July 21, 2020
Chairman Raúl M. Grijalva
Rob Bishop, Ranking Member
House Committee on Natural Resources
Congress of the United States
Washington, DC 20515

[redacted]

Testimony on the Transformation of the Puerto Rico Electric Power Authority ("PREPA")

Dear Chairman Grijalva and Members of the House Committee on Natural Resources,

On behalf of the Queremos Sol Coalition, ("We Want Sun", queremossolpr.com), we appreciate the opportunity provided by the House Committee on Natural Resources to testify and submit comments on the Transformation of the Puerto Rico Electric Power Authority ("PREPA"). The Queremos Sol Coalition is composed of numerous civil society groups, including community, environmental, labor, professional organizations and academia that have come together to promote a sustainable, more affordable platform for the transformation of the Puerto Rico electric system, consistent with the Puerto Rican government's commitment to 50% renewable energy by 2030 and 100% renewable energy for Puerto Rico by 2050.

As further explained below, our Coalition members have substantial concerns with both the process and the outcome of PREPA's recent "T&D System Operation and Maintenance Agreement" with Luma Energy, LLC (the Luma contract"). These concerns are shared by Puerto Ricans in the diaspora, as evidenced by the recent protests on the mainland.

As such, we urge this Committee, the federal government and the Puerto Rican government to encourage PREPA to annul the Luma contract and develop a plan focused on on-site solar and battery systems and energy efficiency programs, based on the recommendations of numerous experts, as further detailed below.

I. Introduction

Puerto Rico is at a crossroads with respect to its electric system. One of the main issues confronting the territory is whether to double down on rebuilding Puerto Rico's inadequate 20th century infrastructure or to embark on the creation and construction of a 21st century electric system, based on the Puerto Rican government's commitment to renewable energy that enables Puerto Rico residents to participate in this essential public service. The Queremos Sol Coalition vigorously promotes the transformation of the Puerto Rico electric system as a public service including PREPA governance and the technology that empowers citizen participation as "prosumers"-producers and consumers of energy in order to achieve energy democracy.

The Luma contract structures an almost complete privatization of Puerto Rico's electric system via a lengthy operation and management (O&M) contract, not only for the transmission and distribution (T&D) system and customer service department, but also for power generation dispatch, acquisition and planning, among other issues discussed below. However, the contract calls for an initial transition period requiring numerous conditions prior to a full takeover by Luma that signifies anything but a forgone conclusion that the transaction will be consummated.

The privatization of the Puerto Rico electric system as embodied in the Luma Energy contract in the midst of multiple crises, including the COVID-19 pandemic, recent and ongoing seismic activity, unaddressed socio-economic disfunction unveiled by Hurricanes Irma and Maria, and the threat of another active hurricane season will not provide the 21st century electric system and the empowerment and service that the residents of Puerto Rico require. More than ever, PREPA must undertake a swift transformation of its electric system to integrate residents, communities and businesses. The high poverty rates in Puerto Rico and the economic chaos engendered by the COVID crisis require the transformation of PREPA to incorporate energy conservation, efficiency, demand response programs, and renewable energy technologies, primarily roof-top or on-site solar and battery energy storage systems ("BESS"), as well as other alternatives to central station imported fossil fuel generation and centralized transmission and distribution. These alternatives stand in stark contrast to the use of billions of dollars in federal taxpayer funds to rebuild and "harden" the T&D system and add more central station fossil generation, especially so-called "natural" methane gas infrastructure that the Luma contract would facilitate. The federal government should work with PREPA to take measures to initiate a transparent process for acquisition or procurement of solar equipment and BESS to be installed, operated, and maintained by the dozens of PREPA employees who have been trained in renewable energy technology in conjunction with local communities and other alternatives discussed below.

II. First steps for transforming the Puerto Rico electric system

During the technical hearings in the PREPA Integrated Resource Plan ("IRP") process before the Puerto Rico Energy Bureau ("PREB") multiple experts provided numerous recommendations for the Action Plan that would immediately implement on-site renewables, storage, and energy efficiency programs, and begin the transformation of Puerto Rico's electric grid to better serve the people of Puerto Rico. Federal funding afforded to PREPA should be earmarked for these types of programs. PREPA's Preferred Plans, on the other hand, would ensure decades of continued reliance on large, centralized power plants and long, vulnerable South-to-North transmission lines that would not promote the resilience of the electricity grid to climate-related and other disasters. Hurricane Maria and the seismic events of this year showed the importance of decentralizing the power network. A distributed generation system centered on on-site/rooftop solar will be more resilient and, after an emergency, will allow for prompt restoration of energy services, fulfilling the responsibility of saving lives.

