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IN RE: PETICION DE ORDEN DE REESTRUCTURACION DE LA CORPORACION PARA LA REVITALIZACION DE LA AEE	CASO NÚM.: CEPR-AP-2016-0001

MOCIÓN SOMETIENDO TESTIMONIOS

A LA COMISIÓN DE ENERGÍA:

Comparece el Instituto de Competitividad y Sostenibilidad Económica de Puerto Rico (en adelante, "ICSEPR") por conducto de la representación legal que suscribe y, muy respetuosamente, ante esta Comisión expone, alega y solicita:

1. En cumplimiento con las ordenes de la Comisión se acompaña los testimonio de Fernando E. Agrait y Theodore Kuhn.

POR TODO LO CUAL, se solicita muy respetuosamente de esta Comisión tome conocimiento de lo antes expresado.

RESPETUOSAMENTE SOMETIDO.

CERTIFICO: Haber enviado copia fiel y exacta de este escrito a por correo electrónico a equinones@qalawpr.com y glenn.rippie@r3law.com.

Y por correo regular a:

COMISIÓN DE ENERGÍA DE PUERTO RICO
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Corporación para la Revitalización de la Autoridad de Energía Eléctrica, Quiñónes & Arbona, PSC, Edwin Quiñónes, Víctor D. Candelario- Vega, Giselle M. Martínez-Velázquez, Richard Hemphill Cabrera, PO Box 10906, San Juan, Puerto Rico 00900; Grupo Windmar, Lcdo. Marc G. Roumain Prieto, 1702 Avenida Ponce de León, 2do Piso, San Juan, Puerto Rico 00909, Oficina Estatal de Política Pública Energética, Lcdo. Edwin J. Quiñónes Porrata, PO Box 41314, San Juan, Puerto Rico 00940 y a la Lcda. Coral M. Odiot Rivera, 268 Hato Rey Center, Suite 524, San Juan, Puerto Rico 00918.

En San Juan, Puerto Rico, a 9 de mayo de 2016.

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Question ("Q"): Please state your name and business address.

Answer ("A"): Fernando E. Agrait, Office 414, Centro de Seguros, 701 Ponce de Leon Avenue, San Juan, Puerto Rico 00907.

Q: Please describe your current employment.

A: Since 2000, I have been full time as a private attorney specializing in commercial, banking, corporate, administrative law, government relation, and labor laws. Since 1997, I have been Secretary of the Board of Directors of Centro Médico Del Turabo, Inc. (now Grupo HIMA•San Pablo). Since 2000, I have served on the Boards of Directors of Aireko Construction, as well as Antilles Cement Corp. and related corporations, among others.

Q: Please describe relevant past employment and experience.

A: I have served in many academic positions at the University of Puerto Rico, including President and Professor of Law. In other areas of public service, I have served as Assistant Secretary and Undersecretary of the Puerto Rico Department of Justice, Special Advisor on Legislative and Government Affairs in the Office of the Governor, Vice President of the Puerto Rico Legislation and Jurisprudence Academy, Member of the International Program Advisory Board of the National Science Foundation, Member of the Advisory Committee on Civil Procedure of the Puerto Rico Supreme Court, and Member of the National Advisory Board Sea Grant Program of the U.S. Department of Commerce. I have also served as a Member of the Council on Puerto Rico-United States Affairs, a Member of the Industrial Advisory Council, and Chair of the Governor's Adjunct Council on Science and Technology.

Q: Please describe your educational background.

A: I received a Bachelor Degree in Business Administration with a major in accounting and a J.D. from the University of Puerto Rico, as well as an LL.M from Harvard University. In addition, I received Honorary Doctorates from the City University of New York and the University of South Carolina.

Q: On whose behalf do you appear in this proceeding?

A: Instituto de Competitividad y Sostenibilidad Económica de Puerto Rico (ICSE-PR).

Q: What is the purpose of your testimony in this proceeding?

A: My testimony describes the laws governing this proceeding, and how they should be interpreted and applied. My testimony also recommends Commission action in this proceeding.

Q: What are the laws governing this proceeding?

A: Act 57 of 2014 and Act 4 of 2016.

Q: Please describe these laws.

A: With great clarity Act 57 identifies how "costly" electricity service is in Puerto Rico, which "impedes economic development" and hinders efforts to stimulate the economy. The act's preamble describes Puerto Rico as "hostage to an inefficient energy system." To address this problem (in addition to reducing air contamination), Act 57 aims to transform PREPA, move the Commonwealth to save energy consumption; promote net metering and renewable energy; establish "regulation" to promote the use of " highly efficient fossil generation", based on an integrated resource plan with a 20-year horizon.

Furthermore, the Puerto Rico Legislature and the Governor, committed to Act 57's goals of "Puerto Rico Energy Transformation and RELIEF" with the broadest citizen participation.

Section 1.2 of Act 57 provides the following Public Policy Statement on Electric Power:

> "(a) The cost of the electric power generated, transmitted, and distributed in Puerto Rico shall be affordable, just, and nondiscriminatory for all consumers; (b) The availability of energy supply shall be guaranteed to the People; (c) The implementation of the public policy on energy shall be an ongoing planning, consultation, execution, evaluation, and improvement process in all energy-related matters; (d) The implementation of strategies geared toward achieving efficiency in the generation, transmission, and distribution of electric power shall be sought in order to guarantee the availability and supply thereof at an affordable, just, and reasonable cost; (e) The safety and reliability of the electricity infrastructure shall be guaranteed by integrating clean and efficient energy and using modern technological tools that promote economic and efficient operations; (f) The electrical infrastructure shall be maintained in optimum conditions as to ensure the reliability and safety of the electric power service; (g) The Island shall become a jurisdiction with diversified energy sources and high efficiency electric power generation. To achieve this, it shall be necessary to reduce our dependence on energy sources derived from fossil fuels, such as oil, and to develop short-, medium-, and long-term plans that allow us to establish a well-balanced and optimum energy portfolio for the electrical system of the Commonwealth of Puerto Rico;..."
>
> ...
>
> "..(m) Prices shall be based on the actual cost of the service provided, efficiency standards, or any other parameters recognized by government and non-governmental organizations specialized in electric power service;..."

In the same manner, the following language of Section 2.6 summarizes the mandate of Law 57:

> "The Authority shall rise to energy and environmental challenges by using scientific and technological advances available; incorporate the best practices in the electric power industries of other jurisdictions; make the connection of renewable energy producers to the electric power grid feasible; carry out any process needed to make the electric power generated in Puerto Rico, whether by PREPA, co-generators, or independent power producers, highly efficient and clean for a better environment and public health."

