



**COMMONWEALTH OF PUERTO RICO  
PUERTO RICO ENERGY COMMISSION**

**IN RE:** COST ALLOCATION, RATE DESIGN, AND  
RELATED ISSUES FOR THE PUERTO RICO  
ELECTRIC POWER AUTHORITY

**CASE NO.:** CEPR-IN-2017-0001

**SUBJECT:** Notice of Investigation.

**NOTICE OF INVESTIGATION  
OF RATE DESIGN, COST ALLOCATION, AND RELATED ISSUES  
APPLICABLE TO THE  
PUERTO RICO ELECTRIC POWER AUTHORITY**

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## I. INTRODUCTION AND BACKGROUND

On May 27, 2016, the Puerto Rico Electric Power Authority (“PREPA”) submitted its first petition for rate review to establish permanent rates with the Puerto Rico Energy Commission (“Commission”)<sup>1</sup>. The Commission had 180 days to review PREPA’s proposal once it determined the filing was complete.<sup>2</sup>

PREPA had not conducted a formal review of its base rates since 1989. The Commission recognized from the beginning that its task would be complicated because of PREPA’s unfamiliarity with the process of providing transparent and reviewable data and explanations.

As part of the case proceeding, the Commission reviewed PREPA’s application through numerous requirements of information and Technical Hearings. The Commission identified significant gaps in PREPA’s data, costs, and methods.

The Commission, determining that there was inadequate time to address all of the issues within the general rate proceeding in the statutory time limit, issued a Resolution on November 3, 2016<sup>3</sup> (“November 3 Resolution”) deferring several aspects of the rate case—cost allocation, the marginal cost study, and review of rate designs—to a new proceeding.

The November 3 Resolution stated that

The insufficiency of the information provided by PREPA and discrepancies that have arisen during the discovery process, specifically relating to cost allocation and rate design, combined with the shortness of time afforded by Act 83 and Act 57-2014, prevent the Commission from undertaking the detailed, intensive work necessary to allocate revenue responsibility and design rates with the precision the Commission would otherwise wish to achieve.<sup>4</sup>

It further stated that:

The Commission, therefore, determines it is in the best interest of the public and the electric service consumer to ensure the time and resources

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<sup>1</sup> The Commission evaluated the filing within Case No. CEPR-AP-2015-0001, the first proceeding by an independent regulatory entity to review PREPA’s proposal to modify rates.

<sup>2</sup> Section 6.25(f) of Act 57-2014, Puerto Rico Energy Transformation and RELIEF Act, as amended, requires the Commission to complete such review within 180 days from the date PREPA’s rate proposal filing was considered to be complete by the Commission.

<sup>3</sup> Resolution, Case No. CEPR-AP-2015-0001, November 3, 2016.

<sup>4</sup> *Id.*, p.2.

necessary to achieve just and reasonable rates are adequately allocated to those issues which require more time than what is available. Accordingly, the Commission hereby identifies those allocation and rate design issues to be addressed in this proceeding and those it will defer to a later proceeding scheduled to begin soon after the conclusion of the instant case.<sup>5</sup>

On January 10, 2017, the Commission issued a Final Resolution and Order (“Final Order”), which identified additional items to be considered in a subsequent rate proceeding.

PREPA filed a Motion for Clarification on January 20, 2017, regarding several issues in the Final Order, and a Motion for Reconsideration on January 30, 2017, questioning the Commission’s authority to intervene in PREPA’s setting of revenue requirements, methods, and cost allocations. The Commission issued a Final Resolution on the Reconsideration on March 8, 2017 (“Final Resolution on Reconsideration”) addressing PREPA’s requests for clarification and reconsideration. The Commission confirmed its statutory authority under Act 57-2014 and Act 83<sup>6</sup> to engage in “all types of operations, processes and mandates pertaining to the efficiency of the energy sector of the Island”<sup>7</sup> to include the setting of PREPA’s rates and recovery mechanisms. The Commission also provided additional direction for the upcoming rate proceeding.