A. Energy conservation, efficiency, customer engagement and demand response programs

The Queremos Sol proposal highlights the importance of starting the necessary technical transformation with energy conservation, efficiency, customer engagement, and demand response

programs. During the IRP technical hearings, expert witnesses identified several cost-effective Quick-Start Energy Efficiency programs:

- Solar water heaters. At the hearing, PREPA's consultant, Siemens Industry agreed that the Siemens experts were wrong to reject solar water heaters as part of an energy efficiency program.[1] PREPA could facilitate communications between providers and customers, provide technical assistance with installation, incentivize adoption through PREPA budget allocations, and educate customers through engagement.
- Refrigerator incentive programs. Local Environmental Organizations' expert witness pointed out that these programs have already had success in the past in Puerto Rico.[2] In addition to the steps detailed above, PREPA could provide historical data from these programs.
- PREPA could provide energy audits, including energy efficiency measures, as well as solar and storage options.[3]
- Various expert witnesses listed other programs that would be cost-effective and popular:[4]
    - appliance replacement programs
    - tuning up air conditioners
    - replacing very old air conditioners
    - expanding the Office of Public Policy's low-income weatherization program, which has served 15,000 homes already

The IRP assumes that PREPA will comply with the 2% annual reduction in load due to energy efficiency as required by the Puerto Rico Energy Public Policy Act ("Law 17-2019"), culminating in a 30% reduction in PREPA's total load by 2040. Yet, the Action Plan does not explain how PREPA would accomplish this change.[5] Siemens/PREPA acknowledge that in order to increase energy efficiency uptake, PREPA must offer a greater variety of energy efficiency programs,[6] and indeed Law 17-2019, Section 1.9(3)(B) requires the IRP to include an evaluation of the conservation resources, including electricity demand management and the necessary programs to improve energy conservation. The Energy Bureau's consultant, Dr. Asa Hopkins, highlighted the most important conclusion of these scenarios: the initial $300M investment in energy efficiency would save PREPA $1B in avoided generation costs over the planning period, and the next $700M in energy efficiency spending would save an additional $1.8B in avoided generation costs over the planning period.[7]

PREPA must coordinate with the Bureau, the Energy Efficiency program administrator, and stakeholders in designing a customer engagement plan "to educate citizens and electric power

1 Negociado de Energía en vivo, *Evidentiary Hearing / CEPR-AP-2018-0001*, YouTube (Feb 5, 2020), https://youtu be/vIXWJt52Hfk?t=8350.

2 Negociado de Energía en vivo, *Evidentiary Hearing / CEPR-AP-2018-0001*, YouTube (Feb 4, 2020), https://youtu be/-RXb0bf5ScY?t=8970 Mr Sandoval has more than a decade of management experience with energy utilities Mr Sandoval's experience includes work in transmission and distribution system planning, demand side management, grid efficiency, grid transparency, and clean energy

3 Negociado de Energía en vivo, *Evidentiary Hearing / CEPR-AP-2018-0001*, YouTube (Feb 4, 2020), https://youtu be/-RXb0bf5ScY?t=13532.

4 *Id.*

5 Act 17-2019, Section 1 6 (11)

6 Negociado de Energía en vivo, *Evidentiary Hearing / CEPR-AP-2018-0001*, YouTube (Feb 4, 2020), https://youtu be/-RXb0bf5ScY?t=12664.