Meanwhile, Act 4 defines itself not as a separate legislative act but as a "link" in a chain of PREPA reform efforts, beginning with Act 57:

> "The Authority's transformation does not begin with the approval of this Act. This legislative piece is just one link in the chain of efforts that have been and will be carried out by this Administration for the benefit of all customers. The Energy Commission was created upon the approval of Act No. 57-2014, as amended, known as the "Puerto Rico Energy Transformation and RELIEF Act." Said Commission is in charge of overseeing and following up the services received by customers, as well as rate reviews, among others. It is worth noting that the Commission continues to be empowered to approve any rate review, a power that was granted thereto under Act No. 57-2014, supra. It is also hereby granted additional review and approval powers to ensure that the Authority's transformation is carried out fully and transparently. Citizen participation was and still is a key element in the Authority's transformation. Moreover, customers have the Independent Consumer Protection Office (ICPO), whose function is to represent and defend them before the Authority and the Commission; and the Commonwealth Energy Public Policy Office (CEPPO) in charge of developing and promulgating the public policy on energy of the Commonwealth of Puerto Rico, including review and issue of comments on plans presented by of PREPA, ensuring that such plans are consistent with the established public policy on energy."

As such Act 4 does not stand alone.

Q: What Commission actions regarding PREPA's securitization proposal are contemplated by Act 57 and Act 4?

A: With regard to the process the Commission should use to review PREPA's debt securitization proposal, Section 35 (b)(i) of Act 4 states:

> (i) Except as otherwise provided by law, the Corporation shall submit a petition to the Commission enclosed with by a proposed Restructuring Resolution and such other information as required in Section 6.25A of Act No. 57-2014. Pursuant to Section 6.25A of Act No. 57-2014, the Commission shall review the proposed Restructuring Resolution and such other information to determine whether the calculation methodology followed by the Corporation for the Transition Charges and the Adjustment Mechanism to be applied to adjust the Transition Charges is consistent with the cost allocation and other standards set forth in Section 6.25A of Act No. 57-2014, and is not arbitrary or capricious. The Commission shall hold one or more public hearings in connection therewith, as provided in Section 6.25A of Act No. 57-2014. The Corporation may not adopt a Restructuring Resolution unless the Commission has either approved a Restructuring Order or the Commission has lost jurisdiction as provided in Section 6.25A of Act No. 57-2014. The Corporation shall adopt a Restructuring Resolution within five (5) business days after (A) the Commission has approved the corresponding Restructuring Order, or (B) the date on which the

> Commission has lost jurisdiction, as provided in Section 6.25A of Act No. 57-2014."

Also, Section 6.25 of Act 57 (as added by Article 20 of Act 4) provides:

> "(2) Within seventy-five (75) days after the Corporation's Request Date, the Commission shall issue a Restructuring Order stating the findings and determinations related to the Corporation's request, filed in accordance with subsection (b) of this Section 6.25A or as otherwise required by this Section 6.25A, or shall adopt a resolution rejecting the request and stating the grounds therefor. The Commission shall not limit, qualify, amend, or otherwise modify the Restructuring Resolution."

In addition, with regard to paying the principal and interest of bonds or debt of PREPA, Section 2.8 of Law 57 states:

> "The Commission shall guarantee that the approved rate will be sufficient to: (i) guarantee payment of principal of and interest on bonds and other financial obligations of PREPA; and (ii) comply with the terms and provisions of the agreements entered into with or in benefit of buyers or holders of any bonds or other financial obligations of PREPA. The Commission shall establish a fixed charge on the rate that shows the amount that customers shall pay on account of PREPA's obligations to bondholders. The Commission shall review this charge in light of PREPA's financial obligations, so that it is sufficient to guarantee the annual payment of PREPA's obligations to bondholders."

Q: How should the Commission interpret its responsibilities under two separate laws regarding PREPA's proposed securitization?

A: With regard to laws concerning the same subject matter, Article 18 of the Civil Code of Puerto Rico (31LPRA18) indicates: "Laws that relate to the same subject or the object is the same, should be interpreted referring to each other, since what it is clear in one of its precepts can be taken to explain whatever is doubtful in another."

Similarly, a law should not be analyzed in a segment or section, separated or isolated from others, but should be interpreted as a whole. See "Pueblo en interes de menor" LRR 125 DPR 70 (1989). See also opinions of the Secretary of Justice 24 of 1989; 24 of 1978; 41 of 1974. In this context, the Commission, created by Act 57 of May 27, 2014, has to interpret its own powers and exercise the powers delegated by Act 57, above, as the powers under the Act 4 of February 16, 2016. Furthermore, Act 4 itself should be interpreted as a whole; that is, by evaluating all the powers delegated to the Commission and not in a fragmented manner.

Q: How should the Commission apply its responsibilities under Act 57 and Act 4?

A: As shown above, PREPA's restructuring efforts and the enactment of new public policy are all focused on achieving the lowest possible cost coupled with less pollution, more power options, more renewable energy, and facilitating interconnection and integration to PREPA's electric power grid, among other purposes. The Commission must ensure these goals are furthered by PREPA's proposed securitization. Accordingly, the Commission's exercise of its powers under the Act 4 cannot alter or revoke the requirements nor its obligations under Law 57 while executing the required evaluation in this proceeding.

Act 4 notes:

> "As a result of the accumulation of debt over the years and the lack of capital to invest in infrastructure, the Authority began to decline until it became obsolete. The high dependence on fossil fuels have resulted in an inefficient productivity and an increase in energy prices. Furthermore, partisan political influences have led to a lack of trust and credibility in the Authority. Currently, the Authority's debt amounts to $9 billion and, as of the summer of 2014, it was facing the maturity of fuel lines of credit amounting to nearly $700 million, while it could not tap into capital markets nor secure other sources, including the central government, to refinance them.
>
> "This legislation seeks to provide the Authority with the tools it needs to become a self-sustainable entity which implements the best practices and technologies of the energy industry through an integrated planning of its resources. The opportunity to provide an efficient, safe, reliable, and environmentally-friendly service and, above all, rate stability to its customers shall stimulate the economic growth of Puerto Rico. Even though the Authority has been able to achieve great progress for decades, it has accumulated a budget deficit that needs to be responsibly addressed. For such reason, the necessary efforts have been made and continue to be made for its transformation. This legislation and the support of all interested parties are critical to achieve the Authority's goals for the benefit of all Puerto Ricans as well as of generations to come."

Importantly, however, Section 2 of Act 4 recognizes that the "agreement of creditors" in turn must balance the needs and interests of all parties impacted:

> "The transformation and reform of our energy sector has been necessary to ensure the competitiveness and economic development of the Commonwealth of Puerto Rico. However, said reform had to be framed taking into account the Authority's financial reality, and understanding that its finances, operations, and governance require an evaluation and subsequent transformation. Since our main goal is to maintain the Authority as an entity of the Commonwealth of Puerto Rico, we have entered into an integrated agreement with the creditors lenders thereof (Creditors' Agreement), the implementation of which requires the approval of this Act. The main purpose of implementing these agreements is to benefit all customers with a just, reasonable, and transparent rate that shall, in turn, allow the Authority to meet its obligations and provide a world-class service in the medium- and the

long-term. For such purposes, the Puerto Rico Electric Power Authority Revitalization Act is hereby approved."

