annual reports to the legislature, and through the legislative hearings, among other requirements to earn the public trust. Accountability also includes adherence to the highest ethical standards.
- **Establish High Standards of Fair, Transparent, and Efficient Processes** – The regulator should establish procedures that set high standards for fair, transparent, and efficient process.
- **Establish Adequate Funding and Ensure it is Empowered with Adequate Staff and Technical Support**—The commission should be adequately staffed and funded to deliver on its mission. The funding of the commission should be sourced to services from the electricity sector, ideally based on gross revenues generated in Puerto Rico or volume of sales.
- **Promote Sound Long-Range Least Cost Planning**—The planning framework should consider the full range of solutions and broadly frame objectives around minimizing costs through a portfolio of solutions that carefully compare and test a range of options. This is most effectively captured through a robust IRP framework.
- **Promote Energy Efficiency and Customer-Sided Resources**—Strong consideration of alternative sources of energy can help build energy independence in Puerto Rico which is important given the cost of importing fuel.
- **Promote High Standards of Service Quality, Reliability, and Consumer Protection**—The regulator should promote high standards of service quality, system reliability, and basic consumer protections.
- **Ensure an Effective Consumer Advocate Voice**—The regulator should have the benefit of more than one expert voice and perspective in the hearing room. The legislature should establish a separate consumer advocate adequately resources to the task.

The establishment of a fully functional regulator will require considerable time, effort, and resources. The challenges ahead require timely, but considered attention. The regulator can

accelerate the timetable for review through early focused investigation, and testing the viability of solutions from other jurisdictions, while side-stepping those that have not succeeded.

The establishment of a sector regulator offers the promise of improving the performance of the incumbent operator, PREPA in its own right, but also promises to provide a critical foundation for optional reforms that may or may not materialize, based on the pathways chosen by policymakers and the legislature.

Appendix: Regulation Preserves Option Value for Later Reform

Puerto Rico's decision to establish a regulatory body is currently focused on making PREPA, the state owned self-regulated monopoly, more accountable, more efficient, and less costly electricity provider. However, a regulatory body will also broaden Puerto Rico's scope of future options.

A. The Role of Regulation as a Cornerstone of Broader Sector Reforms

The World Bank's formula for reform is generally consistent with those advanced by many academics. The role of an independent regulator is central, but other elements of the formula typically include some form of unbundling of the essential wires services that are intrinsically monopoly and essential, from the generation and retail portions of business that are less characteristic of a natural monopoly.

Sector reform usually includes a number of steps to help spur improvements in performance. While these begin with the establishment of a regulator, these reforms can lead to more ambitious efforts to liberalize segments of service that may be deemed suitable for provision by new providers and the additional capital they can provide. The timeframes for implementing these reform packages can range from a handful of years to decades.⁴⁰

Government ownership and oversight of the electricity monopoly was the more common framework until only 25 years ago. The 1990s and beyond have been marked as a period of sector reform in developed, transitioning, and developing regions of the world. Power sector reform is generally acknowledged to have many precipitating concerns and potentially multiple solutions. The concerns overlap with those currently experienced in Puerto Rico, but each energy jurisdiction has different issues.⁴¹ Although many experts caution against a formulaic approach to reforms, the elements of reform are generally well worn and are described below. The establishment of a capable and independent regulator, or a government body that can play that role, is almost always a central feature. But the regulator is often poorly constructed.⁴²

The creation of independent regulatory agencies with good information about the costs, service quality and comparative performance of the firms supplying regulated network services, the authority to enforce regulatory requirements, and an expert staff to use this

⁴⁰ Reforms in many Latin American countries have been advanced over a relatively short period. Reforms that appear achievable in a few years include some form of corporatization, the establishment of a regulator, effective planning, designs for a management incentive plan, and some steps toward strengthening the competitive dynamics around the participation of independent suppliers.

⁴¹ Among the most common are under investments needed to maintain system expansion, system reliability, and service quality. Problems here are often rooted in government's failure to price services to recover overall costs, government failure to pay for electricity services provided to the government as a consumer, and the failure of governments to more generally foster investor confidence in repayment under reasonable terms.

⁴² For example, with the passage of the "third energy package," the European Commission passed Directive [2009/72/EC](#) and repealed Directive 2003/54/EC. This recent Directive recognized the need to strengthen the independence of national regulators, and therefore created a new set of requirements for Member States regarding independent energy regulatory authorities.

*information and authority to regulate effectively the prices charged by distribution and transmission companies and the terms and conditions of access to these networks by wholesale and retail suppliers of power, are also an important but underappreciated component of successful reforms.*⁴³

Most developed nations in the world including most of the US, EU, Australia, and UK have undergone substantial sector reforms. As noted above, most of the economies of the world have embarked on power sector reforms. Credibility of a sector regulator is recognized as needed to attract long-term, private, at-risk investment in electricity services.

