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Testimony of Cathy Kunkel and Tom Sanzillo, Institute for Energy Economics and Financial Analysis, to the Puerto Rico Senate Special Committee on Energy Affairs

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Introduction

Thank you for the opportunity to testify today on behalf of the Institute for Energy Economics and Financial Analysis. IEEFA has been following efforts to reform the Puerto Rico electrical system for the last three and a half years. We have provided expert testimony to the Puerto Rico Energy Commission in its integrated resource planning, rate, and Aguirre Offshore Gas Port economic analysis cases. We have worked with a number of organizations including El Puente, ICSE, Cambio PR and UTIER. We have also authored numerous reports on the electrical system and PREPA's debt. We appreciate the opportunity to comment on the Senate's forthcoming energy policy and regulatory framework.

Puerto Rico has the opportunity to reinvent its electrical system in a radically different way. Puerto Rico can move away from the high-cost, centralized infrastructure of the current system – infrastructure that is poorly configured to withstand severe hurricanes – and towards a system that is rooted in resilient, renewable decentralized energy technologies. Not only is such a transformation possible, it is also necessary if Puerto Rico is to achieve an affordable and financially viable electrical system.

However, developments this summer do not appear to be moving in this direction. The changes contemplated by some political leaders in Puerto Rico and Washington DC to dramatically expand the use of natural gas in Puerto Rico will sabotage the island's ability to create an affordable, resilient and financially sustainable electrical system. Resident commissioner Jenifer Gonzalez has joined with Representative Bob Bishop in promoting the idea of Puerto Rico as a "natural gas hub" to import natural gas and re-export it to other Caribbean islands. Recent news articles have highlighted proposals to bring natural gas to Mayaguez and Yabucoa, as well as converting the San Juan combined cycle plant to natural gas and building another gas plant at Cataño.

While there is a need to strengthen the generation system in the San Juan area, this rush to natural gas reflects the wrong priorities. PREPA should be prioritizing the aggressive deployment of renewable energy, storage and distributed energy infrastructure to minimize reliance on imported fossil fuels. Converting just the San Juan plant alone to natural gas would increase the penetration of natural gas in the system to above 60%. The additional natural gas infrastructure projects would crowd out investment in renewable energy, which should be the top priority for electrical system investment moving forward. We are deeply skeptical of the claims that converting the electrical system to natural gas will result in 40% savings in bills, given the lack of publicly available analysis to back this claim and the fact

that PREPA was unable to provide economic justification for its previous natural infrastructure proposal, the Aguirre Offshore Gas Port.

PREPA cannot afford to have another costly mistake added to its balance sheets. According to the Financial Oversight Management Board, PREPA and Governor Ricardo Rosselló, PREPA must reduce its fuel bills by between 25% and 30% if it is to come out of bankruptcy with a balanced budget. This financial objective cannot be achieved with fiscal and budgetary gimmicks. Investing first in renewable energy is a fiscal imperative as it is the least cost option available to the Island.

Unfortunately, the privatization process contemplated by Law 120 will, in the absence of further modification, facilitate poorly planned development of the electrical system. Law 120 strips away any meaningful role for an independent regulator in the privatization process, leaving the process of deciding on privatization projects, issuing requests for proposals and negotiating contracts all under the control of PREPA and AAFAF. At the same time, Law 120 does nothing to address the need for contracting reform at PREPA, despite the authority's record of contracting scandals, from Whitefish to overpriced renewable energy contracts to the multi-decade oil purchasing scandal previously investigated by the Senate. Without meaningful contracting reform, transparency and strong independent regulatory oversight, there is little reason to think that the privatization process outlined in Law 120 will result in anything more than overpriced and politically driven contracts.

Recommendations for the Transformation of Puerto Rico's Electrical System

There is still a real opportunity – and an urgent need -- to solve the underlying problems of Puerto Rico's electrical system and to make it both affordable and reliable. The Financial Oversight and Management Board has set a goal of rates below 20 cents per kWh.[1] This requires phasing out PREPA's old, oil-fired generation and investing in local sources of renewable energy, as well as investing in previously-deferred maintenance of PREPA's assets in order to enable the integration of those renewable resources. It also requires reform of the governance of the electrical system; the administration of PREPA has been driven by short-term political considerations and plagued by expensive contracting scandals, and is largely unaccountable to the public it serves.