Based on these considerations, the Commission should exercise its powers under Act 4 as an additional tool to achieve the purposes of Act 57, and the Commission should not do so in a manner contrary to the purposes of the Act 57. Specifically, the Commission's execution of powers under Act 4 requires the protection of the powers and obligations created by Act 57, namely energy at the lowest possible cost from an efficient, clean and diverse supply portfolio.

Q: Should the Commission approve PREPA's proposed securitization as submitted?

A: I think not, at this stage.

Q: Please explain.

A: As we all know the fiscal situation of Puerto Rico is currently very fluid. The action or inaction of the United States Congress, legal resolution provided or not by the Supreme Court of the United States, as well as the resolution of the Government of Puerto Rico to implement the moratorium law create a situation that prevents the Commission, or anybody for that matter, from making an adequately informed, rational evaluation of any debt restructuring proposal for PREPA.

Also, as a matter of law and policy, the Commission must meet its obligations under Act 57 to ensure that electric rates are affordable and develop plans for an optimum energy portfolio. Meeting either of those mandates depends on the Commission establishing a reasonable Integrated Resource Plan for PREPA that facilitates competitive private investment through open access to PREPA's system. The Commission has not done that.

For these reasons, in my judgment the Commission is not, at this time, in a position to properly approve the submitted securitization for PREPA.

Q: Under what circumstances should the Commission consider approving a debt securitization by PREPA?

A: The Commission should approve debt securitization for PREPA only after 1) the Commission approves a reasonable Integrated Resource Plan for PREPA, including plans for an optimum energy portfolio, and 2) the securities market environment is conducive for PREPA to issue new bonds. Then and only then would the Commission be able to make properly informed findings as part of fair and efficient decisions regarding the restructuring of PREPA's debt.

Q: Does this conclude your testimony?

A: Yes.

Testimony – Demand Forecasts

Q. Please state your name and business address.

A. Theodore Kuhn, 912 S. Rangeline Rd. # 240, Carmel, IN 46032.

Q. By whom are you employed and in what position?

A. I am employed by Customized Energy Solutions as a Senior Consultant.

Q. By whom were you employed prior to your current position with Customized Energy Solutions?

A. I was employed by the Midcontinent Independent System Operator (MISO) as a Principal Market Economic Analyst in the Market Design/Development department. I worked for MISO for five (5) years.

Q. Do you have any other relevant employment background?

A. Prior to working for MISO, I was an independent consultant working primarily in the electric utility industry. Prior to that, I was employed by the engineering consulting firm of R. W. Beck & Associates and the Public Utility Commission of Texas. With a few exceptions, I have also been employed during my entire professional career as an Adjunct Instructor at Butler University, where I teach undergraduate and graduate courses in economics.

Q. Please describe your consulting work experience.

A. I have conducted a wide variety of studies for clients across the nation. Primarily, my work has involved the application of economic principles and statistical techniques to address the issues faced by my clients. Specific tasks have included analyses related to market structures, stranded costs, load forecasting, price elasticity, weather normalization, financial feasibility, cost of service and rate design, and cost of capital. Some of these assignments included the provision of testimony before a regulatory authority.

Q. Please state briefly your educational background.

A. I received a Bachelor of Arts degree, with high distinction, with a double major in economics and mathematics from Indiana University, Bloomington, Indiana. I also studied economics at the University of Pennsylvania under a one-year graduate Fellowship. I obtained a Master of Arts in Economics from the University of Texas at Austin.

Q. Would you list the proceedings in which you have offered testimony?

A. Please see Attachment 1.

Q. On whose behalf do you appear in this proceeding?

A. I am appearing on behalf of the Instituto de Competitividad Y Sostenibilidad Economica de Puerto Rico (ICSE-PR).

Q. Please summarize your testimony in this proceeding.

A. This testimony explains why the Commission needs a more comprehensive demand forecast study and how the lack of such a study prevents the Commission from reaching a reasonable decision regarding the proposed securitization. My testimony also describes likely effects arising from the securitization and why the Commission needs to understand the magnitude and future impacts arising from changes related to the securitization that have not been provided to this date. In light of these shortcomings, the Commission should adopt a resolution requiring the preparation, submittal, and review by all parties of such a properly prepared demand forecast study. Without appropriate demand forecasts as described below, the Commission should reject the filing as deficient.

Q. In the Restructuring Order, Findings of Fact, Satisfaction of the Criteria Requirements of Article 6.25A, paragraph 43, it states that the Corporation believes that using the proposed method of cost recovery will not affect either consumers' ability to deploy renewable energy or impact the Commission's ability to design rates. Do you believe that these statements are an accurate representation of the proposed cost recovery?

A. No.

Q. Please explain.

A. Consumers' ability to deploy renewable energy will depend on their financial ability to purchase, install, and operate such devices. By constructing a "non-bypassable" charge that must be paid regardless of electricity usage, the Commission is directly reducing the amount of money available to consumers for such purposes, possibly critically so. For residential customers, the tables in Attachment 3.02 show that the charge will begin at roughly $12 per month, which constitutes over 10% of residential revenues based on 2014 figures. In 2018, that figure rises to roughly $16.50 or about 16% of residential revenues based on 2014 figures. Similar increases are proposed for the non-residential accounts, in percentage terms. The position that the proposed cost recovery will not affect the Commission's ability to design appropriate rates in the future ignores the fact that certain rate designs will not be able to be imposed on a customer base that is already paying egregiously high rates. Certain avenues will be foreclosed to the Commission in the future by virtue of this restructuring, and in particular by the way in which the Corporation's plan seeks to prevent customers from taking alternative actions.

Q. What assumption, as related to the demand forecast, was used in the development of the securitization schedules (please see the Verified Petition for a Restructuring Order and attachments thereto, submitted by the Corporation on April 7, 2016) showing future customer and per-kWh charges that would be applied to customer bills to pay for securitization?

A. Constant values, that is, no changes from the 2014 values, were used in the preparation of the schedules.

Q. What explanation was provided for this assumption?

A. Because one of the facets of the securitization is that these charges will be *non-bypassable*, the schedules simply assume that any changes in numbers of customers or electricity usage will be accounted for in the "true-ups" that are specified in the securitization package. The filing specifically makes the point that the values provided in the tables should not be considered as forecasts of the actual values, but that they were supplied for purposes of comparisons with current payments. Such a presentation is misleading.