In most instances, the initial stages of reform first include the establishment of legal and regulatory reforms, or the establishment of a regulator that pre-dated more recent reforms. These reforms have been most substantial and advanced in more developed regions of the world, including the UK, continental US, Australia, New Zealand, and, as noted above, is a requirement for all Member States in the EU. Yet they also exist in most of the developing regions. Because of the complex and sometimes lengthy timeframes involved in a sector reform effort, distilling clear and simple conclusions about how regulation has impacted sector performance can be challenging.⁴⁴

The role of an independent regulator is generally recognized as central, but other elements of the formula typically include one or more of the following steps to help spur improvements in sector performance: (1) corporatize and potentially privatize some level of the commercial operations in the power sector provider, (2) introduce wholesale competition, usually through a competitive bid process, (3) introduce competition in retail, or segments of retail service, (4) separate competitive services from regulated monopoly services, and (5) create codes of conduct.⁴⁵ The timeframes for implementing these reform packages can range from a few years to decades as these reforms can be developed and implemented in stages.

In summary, the establishment of a sector regulator can be viewed as a significant step toward improving sector performance in its own right, but can also be viewed as a mechanism to broaden the scope of future options to include more substantial reforms listed by the World Bank and prominent academics. The scope of change here is a policy choice - to be decided by Puerto Rico policy-makers in the future - but can have considerable bearing on the opportunities and risks associated with sector reforms. The decision to incorporate private commercial service

⁴³ Joskow, 2008.

⁴⁴ In many regions, the reforms are associated with removal of artificially low price levels, and so can be associated with higher prices that follow reduced subsidies. (Besant-Jones, 2006)

⁴⁵ Although bilateral trading of wholesale power occurs throughout the continental US, formal wholesale markets only exist in two-thirds of the nation (by population) and retail competition only exists in 16 of the 50 states and DC. Even this figure may be misleading since only a fraction of customers in these states are actively engaging competitive providers other than the incumbent utility as the default provider, and more business than residential customers participate in choosing a provider. Notwithstanding the above, where wholesale supply auctions take place that set a standard service offer as a default rate, all customers are subject to the competitive market prices.

providers can both increase the need for a regulator, but also enhance its ability to employ meaningful financial incentives and penalties to manage performance.

Even in regions that have not undergone any material reforms other than corporatizing the energy provider, there exists a sector regulator. Much of the US has made only limited progress on further reforms, but a sector regulator is ubiquitous covering state and federal electricity sector oversight.

B. Regulation Provides Opportunity for Later Reforms, if Warranted

As noted earlier, the role of the regulator can be effective in shaping and implementing improvements in the performance of the sector. The ability of the regulator to implement certain actions may be stronger in concert with certain other reforms. The establishment of a regulator can help to provide a framework for managing costs, and the recovery of those costs in ways that address longer-term investor concerns. If the intent of the legislation is to establish a pathway toward reforms, the regulator, in concert with PREPA, can help to frame that path forward.

C. Legislation Should be Broad and Enabling

Legislation should clearly establish the aspirations for sector reforms and leave it to a capable and fully funded regulator to organize the path forward. Given the experience of the many nations that have embarked on reform initiatives, it is clear that the formula and timeframes for reforms are highly situational. With clear guidance embedded in legislation and complemented with steps toward accountability, the establishment of a sector regulator charged with overseeing further steps toward sector reform may be desirable.

An important feature of the role of the regulator is that of a convener of competing interests. The tension that is associated with regulatory oversight in the face of such conflicting interests, along with increasing transparency, can motivate better performance and transparency, along with the honesty that comes from awareness that many eyes can examine everything and a reminder of the larger purpose of the utility.⁴⁶

D. Creation of Competition Can Further Reduce Costs

Layered on top of regulation is the opportunity for competition. Options for competition that can be developed incrementally in stages if deemed to be in the public interest include:

- Competitive bids for new resource options;
- Development of a wholesale market for the sale of electricity; and
- Development of a retail market to provide customers with a choice of ESPs and products.

⁴⁶ Of course, not effectively managed, this tension can also produce an adversarial atmosphere that can lead to wasted effort and insulated regulators if the architects are not careful and thoughtful. The job of the regulator is to manage the process to effectively channel the conflicts toward constructive solutions.

Note that as the regulatory paradigm is created, the policymakers in Puerto Rico can decide whether to advance to each of these next steps in accordance with how events unfold and what is viewed to be in the public interest. With respect to each of these elements, the market design will be important, but in the end analysis, the onus will be on the new provider to beat the incumbent ESP's price in order to succeed. Thus this represents a clear gain for consumers. If the incumbent ESP decides to participate in a competitive bid for new generation or in the wholesale market and appropriate mechanisms are put in place to ensure no competitive advantage, then the benefit becomes obvious. Either in the face of competition, the incumbent ESP offers a lower price or the competition provides one. If the incumbent ESP does not participate, it will be important to create a market design that encourages robust competition with multiple competitors. As a check that the prices are just and reasonable, the commission would have the authority to approve any bids or wholesale prices and could reject them if it deems that the incumbent ESP could provide electricity for less. Having this regulatory oversight on the competitive process provides customers with the necessary protections against prices that would be higher than what would exist in the absence of such competition.

As to retail competition, in order to protect customers and ensure that the lowest rates are available, the commission should maintain a default rate or standard service offer rate based on the wholesale auction. This then becomes the price to beat for retail providers. With the advent of retail competition, new providers can also offer customers other products such as renewable energy if price is not the driver for that customer. This then provides customers with more options.

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