7 Negociado de Energía en vivo, *Evidentiary Hearing / CEPR-AP-2018-0001*, YouTube (Feb 6, 2020), https://youtu be/HO40ImpqKe8?t=3669. The above $300M investment in energy efficiency is the cost of moving from the "no energy efficiency" scenario to the "low energy efficiency" scenario, while the $700M cost represents moving from the "low energy efficiency scenario" to the base case scenario Each increase in the level of energy efficiency investments generates savings at well over a factor of two Id

service customers on energy efficiency, consumption reduction, distributed generation strategies, and other available tools to empower consumers to have more control over their energy consumption," as required by Law 17-2019 Section 1.5(4)(b). We note that PREPA titled Part 3 of its Action Plan "Engaging the Customer" but did not actually include a customer engagement plan.[8] A customer engagement plan would also help PREPA develop a "reasonable set of assumptions for econometric and/or end use variables," as required by the Regulation on Integrated Resource Plan for the Puerto Rico Electric Power Authority (Regulation 9021) Section 2.03(C)(2)(c).

B. Renewable energy, BESS, power electronics, and other alternatives

Law 17-2019 directs PREPA to "maximize the use of renewable energy" and, at the same time, "aggressively reduce the use of fossil fuels" and "minimiz[e] greenhouse gas emissions . . ."[9] Dr. Agustin Irizarry conducted the analysis that PREPA/Siemens should have done: he obtained real quotes for photovoltaic (PV) and storage equipment costs at retail price in Puerto Rico, along with financing expenses, widely available to Puerto Ricans for these projects. Dr. Irizarry's real-world, Puerto Rico-specific analysis of solar PV costs resulted in a forecast of Levelized Cost of Energy for rooftop PV of 7.8 cents per kWh in 2019, declining to 1.8 cents per kWh in 2038.[10] After Dr. Irizarry obtained his results, he found they were quite similar to the National Renewable Energy Laboratory's ("NREL") forecast for the costs of rooftop solar.

The draft IRP prepared by Siemens Industry, Inc. for PREPA indicates that the costs of customer alternatives are lower than the final all-in Energy System Modernization (ESM) and S4S2 plans generation portfolio rates. (Pages 8-40 and 8-59 of the IRP, third draft dated 06/07/2019.) The cost of customer generation is significantly lower than the total rate even before the non-bypassable component is added. Despite on-site, rooftop solar being cheaper in the IRP, customer-sited solar is severely limited to only about 20% of the generation mix at the end of the IRP planning period in 2038 (Exhibit 8-46 ESM Future Installed Capacity Mix, third draft dated 06/07/2019).

In the IRP, energy consumption by group indicates that commercial and residential clients constitute the lion's share of energy demand in Puerto Rico while industrial clients barely consume about 13% of energy generation. The commercial sector consists of sprawling malls and other installations with expansive parking lots and rooftops that can be used to site solar arrays to power operations. Much residential construction in Puerto Rico consists of single-family housing developments known as urbanizations. They are especially expansive and prevalent in the San Juan metropolitan area and can provide the on-site "rooftop resource" referenced in the Department of Energy ("DOE") commissioned studies by faculty at the University of Puerto Rico at Mayaguez ("UPRM"), recommending widespread use of existing structures to site PV installations, which also coincides with the major energy demand center in Puerto Rico. [11]

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8 IRP, Section 10 3

9 Law 17-2019 Section 1 5(6)(b), Section 1 11(d).

10 Irizarry-Rivera Direct Test at 27-29

11 http://www.uprm.edu/aret/docs/Ch_1_Summary.pdf. Multiple studies have proven the resiliency of on-site photovoltaic (PV) and battery energy storage (BESS) systems. https://www nrel.gov/docs/fy15osti/62631.pdf, https://www.nrel.gov/state-local-tribal/blog/posts/how-solar-pv-can-support-disaster-resiliency.html

The proposal for the initiation of transparent procurement or acquisition of PV and BESS, installed on rooftops or on-site by PREPA employees, aligns with the Queremos Sol proposal which sets forth a vision, objectives, and mechanisms to achieve incremental advances in energy efficiency, demand response programs, and escalating amounts of renewable generation based on community rooftop solar that would achieve 100% renewable generation by 2050.