Q. Why is such a presentation misleading?

A. While the schedule does provide a quick comparison of what the rate/tariff implications would be *if there were no changes from the 2014 values for the number of customers and electricity usage*, such an assumption is clearly false. Significant increases in the electricity rates are contemplated by the securitization, and additional rate increases will likely be required in the near term for system expenses. The magnitude of such rate increases is very likely to result in significant changes to both the numbers of customers and the amount of electricity consumed. When these changes occur, the amount of cost recovery related to the securitization will be spread over fewer billing units, resulting in higher charges than those shown in the schedules.

Q. Do you believe that this Commission can make a reasoned decision regarding the impacts of the proposed securitization without knowledge of how the proposed rate increases will impact PREPA customers?

A. No, I do not.

Q. In what document(s) would the Commission be expected to find such information?

A. The preparation of the demand forecasts would be expected to contain the kinds of information needed by the Commission in order to make such determinations.

Q. Have you reviewed the information provided in the Integrated Resource Plan (IRP) filing made by PREPA as it relates to the preparation of demand forecasts?

A. Yes. Primarily, I reviewed Volume III of that filing.

Q. Do you believe that a review of the material in IRP Volume III is relevant to the analysis of this proceedings?

A. Yes. As explained above, a demand forecast study is relevant for the analysis required under this proceeding. It is important to evaluate the demand forecast available, in case it is determined to use such a study, there will then be an opinion already in record.

According to Siemens, the material contained in Volume III was provided with the following goal: "The aim of this section of volume III of the IRP Study Report is to present and discuss all the aspects regarding the electricity demand forecast, prepared as required for the development of the Integrated Resource Planning (IRP) for PREPA. This includes a concise presentation of the data used, a brief but complete description of the methodology and the necessary assumptions, and finally the obtained results."

Q. Who prepared the demand forecasts actually used in support of the filing?

A. PREPA.

Q. What role did Siemens play as it relates to the demand forecast?

A. Siemens prepared a couple of forecasts that, in its words, were intended "to validate the forecast prepared by PREPA, which was finally considered as the base for the development of the IRP." Two alternative forecasts were prepared: one, which Siemens characterized as its "optimistic" scenario, and another, which Siemens characterized as its "Base/Pessimistic" scenario.

Q. How did Siemens ultimately use these two forecasts to pass judgement on the demand forecast prepared by PREPA?

A. As the PREPA demand forecast values were greater than the Base/Pessimistic scenario but less than the Optimistic scenario, Siemens judged the PREPA demand forecast to be "validated".

Q. What approaches were used in the development of the demand forecasts?

A. Three methods were used in Siemens' construction of the forecasts as presented in Volume 3: single equation econometric models, VAR models, and auto-regressive models. These methods are described in very general terms in Volume 3 (pages 1-8 and 1-9).

Q. To which customer classes did Siemens apply such modeling?

A. The residential, commercial, and industrial customer classes were modeled and forecast. Together, these classes account for the preponderance of PREPA's load (about 98% of recent energy sales), so the remaining customer classes might safely be omitted from the analysis. Siemens states that they did perform "just verification of sound estimations" on PREPA's demand forecasts for the remaining customer classes.

Q. Which of the three methods you described above were ultimately selected for each of the three customer classes for which modeling was performed?

A. The residential and commercial customer classes were both represented by VAR (Vector Auto-Regression) models, while the industrial customer class was represented by an auto-regressive model.

Q. Can you provide the Commission with a very brief description of what VAR modeling attempts to do?

A. VAR modeling forecasts the data series of interest (e.g. residential energy sales) by using as inputs any number of other data series (e.g. number of residential customers, GDP, GNP, etc.). Importantly, VAR modeling makes no effort to determine causal or fundamental relationships; instead, VAR analysis simply examines statistical relationships devoid of any theoretical underpinning. VAR analysis if often used when the researcher has limited understanding of the theoretical relationships and is performing the analysis in an attempt to begin to discover the potentially important variables or factors that might explain the series under study.

Q. In view of your description, what is the central issue of concern related to the use of VAR modeling in a demand forecast situation?

A. While the results of the VAR model may be useful forecasts, one of the primary outputs of value from forecasting is the ability to examine how *changes in external factors* (e.g. electricity prices) *might affect the demand forecast*. The VAR models constructed by Siemens for use in judging PREPA's demand forecast may serve the intended review purpose (i.e. judging whether PREPA's demand forecast is reasonable *under the assumed conditions*), but they do not and cannot serve the more useful function of being able to help the Commission understand how changes from the assumed conditions might impact the demand forecast.

Q. What variables were included in the VAR modeling of the residential and commercial customer classes?

A. In addition to residential and commercial energy sales and numbers of customers, population and GDP were included. Of notable exception, electricity prices were not included.

Q. Why is this omission important?

A. While there are many reasons, the primary reason of interest to this proceeding is the fact that the modeling cannot answer critical questions regarding how the demand forecast might be affected by the higher electricity rates contemplated by both the securitization and the upcoming rate case.

Q. Returning to the modeling done by Siemens in its effort to verify PREPA's demand forecast, what method was used to forecast the industrial customer class?

A. Auto-regressive modeling was ultimately selected.

Q. Can you provide the Commission with a very brief description of what auto-regressive modeling attempts to do?

A. In auto-regressive models, the variable of interest (e.g. industrial energy sales) is forecast based entirely on previous (years') values for both itself and, potentially, other included data series. Auto-regressive models are rarely used in long-term forecasting situations because they are generally incapable of forecasting turning points (where the forecast diverges from past trends).

Q. In view of your description, what is the central issue of concern related to the use of auto-regressive modeling in a demand forecast situation?

A. Auto-regressive modeling in a long-term context is even more fraught with problems than the VAR models previously discussed. As already mentioned, auto-regressive models are generally not useful in long-term contexts, so using such a model to verify another forecast (as is the case here) would seem ill-advised. Moreover, as already described, one of the primary outputs of value from forecasting is the ability to examine how *changes in external factors* (e.g. electricity prices) *might affect the demand forecast.* The auto-regressive model constructed by Siemens for use in judging PREPA's demand forecast cannot serve the more useful function of being able to help the Commission understand how changes from the assumed conditions might impact the demand forecast. Indeed, given the structure of the model estimated by Siemen's, nothing that happens in the future will affect the forecast of industrial energy sales.

Q. What variables were included in the auto-regressive modeling of energy sales to the industrial customer class?

A. Industrial energy sales is "explained" by industrial energy sales from the year prior ("t-1"), industrial energy sales from two years prior ("t-2") and the number of industrial customers from the year prior. Again of notable exception, electricity prices were not included.