In the Final Resolution on Reconsideration, the Commission reiterated its dissatisfaction with PREPA’s failure to reflect cost causation in its embedded cost of service study and its marginal cost study, and its reliance on outdated and inconsistent load shapes by class lacking coincident peak and customer maximum demand data.<sup>8</sup> The Commission also addressed PREPA’s lack of a load research program and stated its intention “to work with PREPA and any interested customer groups to design a program that will produce the information necessary to set just and reasonable rates”,<sup>9</sup> as part of the rate design proceeding.

## II. THE COMMISSION’S GOALS FOR THIS PROCEEDING

The Commission recognizes the complexities of establishing processes to enable the design of efficient and equitable rates that will ultimately assist in transforming PREPA to sustainable financial health.

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<sup>5</sup> *Id.*, p.2.

<sup>6</sup> Act No. 83 of May 12, 1941, Puerto Rico Electric Power Authority Act, as amended.

<sup>7</sup> Final Resolution on Reconsideration, p. 18, Case No. CEPR-AP-2015-0001.

<sup>8</sup> *Id.*, pp. 30-31.

<sup>9</sup> *Id.*, p. 3.

This proceeding will address those items identified in the November 3 Resolution, the Final Order and Final Order on Reconsideration for either deferral or inclusion in the current rate design proceeding, including the cost of service, marginal cost and rate design, CILT and subsidies, specific riders and distributed generation. This proceeding will provide guidance to the Commission in the following areas:

1. Determining what data PREPA needs to acquire or improve, and the timing and cost of acquiring such data.
2. Identifying improvements that are feasible in the near term, including more equitable cost allocation and more efficient rate design, potentially including improved design of net metering rates and other rates for distributed generation.
3. Identifying areas in which PREPA should be pursuing further improvements over time, as data and other resources become available.
4. Providing input and resources to subsequent rulemaking and adjudicatory proceedings, including rate-setting proceedings.

### III. AREAS OF INVESTIGATION

This proceeding will include an in-depth investigation of the deferred rate design and cost allocation issues as previously identified and described by the Commission. This proceeding will also investigate the availability of PREPA's data and its completeness.

#### A. Improving the Cost-of-Service Study

The cost-of-service study ("COSS") submitted with PREPA's original filing was "insufficient for the Commission to determine the reasonableness of the results."<sup>10</sup> Furthermore, the Commission stated that "PREPA has performed no formal load research analysis, nor explained how it estimated the loads for most classes."<sup>11</sup> The Commission determined that PREPA's COSS could not be used to determine an appropriate allocation of revenue requirements and therefore allocated the revenue increase on an equal across-the-board basis as part of the determinations of the first review of rates.<sup>12</sup> As the Commission explained:

A central principle of just and reasonable ratemaking, economic efficiency and equity is that costs should be borne by those who cause them. Once a Commission determines customer classes, tariffs and tariff codes, the next step

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<sup>10</sup> Resolution, November 3, 2016, p. 3, Case No. CEPR-AP-2015-0001.

<sup>11</sup> *Id.*, p. 4.

<sup>12</sup> Final Order, p. 6, CEPR-AP-2015-0001.

is to determine how customers in those various categories cause the utility to incur costs. The starting point for determining cost causation is a cost-of-service-study (“COSS”).<sup>13</sup>

The purpose of the cost-of-service methodology is to assign the proper cost responsibility to the various customer classes, based on such system cost drivers as electricity usage patterns and costs directly required to serve the various classes. A valid COSS would also guide the choice of how much revenue will be collected from each class and may also be used to inform the design of rates for each class. The Commission desires to establish rates that are based on cost. As stated in the Final Order:

The Commission is fully committed to setting rates that are guided by a COSS in which we have confidence. But the gaps, in data, along with the numerous subjective and debatable judgements in PREPA’s COSS, leave us without confidence that PREPA’s COSS describes cost causation accurately. During 2017 the Commission will work with PREPA and intervenors to solve these problems.<sup>14</sup>

The COSS is only as reliable and accurate as the data it relies upon. Improving PREPA’s analysis of cost causation must start by addressing PREPA’s identified gaps in data and cost information. The analysis that PREPA provided as part of the first rate review proceeding relied on inconsistent sources of load data, missing data (including the lack of data on contributions to coincident peak), and the application of demand allocators of dubious relevance to cost causation.<sup>15</sup> The Commission has identified the following “necessary inputs and assumptions”<sup>16</sup> to a cost-of-service study:

1. Data on customer demand (or “load”) at different times of the day, week, month and year;
2. A separation of distribution investment among types of equipment, such as among substations, poles, transformers and lines, which are normally allocated separately from one another, since various rate classes require different mixes of that equipment;
3. The fraction of distribution investments made necessary by the number of customers, as opposed to load levels;
4. Identification of the fraction of distribution investments required only for customers served at secondary voltages as opposed to primary voltages;

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<sup>13</sup> *Id.*, ¶ 315.