Decentralized energy technologies, which did not exist as economical options during most of PREPA's history, provide a new opportunity to construct a resilient electrical system with electricity generated close to where it is used. They would allow PREPA's customers to take on more active roles as producers of electricity, creating new possibilities for governance of the electrical system. In this regard, Puerto Rico may look to the examples of European countries such as Germany and Denmark, which have been global leaders both in the development of renewable energy and also in the development of local ownership models to support that development.[2]

We are aware that there is renewed interest at the local level in Puerto Rico in creating such

[1] PREPA Fiscal Plan, August 1, 2018, p. 2.

[2] As of 2016, 31.5% of renewable energy capacity in Germany was owned by private individuals and cooperatives, with an additional 10.5% owned by farmers. (https://www.cleanenergywire.org/news/coalition-transport-agreement-citizens-own-one-third-renewables/citizens-own-one-third-german-renewables-capacity). In Denmark, 15% of wind turbines are owned by cooperatives or guilds. (http://dkvind.dk/html/eng/lessons-to-be-learnt.html).

local ownership structures for the electrical system, including municipal electric systems, energy cooperatives, community microgrids and privately-owned distributed energy resources (from rooftop solar to industrial combined heat and power). Such models offer the potential for empowering consumers to have more control over their energy future, while taking advantage of the declining cost of decentralized energy technologies.

We make the following five recommendations which we believe are necessary to ensure a transition to an electrical system that is affordable, resilient and financially viable.

1. Prioritize the development of renewable energy and locally owned energy systems.

There is a consensus among leading policy-makers, reflected in PREPA's Fiscal Plan, that development of renewable energy should be a priority for the Puerto Rican electrical system.[3] PREPA's over-reliance on fossil fuels has been one of the major factors driving the electrical system's high rates, budget imbalance, and environmental noncompliance, as well as feeding the perception of Puerto Rico's economic backwardness. Yet, thus far, this high-level consensus has yet to translate into significant development of renewable energy.

Renewable energy and storage costs have declined dramatically in recent years. In contrast to the high-priced PPOAs signed by PREPA and currently operational (at $156-$200/MWh)[4], the median cost of a utility-scale solar PPOA in the mainland U.S. in 2016 was below $50/MWh.[5] Earlier this year, a PPOA for a solar and storage project in Hawaii came in at under 11 cents/kWh.[6] A 2017 analysis of storage costs predicts a 36% decline in the capital cost of lithium ion battery storage over the next five years.[7]

Investments in renewable energy would bring financial stability to the electrical system because they are not subject to fuel cost volatility and because they can be built out in small increments. Given the current trend of rapidly declining electrical sales in Puerto Rico, there is a serious risk of overbuilding the generation system if old units are replaced by large conventional, centralized units; if the demand does not materialize to support those investments, Puerto Rico customers will be stuck with stranded costs. By contrast, focusing on smaller-scale renewable energy investments reduces the risk of overbuilding.

In short, PREPA must spearhead a rebuilding effort that places first priority for investment on renewable energy, and particularly decentralized renewable energy. This requires:

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[3] The Fiscal Plan states "New renewables, both intermittent and with storage, … should have total delivered costs that is below the cost of oil based electric production. Solar plus storage utility and distributed scale power can be on line within two to three years—faster than most conventional generation" and includes a scenario of increasing solar capacity by more than a factor of six by FY 2023 (PREPA August 1, 2018 Certified Fiscal Plan, p. 45 and p. 70). In addition, various witnesses from the private sector, Puerto Rico government and U.S. Department of Energy testified to the House Natural Resources Committee on July 25, 2018 on the low-cost opportunity for renewables in Puerto Rico (https://naturalresources.house.gov/calendar/eventsingle.aspx?EventID=405408).

[4] PREPA Supplemental Integrated Resource Plan, April 1, 2016, Table 5-6.