Q. Could you please summarize your review of Siemens validation of PREPA's demand forecast?

A. Siemens validation fundamentally examines only whether the PREPA demand forecast is reasonable under the assumed conditions. The validation, including the models designed to form a judgement about PREPA's demand forecast, is incapable of answering basic questions regarding how the demand forecast might change in view of significant rate increases that are almost certain to occur. Electricity prices do not appear in any of the models constructed by Siemens, so the models are not able to provide forecasts of how future energy and demand might change as a result of higher electricity prices for consumers.

Q. Why is this point relevant for the Commission to understand and take action upon?

A. One of the principal questions in any securitization or rate filing must always include how the utility's customers will react to the projected increase in electricity rates. As electricity rates increase, consumers reduce their usage of electricity by a variety of means: they can purchase fewer electricity consuming devices or reduce the usage of currently owned appliances. In the longer term, more significant changes can occur, such as changing the typical construction of homes, downsizing, and other possibilities. While most studies indicate that electricity is *inelastic* in response to changing electricity prices, the vast majority of studies note some significant and measurable degree of consumer response.

Q. Why is customer response to higher electricity prices relevant for these proceedings?

A. The Commission is interested in putting in place a solution to existing problems regarding PREPA and its current financial condition. A long-term solution that merely assumes that electricity consumers will continue to use electricity in the future at the same rate as they do today despite a significant increase in electricity rates is both unrealistic and potentially dangerous. If customer response to higher rates is strong enough, the resulting spiral of lower consumption followed by additional rate hikes could become unmanageable.

Q. How has the Petition for Restructuring attempted to deal with this likely problem of reduced usage and loss of customers?

A. A detailed "true-up" procedure has been proposed that continually readjusts the Transition Charge to fully recover the amounts required by the Corporation's bonds. This "non-bypassability" feature is so important to the bond issuance that it is mentioned first in the list of RSA requirements (paragraph 14 in Verified Petition for Restructuring Order), and is also part of Article 35(i) of the Revitalization Act. These prominent and repetitive references make clear how important it is to the proposal that any attempt to avoid the Transition Charge by PREPA's customers be prevented. As usage and the number of customers decline, the available billing units decline, forcing an increase in the charges to residential and non-residential customers alike.

Q. Why can't PREPA simply continue to raise its rates as high as might be required to both cover existing expenses and pay back any securitization bonds?

A. Because as PREPA increases its rates, electricity consumers will likely curtail their usage in response to the higher rates. The decline in usage will cause PREPA to under-recover its revenue requirement, and PREPA will find it necessary to raise rates still further in order to try to obtain the necessary revenue. However, this new attempt (i.e. still higher rates) will likely simply reignite the cycle, with further reductions in usage followed by ever-higher rates.

Q. Why would you expect that cycle to continue?

A. With the imposition of securitization charges and other likely rising PREPA rates, maintaining their previous level of consumer demand for electricity service would require consumers either to spend less on other goods and services or to experience economic gains (e.g., increased disposable income) that are large enough for consumers to afford both the securitization and other PREPA charges. With regard to the former, electricity consumers spending less on other goods and services would be detrimental to economic growth, and any economic decline caused by reduced consumption of other goods and services would exacerbate the cycle. With regard to the latter, Puerto Rico's current economic challenges make it unlikely for electricity consumers to enjoy enough economic gains for them to continue to be willing and able to maintain current levels of consumption of electricity and other goods and services in spite of rising electricity-related charges.

Q. Has securitization been used by any utilities in the United States?

A. Yes.

Q. Do you have any personal experience with such securitization filings?

A. Yes.

Q. Based on those experiences, do you see any significant differences between those filings and the one at issue here?

A. Every filing is, of course, unique. Nevertheless, at a higher level, a couple of key differences do stand out. First, securitization filings within my experience have been for smaller amounts, which affects both the financial arrangements that are required as well as the expected impacts on electricity customers. Second and more importantly, the general financial health of the utility, expected new financial burdens, and the economic environment in which the utility functioned (e.g. GDP growth, population changes, etc.) were all much more positive in those cases by comparison.

Q. Why are those differences relevant?

A. Those differences will likely be important to potential investors who would need to invest in PREPA's proposed securitization bonds in order to make the debt restructuring work as intended. For example, the executive summary of a recent analysis by Moody's (attached to testimony – **Attachment 2.** notes "The securitization would be the first such [utility cost recovery charge] transaction whose goal is to restructure the debt of a financially distressed utility."

Moody's also highlights concerns with reductions in demand for PREPA's electric service:

> "Further declines in Puerto Rico's ratepayer base and in energy consumption over the life of PREPA's planned securitization are likely given the island's declining population and reduced economic vitality. Economic activity in Puerto Rico slowed in the wake of the 2008-10 recession, and PREPA's service area continues to use less electricity than previously. Many of the territory's young people are leaving the island owing to low employment prospects.
>
> ...
>
> "In addition to the decline in the population and in electricity sold, Puerto Rico's high unemployment rate of about 12% and stagnant gross state product provide further evidence of weakness in PREPA's ratepayer base." (See pages 2-3.)

Q. Is there a reasonably constructed demand forecast study, one that includes the potential for estimating the impacts of higher electricity prices, *inter alia*, available to the Commission in this proceeding?

A. No; the Commission should adopt a resolution requiring the preparation, submittal, and review by all parties of such a properly prepared demand forecast study.

Q. How does your initial discussion of the securitization schedules tie back to your comments regarding the demand forecasts?

A. Absent demand forecasts that show how expected increases in electricity rates are likely to impact billing elements such as numbers of customers and energy sales, the Commission should reject the filing as deficient.

Q. Would the development of those demand forecasts be enough for a PREPA debt securitization to deliver the intended benefits?

A. That would depend upon the results of the studies. In my current view, however, the preparation of a properly prepared demand study is likely to show weakening electricity demand, which would still give potential investors pause.

Q. Does this conclude your testimony?

A. Yes.

Attachment 1

RECORD OF TESTIMONY SUBMITTED BY THEODORE KUHN					
Utility Involved	**Proceeding**	**Subject**	**Before**	**Client**	**Date**
Nebraska Public Power District and Mid-American Energy Company	Case No. 8:97CV346	Market Price Projection	US District Court	NPPD	1999
American Electric Power	Docket No. EL99-66-000	Cost of Capital	FERC	Wabash Valley Power Association	1999
Public Service Electric & Gas Company	Docket No. EO97070462 OAL PUC 7347-97-N	Stranded Costs	New Jersey BPU	Enron	1998
Atlantic City Electric Company	Docket No. EO97070456 OAL PUC 7311-97-N	Stranded Costs	New Jersey BPU	Enron	1998
GPU Energy	Docket No. EO97070459 OAL PUC 7308-97-N	Stranded Costs	New Jersey BPU	Enron	1997
Consumers Energy Company	Case No. U-11451	Stranded Costs	Michigan PSC	Energy Michigan	1997
Detroit Edison Company	Case No. U-11452	Stranded Costs	Michigan PSC	Energy Michigan	1997
NIPSCO	Docket No. ER96-399	Cost of Capital	FERC	Wabash Valley Power Association	1996
CINERGY	Docket No. ER95-625, Docket No. ER95-626, Docket No. EL95-039	Cost of Capital	FERC	Indiana Municipal Power Agency, et. al.	1995