<sup>14</sup> *Id.*, p. 5.

<sup>15</sup> See Mr. Chernick’s expert report (pp. 40–43) for a detailed discussion of missing or and incomplete data identified in PREPA’s submission.

<sup>16</sup> Resolution, November 3, 2016, p. 3, Case No. CEPR-AP-2015-0001.

5. The portion of fixed generation costs incurred to reduce energy costs, as distinct from the portion incurred to serve demand;
6. Line losses on the transmission and distribution system at peak conditions and over the course of the year, by voltage level;
7. The extent to which load in various hours of the year contribute to the need for peak-related generation, transmission and distribution investments; and
8. The contribution of each rate class to load in those critical hours.

The Final Order identified the following five specific problems found in PREPA's functionalization and classification decisions with the COSS:<sup>17</sup>

1. Incorrect assignment of all fixed costs of generation as demand-related ignoring any generation to diversify fuel sources, reduce emissions, improve fuel efficiency, access less expensive fuels.
2. Ignored any transmission functionalized as generation applying all costs to transmission.
3. Incorrect allocation of distribution service costs for primary vs. secondary distribution service.
4. Arbitrary allocated customer-classified costs based on a meter based customer weighting by tariff code.
5. Incorrect assignment of all overhead costs on a single labor factor, assuming such costs are all related to labor.

## **B. Improving Rate Design**

Numerous rate-design issues have been deferred to this process, due to lack of time in the rate-case schedule. Many of the issues are related to the estimation of marginal costs, while others relate to generic approaches to rate design (customer, demand and energy charges, time-of-use ("TOU") rates) and to the specific rate designs for particular tariffs. Rate design is important because this is where the cost responsibility within each class is determined based on the customer usage of the system and designed so that usage patterns are influenced by the rate structure.

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<sup>17</sup> Final Order, ¶ 324, Case No. CEPR-AP-2015-0001.

The November 3 Resolution specifically deferred the following nine rate design issues to the current proceeding:<sup>18</sup>

1. *Inclining blocks for residential rates.*
2. *Rebalancing energy and demand charges.*
3. *Optimizing existing time-of-use rate prices and periods*, which requires an analysis of variation in marginal cost costs by time of use.
4. *Seasonal rates.*
5. *Expanding TOU options.*
6. *Structure of the GSS rate*, including exploring further the options for disaggregating the GSS tariff.
7. *Net metering and DER rates.*
8. *Discounted residential rates*, including a comprehensive review simplification and coordination of the three tariffs [RH3, LRS, GRS 111].
9. *Unbundled rates.*

In the Final Order, the Commission identified the following rate design items to be reviewed in the current proceeding:

1. Fuel Discount. "PREPA shall restructure the fuel discount for customers on LRS, RH3 and GRS 111 tariffs, simplified as proposed in PREPA's filing, but modified so that the discount diminishes gradually over 425 kwh, rather than abruptly."<sup>19</sup>
2. Direct Debt credit. "In the rate design proceeding, PREPA shall present a business case that describes the benefits and costs of this discount."<sup>20</sup>
3. Time-of-use rates. "We will address the issue of time-of-use rates in the upcoming rate design proceeding."<sup>21</sup> "PREPA shall eliminate the ratchets and contract charges from these tariffs, and increase the on and off-peak energy charges in each tariff uniformly to recover the allocated revenue increase."<sup>22</sup>

<sup>18</sup> Resolution, November 3, 2016, pp. 6-8, Case No. CEPR-AP-2015-0001.