[5] M. Bolinger, J. Seel, K. LaCommare, "Utility-Scale Solar 2016," Lawrence Berkeley National Laboratory, September 2017. http://eta-publications.lbl.gov/sites/default/files/utility-scale_solar_2016_report.pdf

[6] Utility Dive, "Kuai utility moves ahead with Tesla, AES storage on road to 70% renewables," June 25, 2018. https://www.utilitydive.com/news/kauai-electric-co-op-sees-batteries-as-central-to-70-renewables-push/526424/

[7] Lazard, Levelized Cost of Storage Analysis – Version 3.0, November 2017.

a. A clear public policy priority to drive investment towards distributed renewable energy resources and energy storage. Any natural gas investment should be made only to strengthen the grid to support renewable energy integration and should be understood as occurring on a short-term basis and only after PREPA has maximized the potential for renewable energy, storage, efficiency and demand response. PREPA, or any successor entity, should not lock itself into multi-decade power purchase contracts for natural gas generation.

b. Appropriate legal structures and technical assistance to support local ownership of decentralized energy resources. The Senate should authorize the creation of energy cooperatives. Additionally, funding should be allocated, perhaps through FEMA, to provide technical assistance to communities and municipalities that want to develop microgrids or other local electric systems. Entities seeking to self-supply their own power should not be penalized for defecting from PREPA's system.

c. A strong integrated resource planning process. In order to minimize stranded costs, the transformation of the electrical system must be guided by a transparent integrated resource planning process, overseen by the Energy Bureau and with opportunity for public input into the plan's assumptions. The plan should integrate generation, transmission and distribution system modeling to optimize the build-out of decentralized energy resources. The integrated resource plan should guide future decisions about building, buying and retiring generation resources, while taking into account the development of community, cooperative, and municipal efforts to self-supply their own power.

2. Reform the governance of PREPA.

PREPA will continue to play an important role in Puerto Rico's electrical system. Even if PREPA's role transforms over time as other entities gain more of a role in producing power and/or owning electrical system assets, it is still critical to ensure that PREPA is a functional agency.

The task of depoliticizing and democratizing PREPA is not an easy one. We operate from the principles that there should be as much transparency as possible and that the voices of multiple sectors of Puerto Rican society should be reflected in the governance of PREPA. With those principles in mind, we recommend:

a. Governing Board. We recommend a 9-member board, of which 6 board members would be appointed by the Governor according to lists submitted by: (1) organizations of industrial customers; (2) organizations of small business customers; (3) the League of Cooperatives; (4) the largest labor union within PREPA; (5) environmental organizations; and (6) the Association of Economists. A seventh member should be selected from the electrical engineering faculty at Puerto Rico's universities. Two members should be elected by PREPA customers as a consumer representative. Board members should be dismissed only with cause and if the resolution authorizing the dismissal receives more than six votes. The Board should have standing committees for finance and auditing, and the members of the finance and auditing committees should not overlap.

b. Executive Director. The executive director should be appointed by the Board as the result of an open hiring process. The Board must have just cause for dismissing an executive director.

c. Contracting Reform and Enforcement. Contracting reform must systematically address the many contracting irregularities that have been uncovered by the Puerto Rico Comptroller's audits and by the 2016 Senate investigation into fuel purchasing. The Puerto Rico Energy Bureau should be charged with ensuring that the contracting reforms are implemented.

d. Internal restructuring. Audits and investigations of PREPA's oil purchasing practices have highlighted the centralization of power and responsibility within PREPA's Fuel Office. The PREPA Board needs to undertake a structural analysis of PREPA's operations to ensure that potentially conflicting operations are not centralized in a single office, particularly the Fuel Office.

e. Consumer Advisory Board. The legislature should authorize the creation of a non-profit, membership-based organization to act as a citizen advisory board to PREPA.[8] The advisory board should have the right to all information available to PREPA board members (subject to confidentiality provisions), receive all internal audit reports, and have a right to a response from the executive director to all written questions and statements submitted by board members with the ability to compel enforcement by the Energy Bureau if PREPA does not cooperate.