RECORD OF TESTIMONY SUBMITTED BY THEODORE KUHN					
Utility Involved	**Proceeding**	**Subject**	**Before**	**Client**	**Date**
Central & SouthWest / El Paso Electric	Docket No. 12700	Price Elasticity Load Forecast Industrial Customer risk	Texas PUC	City of El Paso	1994
Illinois Power Company	Docket ER92–809	Cost of Capital and Capital structure	FERC	Illinois Municipal Electric Agency	1993
Potomac Electric Power Company	Formal Case No.912	Marginal Cost Allocation & Rate Design	PSC DC	Washington Metropolitan Area Transit Authority	1992
New England Power Pool	Docket No. EFSC 91–100	Load Forecasting	Massachusetts EFSC	PGE / Bechtel	1992
Potomac Electric Power Company	Formal Case No.905	Marginal Cost Allocation & Rate Design	PSC DC	Washington Metropolitan Area Transit Authority	1991
New England Power Pool	Docket No. EFSC 90–100	Load Forecasting	Massachusetts EFSC	Eastern Energy Corporation	1990
Indiana Municipal Power Agency	Docket No.38850	Load Forecasting	Indiana URC	Indiana Municipal Power Agency	1990
Colorado-Ute Electric Association	Docket No.89I-627E	Price Elasticity	Colorado PUC	Colorado-Ute	1990
Public Service Company of Indiana	Cause No.38655	Comparable Land	Indiana URC	Morgan County REMC	1989
Ohio Edison Company	Docket No.ER88-544	Load Scheduling	FERC	American Municipal Power - Ohio	1989

RECORD OF TESTIMONY SUBMITTED BY

THEODORE KUHN

Utility Involved	Proceeding	Subject	Before	Client	Date
Public Service Company of Indiana	Cause No.38219-S1	Comparable Land	Indiana URC	Tipmont REMC	1988
Indiana Michigan Power Company	Docket No.ER88-30	Cost of Capital Cost of Service	FERC	Wabash Valley Power Association	1988
Public Service Company of Indiana	Docket No.ER87-61	Cost of Capital Demand Allocators	FERC	Wabash Valley Power Association	1988
Wabash Valley Power Association	IP85-2238RA S	Load Forecasting	US Bankruptcy Court Southern District, IN	Wabash Valley Power Association	1987
Ohio Edison Company	Docket No.ER82-79	Cost of Service	FERC	Wholesale Customers of Ohio Edison	1982
Indiana Municipal Power Agency	Cause No.36835	Economic Feasibility Load Forecasting	Indiana URC	Indiana Municipal Power Agency	1982
Ohio Edison Company	Docket No.ER80-454	Cost of Service Rate Design	FERC	Wholesale Customers of Ohio Edison	1981
Houston Power & Light	Docket No. 2676	Cost of Service Weather & Price Normalization	PUC Texas	Commission Staff	1979
El Paso Electric	Docket No.2641	Cost of Capital	PUC Texas	Commission Staff	1979

RECORD OF TESTIMONY SUBMITTED BY THEODORE KUHN					
Utility Involved	**Proceeding**	**Subject**	**Before**	**Client**	**Date**
Texas Electric Service	Docket No.2606	Cost of Service Weather & Price Normalization	PUC Texas	Commission Staff	1979
Dallas Power & Light	Docket No.2572	Weather & Price Normalization	PUC Texas	Commission Staff	1979
El Paso Electric	Docket No.1454	Load Forecasting	PSC New Mexico	PSC New Mexico	1979
Texas Electric Service	Docket No.1903	Cost of Service Load Forecasting Weather & Price Normalization	PUC Texas	Commission Staff	1978
El Paso Electric	Docket No.1891	Load Forecasting	PUC Texas	Commission Staff	1978
El Paso Electric	Docket No.1642	Load Forecasting	PUC Texas	Commission Staff	1978
Texas Power & Light	Docket No.1517	Weather & Price Normalization	PUC Texas	Commission Staff	1978

Attachment 2

STRUCTURED FINANCE

MOODY'S
INVESTORS SERVICE

SECTOR COMMENT
22 OCTOBER 2015

Rate this Research

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ABS - US

Key Considerations of PREPA's Planned Utility Charge Bonds Would Be Similar To Those of Other Deals in the Sector

Executive Summary

New securitization bonds that the Puerto Rico Electric Power Authority (PREPA; Caa3 negative) plans to issue through a debt exchange with its uninsured power revenue bondholders would be similar to typical utility cost recovery charge (UCRC) asset-backed securities (ABS) that we rate, based on our review of the debt exchange term sheet that PREPA publicly disclosed on 2 September.[1] The securitization would be the first such UCRC transaction whose goal is to restructure the debt of a financially distressed utility. Full details of PREPA's planned UCRC bond issuance are not yet available, but the key factors that we consider in our analysis of the cash flows and asset quality that support UCRC transactions include legislative risk, servicing risk, customer payment delay and default risk, and event risk.[2]

PREPA's planned issuance of UCRC bonds is part of the utility's restructuring plan, whose broad terms call for the uninsured bondholders to exchange their existing bonds for new securitization bonds at a discount. PREPA currently has about $8.3 billion in outstanding power revenue bonds, of which about $5.8 billion, or about 70%, are uninsured.[3] If all of the uninsured bondholders were to take up the exchange offer, the transaction would be the largest UCRC securitization issued to date. A separate surcharge on ratepayer bills, similar to the charges underlying other UCRC securitizations, would support the new transaction.

Under PREPA's restructuring plan, bondholders would have the option to receive either new UCRC bonds that would pay cash interest or new convertible capital appreciation UCRC bonds that would defer and capitalize interest for the first five years. The capitalized interest would accrue at a higher rate than the cash interest.

UCRC securitizations have risks that a jurisdiction could revoke or change legislation that protects the assets and cash flows

UCRC bonds are backed by surcharges on customers' utility bills, and securitization issuance is predicated on passage of state legislation that authorizes and protects these charges. There is a risk in this type of securitization that the authorizing legislation could be subject to a court challenge or to future political pressure for the jurisdiction to pass new laws that would rescind or revamp the charges.