<sup>19</sup> Final Order, pp. 122, 179, Case No. CEPR-AP-2015-0001.

<sup>20</sup> *Id.*, pp. 123, 179.

<sup>21</sup> *Id.*, p. 125.

<sup>22</sup> *Id.*, p. 179.



4. Load-retention Rider. The Commission seeks review of PREPA's proposed guidelines for compliance with the load-retention rider that will guide Commission's approval process and not produce rates below marginal cost.<sup>23</sup>
5. Lighting and unmetered rates. The Commission seeks a full review of the increase in each component of the public lighting and unmetered tariff and a review of the revenue allocation to each class.<sup>24</sup>
6. Fuel and purchased power. The Commission seeks assistance in determining the dollar level threshold limit that will be used as the triggering mechanism to an accelerated adjustment in the FCA and PPCA.<sup>25</sup>
7. Customer Charge. A review of the risk a marginal cost based customer charge presents PREPA in not recovering its fixed costs.<sup>26</sup>

Additional tariff issues that the Commission would address in this investigation include the following:

1. Whether the fuel and purchased-power adjustments should include line-loss adjustments.
2. How the facilities charges for lighting equipment should be set, including charges for new services.
3. How customer charges should be set, particularly for the GRS and GSS tariffs.

### C. Marginal Costs

The marginal cost study estimates the incremental costs to serve additional customers, energy, and various types of peak loads. The results are useful in guiding the Commission in setting energy rates (including time-of-use rates) and fixed customer charges, designing net-metering compensation, setting avoided-cost rates for non-renewable distributed generation and evaluating the reasonableness of rate discounts. As stated in the November 3 Resolution:

Marginal cost studies are often used to support decisions regarding (a) whether energy rates should rise or fall with consumption levels; (b) the size

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<sup>23</sup> *Id.*, pp. 126, 135, 180.

<sup>24</sup> *Id.*, pp. 128, 180.

<sup>25</sup> *Id.*, p. 131.

<sup>26</sup> *Id.*, p. 120.

of time-of-use (“TOU”) rate differentials; and (C) how to set rates to recover the costs of peak demand. PREPA relied on the marginal cost study to support its proposals about distributed-energy and net-metering rate design, the load retention-rider, the rejection of seasonal and TOU rates, and ending the inverted energy charge in the GRS rate.<sup>27</sup>

The Commission has determined that PREPA’s marginal costs are unreliable. Therefore, the Commission directs the participants in this proceeding to revisit the following seven deficiencies identified by the Commission as part of the analysis of PREPA’s marginal cost study, and include such in their public comments as discussed below.<sup>28</sup> The deficiencies are:

1. Unrealistic fuel prices.
2. Failure to reflect the costs of renewable resources required to meet the renewable portfolio standard.
3. The assumption that no load-related generation investments are avoidable for 20 years.
4. The assumption that no load-related transmission investments are avoided for 20 years.
5. The treatment of large amounts of load-related distribution investments as unavoidable.
6. Ignoring the operation and maintenance costs of additional distribution plant.
7. Failure to distinguish between marginal and average losses.

In the November 3 Resolution, the Commission expanded the last point, noting that “PREPA did not provide a sufficient evidentiary basis for estimating either the average or marginal line losses, by voltage level or time period, for energy or peak demands,”<sup>29</sup> and also observed that PREPA’s allocation of costs between peak and off-peak hours is counterintuitive, assigning the peak-related costs to the off-peak hours.

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<sup>27</sup> Resolution, November 3, 2016, p. 4, Case No. CEPR-AP-2015-0001.

<sup>28</sup> Final Order, p. 118, Case No. CEPR-AP-2015-0001.

<sup>29</sup> Resolution, November 3, 2016, p. 5, Case No. CEPR-AP-2015-0001.

## **D. Rates for Distributed Generation**

### **Renewable net metering**

In the Final Resolution on Reconsideration, the Commission clarified the difference between renewable net-metering customers and non-renewable distributed generation, specifically recognizing separate rate treatment. The Commission deferred rate design for distributed generation and net metering treatment to the current proceeding in the November 3 Resolution. The Final Order only addressed the treatment of credits charges and exclusions for net-metering customers.<sup>30</sup> In this investigation, the Commission intends to review the measurement of exported energy.