3. Ensure a strong, independent regulator and professional energy planning.

Puerto Rico's electrical system requires a strong, independent regulator to protect the public interest, to conduct sound and professional energy planning and to ensure just and reasonable rates. We recommend:

a. Increase the budget for the energy regulator to $20-$30 million per year, as recommended in the PREPA Fiscal Plan.[9]

b. Restore the Energy Bureau's abilities to regulate and oversee requests for proposals and contracts, including any privatization contracts or asset sales.

c. Give the Energy Bureau the authority to appoint an Independent Private Sector Inspector General (IPSIG) to ensure that, in the short term, operational reforms within PREPA are implemented and political interference in the agency is minimized. An IPSIG is an independent firm with auditing and management expertise that would be empowered to investigate and monitor PREPA's operations on a day-to-day basis and report relevant findings and progress to the PREPA Board and the Bureau.[10]

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[8] Alternatively, the role could be given to an existing membership-based organization or coalition of organizations. This model is similar to "citizens utility boards," which are membership-based non-profit organizations recognized by several U.S. states as the legal representative of consumer interests before the states' public utilities commissions.

[9] PREPA Fiscal Plan, August 1, 2018, p. 59.

[10] An example of the use of an IPSIG in New York State can be found at https://getnicklaw.com/areas-of-practice/independent-monitoring/case-studies/new-york-racing-association/

4. ***Ensure that PREPA's labor force is protected in the transition.***

PREPA has lost 30% of its labor force since 2012, half of whom were employed in transmission and distribution. The Fiscal Board has noted that PREPA's workforce is understaffed in certain skilled functions.[11] At the same time, the Fiscal Board's independent investigator found that there are typically between 150-300 political appointees serving in administrative positions within PREPA, contributing to high turnover and weak management of the utility.[12]

Other than these poorly-chosen political appointees, PREPA's workforce provides a critically-important source of skills and institutional knowledge, and PREPA has been an important source of middle-class jobs on the island. In order to protect PREPA workers in the transition:

- PREPA, FOMB and the governor should work with labor to achieve the budgetary outcomes needed to keep PREPA solvent, as recommended in the Fiscal Plan.

- All of the documents identified in the Fiscal Plan as forming the basis for labor reforms should be made public. To date, PREPA has produced very few of the documents needed to justify its budget proposals: statements critical of the collective bargaining agreement are undocumented; claims that the medical benefits are too expensive are not specific; pension reforms are not clearly defined or justified

- PREPA should produce information about the various classifications of employees that have been appointed for political reasons. Those include 1) political appointees, *empleados de confianza,* who apparently perform mostly political functions for the Governor and perhaps other elected officials; 2) unqualified political appointees placed in jobs that require technical or professional skills; and 3) political appointees who have been placed in career positions without merit. The number of these placements is unknown but the impact on PREPA's budget in salary, medical benefits and pensions is material.

- PREPA should take a series of corrective actions to eliminate unnecessary positions and to place people in these jobs based on merit. Budget savings will result from these actions.

5. ***Demand a thorough investigation into PREPA's debt and advocate for liability to be apportioned appropriately.***

On July 30, 2018, the FOMB announced a preliminary agreement between PREPA and some of its creditors for PREPA ratepayers to pay back a substantial fraction of PREPA's legacy debt over the next forty-plus years. Some of PREPA's bondholders will be paid 77 cents on the dollar; the bonds have been trading in the range of 40 cents on the dollar for some time. This repayment would occur through the imposition of a 10% surcharge (2.6 cents/kWh) on electric bills, growing to a surcharge of 4.3 cents/kWh.[13] The surcharge of 2.6 cents/kWh is

[11] PREPA Fiscal Plan, August 1, 2018, p. 101.
[12] Kobre & Kim, "Final Investigative Report," prepared for the Financial Oversight and Management Board, August 20, 2018, p. 117.
[13] Financial Oversight and Management Board, "Unanimous written consent approving execution of preliminary Restructuring Support Agreement of Puerto Rico Electric Power Authority," July 30, 2018.

only 16% less than the previous debt surcharge that was rejected by the FOMB – prior to the hurricanes – for putting too high of a burden on the Puerto Rico economy.[14]

This agreement does not solve the problem. What matters is PREPA's ability to pay back the debt and with no meaningful improvement in economic growth on the Island or a viable plan for PREPA there is little likelihood that any new agreement can or will be honored in the future. The Fiscal Plan is weak and unlikely to achieve either its revenue or expenditure targets. New bond agreements must be forged without budget gimmicks or PREPA and the Island will remain fiscally distressed.