UCRC bonds were created to finance so-called "stranded costs" after the deregulation of utilities in the late 1990s. Eighteen states have passed securitization legislation authorizing special utility charges on customers' bills to allow utilities to recover costs associated with environmental control, storm recovery, utility restructuring and renewable energy improvements. These laws make the charges "non-bypassable," which means that all existing and future customers of the utility or its successors or assignees within the utility's service territory are legally obligated to pay the charges. Sometimes, there are limited exceptions. Securitization legislation typically also includes a non-impairment pledge under which the state pledges to UCRC bondholders that it will not take or permit any actions that reduce, alter or impair the charges until the bonds have been repaid in full. The legislation generally also provides for an irrevocable financing order that stipulates the securitization structure and terms. Because the financing order is irrevocable, the state cannot change or rescind the order once it is issued.

The legislation and financing order typically also require the transaction servicer to adjust the charges periodically to satisfy the debt service payments on the UCRC bonds until the bonds are repaid in full. As a result, the servicer must increase charges to customers if collections are insufficient for timely payments on the bonds. This "true-up" mechanism is the key form of credit protection for the securitizations, because it limits the risk that the charges will be insufficient to repay the bonds.

We view the risk of legislatures changing or revoking utility charge legislation to the detriment of bondholders as remote in the outstanding UCRC securitizations that we rate, because a breach of the state non-impairment pledge would be a violation of the Contract Clause and the Takings Clause under the US Constitution and state constitutions.

In assessing the credit risk of PREPA's planned securitization, we would consider the previous positions taken by the Puerto Rican government. The commonwealth's government during the past year and a half has shown a preference for maintaining public services at the expense of meeting its obligations to bondholders, as it tries to manage growing fiscal pressures. As a consequence, it has sought to weaken some legal protections for both its public corporation debt and its general obligation bonds. This summer, the government suspended Act 39, a law requiring monthly transfers to its debt-service fund for general obligation bonds. A year earlier, the government enacted a law (subsequently struck down by the US Court of Appeals for the First Circuit) that would have allowed PREPA and other select public corporations to restructure their debt.

In its efforts to win concessions from bondholders, the Puerto Rican government is effectively invoking a "police powers" argument that its commitment to provide for the general welfare of its citizens overrides its legal commitment to bondholders. There would be no assurance that the government would not invoke such an argument to seize or redirect securitization charge revenues.

Moreover, the commonwealth's government has declared its intent to negotiate the restructuring of its debt, including bonds supported by a specific constitutional payment obligation. As a result, litigation between the commonwealth and its bondholders, or among various classes of bondholders, is likely. Protracted legal battles could complicate efforts to begin imposing a new charge pledged to a new class of bondholders.

In addition, the higher the UCRC securitization charge to utility customers, the greater the risk of pressure to overturn or change the legislation and/or regulations establishing the charges. In a typical UCRC securitization, the percentage of an average residential customer's monthly bill devoted to the securitization charge is less than 10%.[4] Declines in a utility's ratepayer base and in energy consumption would likely result in an increase to the initial securitization charge through the true-up mechanism to ensure timely debt service.

Further declines in Puerto Rico's ratepayer base and in energy consumption over the life of PREPA's planned securitization are likely given the island's declining population and reduced economic vitality. Economic activity in Puerto Rico slowed in the wake of the 2008-10 recession, and PREPA's service area continues to use less electricity than previously. Many of the territory's young people are leaving the island owing to low employment prospects.

Exhibit 1 shows the decline in Puerto Rico's population from 2010 to 2015, and the decline in PREPA's electric energy sold over the same period.

Exhibit 1
Puerto Rico's Population and PREPA's Electric Energy Sold Are Declining

	2010	2011	2012	2013	2014	2015
Population (thousands)	3,722	3,687	3,642	3,596	3,548	3,507
% change year-over-year		-0.9%	-1.2%	-1.3%	-1.3%	-1.2%
Energy Sold (kWh)	19,235	18,501	18,112	17,962	17,560	17,280
% change year-over-year		-3.8%	-2.1%	-0.8%	-2.2%	-1.6%

Sources: Moody's Analytics; PREPA's financial statements for the fiscal years ended June of each year through 2013; PREPA's Monthly Report to the Governing Board (June 2014 and June 2015); and PREPA's Offering Circular for Power Revenue Bonds, Series 2013A, dated 15 August 2013.

In addition to the decline in the population and in electricity sold, Puerto Rico's high unemployment rate of about 12% and stagnant gross state product provide further evidence of weakness in PREPA's ratepayer base.

Segregation of assets and cash flow are important considerations in the asset class

According to the debt exchange term sheet that PREPA has disclosed publicly, the PREPA UCRC bonds will either be issued by 1) a new subsidiary of the Puerto Rico Infrastructure Financing Authority (PRIFA), a public corporation of Puerto Rico that serves as a conduit debt issuer; or 2) a new bankruptcy-remote special purpose vehicle.[5] If a new PRIFA subsidiary were to issue the bonds directly, an important consideration in analyzing the securitization would be whether the subsidiary would be bankruptcy-remote for the life of the transaction, which would limit the risk that Puerto Rico or PRIFA's creditors could claim the securitization assets if PRIFA were to become bankrupt.

Currently, Puerto Rico, PRIFA and PREPA are bankruptcy-remote because they are not authorized to be debtors under Chapter 9 or any other provision of the US Bankruptcy Code. However, there is a risk that Puerto Rico could pursue legislation in the future that would allow the central government and its public corporations to file for bankruptcy. The Puerto Rican government currently is pursuing an amendment to the US Bankruptcy Code that would allow any municipality or public corporation in the commonwealth that could demonstrate insolvency to file for bankruptcy under Chapter 9.

We also consider the risk of cash commingling in UCRC securitizations, which occurs when cash belonging to a bankruptcy-remote issuer is mixed with cash belonging to a third party, such as a transaction servicer. In the event that the servicer becomes insolvent, cash commingling could lead to either 1) cash belonging to the bankruptcy-remote issuer becoming unavailable to it for a period of time, or 2) the issuer having only an unsecured claim against this cash in the bankruptcy estate of the servicer. Because PREPA could become subject to bankruptcy in the future, we would analyze cash commingling risk in the planned PREPA securitization. PREPA, as transaction servicer, would likely collect all customer payments, including securitization charge payments. To mitigate commingling risk, most UCRC transactions require the transaction servicer to remit the securitization charges to the transaction's trust account within two business days' receipt.

We believe that PREPA has the ability to perform the task of segregating the securitization charge payments. Historically, PREPA has performed billing, collected customer payments and segregated funds into separate trust accounts according to the terms of its Trust Agreement dated 1 January 1974, which governs the terms of its existing bonds. PREPA has historically met its debt payments under the bond indenture and has set rates at a level necessary to meet the bond covenant at 1.2 times debt service coverage.