### **Contribution of distributed generation to system cost reduction**

The Commission intends to investigate the value of solar and other distributed resources to PREPA's system and hence to ratepayers. Many of the inputs to this analysis will come from the marginal-cost study, but those results will need to be tailored to the specific timing of the output of the distributed systems and the timing of delivery of energy to the distribution system. This tailoring would include such factors as:

- i. The value of generation energy weighted by the pattern of distributed-generation output.
- ii. The contribution of various distributed-generation resources to reducing the need for central generation capacity or improve the reliability of the system.
- iii. The extent to which distributed generation effects load at the peak hours for transmission and distribution capacity.
- iv. The environmental benefits of distributed generation resources (e.g., reduced CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub> emissions, avoided environmental compliance fines).
- v. Effect of distributed generation on transmission and distribution line losses.

### **Subsidies and Related Issues**

The Commission intends to investigate the following topics regarding Subsidies and other related issues, as follows:

- i. How PREPA can ensure that it bills the municipalities the consumption of electricity at for-profit businesses affiliated with such municipalities.

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<sup>30</sup> Final Order, ¶ 391, Case No. CEPR-AP-2015-0001.

- ii. How the Commission can ensure that the Irrigation District subsidy is minimized, consistent with PREPA's legal responsibilities.
- iii. How PREPA can track subsidies in the COSS and rate design.
- iv. Whether the GAS rate and the special treatment for condominium common areas, houses of worship, social-service agencies, and rural aqueducts constitute subsidies.

#### **IV. PUBLIC COMMENTS**

The Commission is seeking comments from interested stakeholders which shall be due on May 19, 2017. The purpose of these initial questions is to seek information that will be helpful to the Commission in the establishment of the scope of work for the investigation. Interested stakeholders should respond to the following questions:


1. Has this Notice of Investigation listed all the issues related to rate design and cost allocation that should be addressed prior to PREPA's next rate adjustment? If not, which issues should be added to the list?
2. For each additional topic that you recommend the Commission investigate in this proceeding, please describe in detail why the topic should be investigated.
3. Are there issues listed in this Notice of Investigation that are of high priority, and others that can be delayed to the next ratesetting proceeding or beyond?
4. Do you have information, such as data on the pattern of distributed-generation output, or the load shape for particular facilities, that it would like to share with the Commission to assist in this investigation?
5. What are your concerns and recommendations regarding the issues enumerated in this Notice of Investigation?

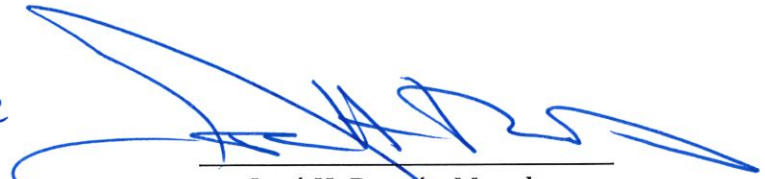
Based on the foregoing the Commission, by this Notice of Investigation, commences this rate-design and cost-allocation proceeding.

For the benefit of all the parties involved, the Commission issues this Notice of Investigation in English and Spanish. Should any discrepancy between each version arise, the English version shall prevail.



Be it notified and published.

  
Ángel R. Rivera de la Cruz  
Associate Commissioner


  
José H. Román Morales  
Associate Commissioner

**CERTIFICATION**

I hereby certify that the Puerto Rico Energy Commission has so agreed on April 24, 2017. The Chairman Agustín Carbó Lugo did not intervene. I also certify that a copy of this Notice of Investigation was notified by electronic mail to the following: j-morales@aepr.com, c-aquino@aepr.com and n-ayala@aepr.com. I further certify that on April 24, 2017, I have proceeded with the filing of this Notice of Investigation and I have sent a copy thereof to:

**Autoridad de Energía Eléctrica de Puerto Rico**  
Attn.: Lcdo. Javier Morales Tañón  
Nélida Ayala Jiménez  
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For the record, I sign this in San Juan, Puerto Rico, today, April 24, 2017.

  
María del Mar Cintrón Alvarado  
Clerk