Last week, the FOMB released the final report of its independent investigator into the issuance of Puerto Rico's outstanding debt.[15] The report describes the role of financial advisors, underwriters, legal counsel, consulting engineers and others who failed to sound the appropriate alarms on the unsustainable borrowing practices and fiscal crisis facing PREPA and other government agencies. The report is the first comprehensive, official look at the causes of Puerto Rico's fiscal crisis, an investigation that was never performed by PREPA's Restructuring Officer. There is clearly an opening to apportion liability to those whose reckless decisions and advice contributed to PREPA's fiscal crisis. This must be done before determining how much, if any, of the legacy debt can and should be borne by Puerto Rico's electrical customers.

We recommend that the Senate advocate for a resolution of PREPA's legacy debt that holds responsible those whose negligence contributed to the debt crisis first. We also recommend that those companies that insured PREPA's bondholders make good on their obligations. And, we believe those who contributed to recklessness need to be subjected to criminal and civil investigations.

Comments on New Electricity Market Structures for Puerto Rico

Finally, we note that there has been discussion in Puerto Rico of adapting various electricity market and regulatory frameworks from the mainland United States, including wholesale electricity markets and retail choice. The discussion implies that the path forward for the energy system of Puerto Rico may be to follow the 1990s-era model of some U.S. states, which required utility divestment of generation to integrate new resources, including renewables, and merchant investment in generation. In this model, the utilities were left as distribution and transmission operators, and generation moved from vertical integration to a more competitive market, at the wholesale level and in some cases at the retail level as well. This 1990s-era utility restructuring framework remained fundamentally based on a model of large-scale centralized generation and facilitated the development of new centralized generation, primarily fueled by natural gas. These wholesale market structures were not established with the goal of driving the development of distributed energy resources, and many of the U.S. and European jurisdictions that restructured their electrical systems in the late 1990s and early 2000s are now trying to manage a transition to distributed energy resources, microgrids, lower-priced renewable supply, and demand management – the same transition that faces Puerto Rico today.

[14] Financial Oversight and Management Board, "Junta de Supervisión no aprueba RSA de la AEE," Press Release, June 27, 2017.
[15] Kobre & Kim, "Final Investigative Report," prepared for the Financial Oversight and Management Board, August 20, 2018.

As described in detail in our comments to the Puerto Rico Energy Bureau in its wheeling proceeding[16] and in a recent briefing note on retail choice,[17] we do not recommend the adoption of wholesale or retail electricity markets in Puerto Rico. Adapting any market or regulatory frameworks from other jurisdictions requires clarity around the end goals that Puerto Rico seeks to achieve in the transformation of the electrical system, as well as a clear analysis of whether these regulatory tools are compatible with the reality of Puerto Rico's electrical system.

Conclusion

All agree on the urgent need to transform Puerto Rico's electrical system. The model under which PREPA has operated for the last decade – taking on increasing indebtedness to avoid addressing the structural problems of an electrical system importing over $1 billion in fuel each year and suffering from weak management and politically driven contracting scandals – has run itself into the ground. Meanwhile the rapidly declining costs of renewable energy and storage, combined with a renewed interest among different sectors of Puerto Rican society for more locally based and resilient electricity supply, creates the opportunity to transition to an affordable, reliable and financially viable system. But at the same time, there is a push to maintain the status quo, to keep the electrical system reliant on overbuilt, centralized generation, based on imported fossil fuels and to ensure that professional energy planning is overridden by poorly conceived political deals.

We hope that the Senate will seize this opportunity to ensure that the transition currently underway in Puerto Rico's electrical system will be a true transformation marked by affordability, resilience, and accountability.

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[16] Submitted on August 27, 2018 in Energy Bureau Case CEPR-2018-MI-0010, http://ieefa.org/wp-content/uploads/2018/08/Final-Wheeling-Comments-with-Attachment-1.pdf
[17] C. Hotaling, A. Sommer and W. Yates, "Retail Choice Will Not Bring Down Puerto Rico's High Electricity Rates," August 2018. http://ieefa.org/wp-content/uploads/2018/08/Retail-Choice_August-2018.pdf