Stability and ability of the transaction servicer are factors in credit analysis of UCRC deals

The financial stability, ability and experience of the transaction servicer are key considerations in our credit analysis of UCRC securitizations. The servicer's responsibilities include billing and collecting customer utility payments (including the securitization charges), accurately forecasting electricity consumption and making timely adjustments to the charges. In addition, the servicer must strip out the securitization charges from customers' bills and remit the charges to the trust account.

In analyzing the credit risks of PREPA's planned transaction, we would evaluate the utility's ability to perform servicing for the life of the transaction. Although PREPA is the sole provider of electricity in Puerto Rico and provides an essential service, the quality of its servicing could deteriorate while the UCRC bonds are outstanding if PREPA's financial condition does not improve or weakens. The UCRC securitization would help PREPA achieve longer-term financial stability. In addition, PREPA is currently bankruptcy-remote and therefore its creditors cannot take control of its assets. There is the risk, however, that the US Congress could enact legislation to allow PREPA to file for bankruptcy.

UCRC securitization would help PREPA achieve financial stability

PREPA's operating cash flow (revenues minus expenses) has been positive at about $500 million to $530 million annually for the last several years, before debt service payments and capital expenditures. However, debt service and capital expenditures have made PREPA's cash flow negative. If PREPA can defer and/or lower its debt service through the securitization, the utility would be in a better position to cover its capital expenditures, which PREPA could use to help convert its largely oil-fired generation fleet of power plants to lower-cost and cleaner natural gas-fired plants. This conversion would help PREPA save money and achieve longer-term financial stability. Nevertheless, PREPA would still need a credible business plan showing how it intends to convert its oil-fired generating plants to natural gas-fired plants in order to achieve this stability. PREPA would also need to show how it intends to finance the conversion. One possibility is for PREPA to tap the private sector. On 14 September, PREPA issued a request for expressions of interest (REOI) seeking private partners for modernizing existing facilities and providing new generation options. However, the details and feasibility of these REOIs are not known at this stage.

It is unlikely that Puerto Rico would be in a position to provide financial support to PREPA, given the commonwealth's fiscal and economic challenges. It is also unlikely that the federal government would give PREPA or the commonwealth direct financial support.

UCRC deals carry risks of customer payment delays and defaults

The ability of a utility's customers to pay the special charges, allowing for collections to be sufficient to meet the debt service requirements on the bonds, is another key consideration in UCRC securitizations. However, the true-up mechanisms in the transactions adjust for all shortfalls, including those that result from customer payment delays and defaults.

PREPA has many late-paying customers, including its largest customer – the Puerto Rican government. The commonwealth's government and its agencies, along with Puerto Rico's municipalities, account for about 50% of the utility's accounts receivable. PREPA has tried to take steps in the past to deal with slow-paying government agencies, including having the Puerto Rican Treasury Department pay the electricity and energy expenses allocated to Puerto Rican government agencies directly to PREPA each month. However, it is not clear how effective these steps have been because the level of government receivables remains high.

PREPA's residential customers already pay high utility charges of around $0.20 per kilowatt-hour (kWh), compared with the US average of $0.13 per kWh. Lower fuel costs have led to a rate decline over the past year that PREPA has passed on to customers. This decline should allow for some room for PREPA to raise base rates and/or impose the securitization surcharge. However, PREPA's rates are likely to remain higher than the US average.

New commission would approve rates, creating uncertainty on timeliness of true-ups

Typically, the financing order allowing for a UCRC securitization requires the utility to file a request to the state public utilities commission to make true-up adjustments in accordance with the order. However, the commission's review of the request is generally limited to a determination about whether there is any mathematical error in the application of the adjustment mechanism to the charges.

In the planned PREPA transaction, we would consider whether the new Energy Commission of Puerto Rico, which oversees PREPA's functions (including adoption of electricity rates), would approve the request in a timely manner. The commission was established following Puerto Rico's passage of the Energy Reform Act in May 2014. Because the commission does not have a track record, it is uncertain how it would handle such a request.

Exposure of a utility's service area to severe weather-related events is another consideration

In UCRC transactions, the utility typically assesses the securitization surcharge as an amount linked to a customer's energy usage. Therefore, in our credit analysis of a transaction, we analyze the exposure of the utility's service area to severe weather-related events that could lead to a decline in energy usage and therefore cash flow to the deal.

True-up adjustments in UCRC transactions are designed to address any material deviations between the securitization charge collections and the required debt service amount. Transactions can also include features such as higher overcollateralization, more frequent mandatory true-up adjustments and emergency true-up adjustments. Entergy New Orleans, Inc. (Ba1 stable) used these measures in its July 2015 storm recovery bond issuance to partially mitigate the deal's significant exposure to weather-related event risk in New Orleans.[6]

Puerto Rico has significant exposure to weather-related event risk such as that stemming from a severe hurricane of the magnitude of previous storms in the region such as Hurricane Irene in 2011. One mitigant to this risk is that PREPA has taken steps to put a significant portion of its wires underground, especially on the north side of the island.

Moody's Related Research

Issuer Comment:

» Puerto Rico Electric Power Authority: PREPA's latest announcement suggests a distressed exchange is imminent, September 2015 (1007990)

Issuers In-Depth:

» Puerto Rico Electric Power Authority: Moody's Comments on PREPA's Restructuring Proposal, August 2015 (1007062)

» Puerto Rico Electric Power Authority: Frequently Asked Questions About PREPA, March 2015 (1003487)

Methodology:

» Moody's Global Approach to Rating Securities Backed by Utility Cost Recovery Charges, June 2015 (SF404788)

Sector In-Depth:

» True-ups Will Continue to Mitigate Risk of Lower-Than-Projected Electricity Consumption in UCRC Deals, April 2015 (1004515)

Pre-Sale Report:

» Entergy New Orleans Storm Recovery Funding I, L.L.C., July 2015 (SF412484)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Endnotes

1 On 1 September 2015, PREPA and an Ad Hoc Group of Bondholders reached an agreement on certain economic terms of a recovery plan for PREPA. See Puerto Rico Electric Power Authority Ad Hoc Group Exchange Term Sheet, 1 September 2015 in PREPA Public Disclosure dated 2 September 2015 on Electronic Municipal Market Asset System (EMMA).

2 See Moody's Global Approach to Rating Securities Backed by Utility Cost Recovery Charges, 22 June 2015.

3 Source: PREPA Public Disclosure dated 2 September 2015 on EMMA. Monoline bond insurers, including Assured Guaranty Ltd., National Public Finance Guarantee Corp. and Syncora Holdings Ltd., insure about 30% of PREPA's power revenue bonds.

4 We define an average residential customer as a customer who consumes 1,000 kilowatt hours of electricity per month.

5 See endnote 1.

6 See "New Securitization Backed by Storm Recovery Charges in New Orleans Has Significant Weather-Related Event Risks," ABS Spotlight, 21 July 2015.

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