The advantages of on-site, rooftop solar or solar installations close to the point of use are many. They include the use of existing sprawling housing development and commercial rooftops to avoid further impacts to open spaces, agricultural land, and ecologically sensitive areas. Rooftop solar eliminates the need for large investments in transmission infrastructure. It avoids transmission losses. Grid maintenance costs are reduced and impacts to tropical forests and vegetation as a result of tree cutting and pruning are minimized. The on-site solar alternative doesn't require establishing extensive easements or servitudes on private property, while helping to lower temperatures within the structures and providing protection to the buildings. Rooftop solar installations add value to the structures and promote local wealth. Distributed renewable generation on rooftops creates greater reinvestment in the local economy than utility-scale projects. It enables ratepayers to become producers or 'prosumers' of energy, not mere consumers and allows for control by residents and local communities and businesses, which is particularly important during outages of the main grid as was experienced after Hurricane Maria and the earthquakes. On-site solar enjoys broad support from civil society contrary to land-based installations that have been the subject of considerable opposition.

1. Renewables and BESS can serve critical loads and provide resilience

Siemens acknowledged that renewable resources could be available immediately after a major event (e.g., hurricane, power outage). Therefore, the company's original assumption in the IRP that base fossil generation was indispensable was wrong.[12] Siemens's rebuttal testimony acknowledged that the June 2019 IRP did not recognize the full value of renewables, stating that solar panels could be certified to withstand major events, and therefore should have been considered to supply critical loads.[13] In December 2019, the Energy Bureau's Energy Storage Study confirmed that "thermal resources are not required to prevent loss of critical loads."[14] At the hearing, Siemens' project head further explained that if the IRP had correctly recognized the full resiliency value of renewables, then the fixed decision to build 414 MW of gas-fired peaking units in 2021 may not have been necessary.[15]

The Energy Storage Study commissioned by PREB also confirmed that Siemens' incorrect decision to force gas-fired resources into the modeling had improperly lowered the amount of renewables and storage selected:

> The analysis finds that the gas-fired plants (thermal resources) required by PREPA's minigrids approach to meet critical and priority load impact the buildout of solar and storage. Because the model is forced to include

12 In addition, Siemens did not take distributed storage into consideration See PREPA response to Local Environmental Organizations' ROI 3 56

13 PREPA's Mot to Submit Corrected Rebuttal Test , Direct Test of Nelson Bacalao, PH D at 7, (Jan 20, 2020), http://energia pr gov/wp-content/uploads/2020/01/Corrected-Rebuttal-Testimony-of-Nelson-Bacalao-PH -D -in-Support-of-PREPAs-Draft-Integrated-Resource-Plan-CEPR-AP-2018-0001 pdf [hereinafter Bacalao Rebuttal Test]

14 Puerto Rico Energy Bureau, *Energy Storage Study For a renewable and resilient island grid for Puerto Rico* at Section 6 1 (Dec 19, 2019), *filed in* Dkt NEPR-MI-2020-0002, http://energia.pr.gov/wp-content/uploads/2020/01/NEPR-MI-2020-0002-Estudio-Sistemas-de-Almacenamiento-de-Energi%CC%81a.pdf [hereinafter PREB Energy Storage Study]

15 Negociado de Energía en vivo, *Evidentiary Hearing / CEPR-AP-2018-0001,* YouTube (Feb 5, 2020), https://youtu be/vIXWJt52Hfk?t=2190

> thermal resources, it cannot add as much solar and storage as it would if it were allowed to seek out the most cost-effective options for meeting demand.[16]

PREPA should coordinate with the Puerto Rico Energy Office to provide education about storage, as recommended in the Energy Bureau's Energy Storage Study.[17]

PREPA acknowledges that transformation of the system using distributed generation is both viable and must take a **predominant** role in the Puerto Rico grid.[18]
Law 17-2019 and the PREPA Governing Board mandate require that the electric system be customer centric.

2. Financing the necessary transformation

Financing strategies and instruments can be sourced from various sectors: the federal government, credit unions, cooperatives, and other organizations to achieve renewable generation goals with a distributed generation strategy. PREPA could also use its budget to incentivize customers to build distributed solar and storage systems and share implementation costs with customers. Puerto Rico Senate Bill 1879 detailed such a program. PREPA could implement a system to incentivize customers to build distributed solar and storage systems and share implementation costs with customers. Bill 1879 would require PREPA to fund 80% of the total cost and installation of renewable energy systems in the residences of the participating owners that have the average consumption of a family of four members, or 800 kilowatts of energy per month, whichever is greater. In turn, the excess energy produced by the systems installed and acquired through the incentive must be used to reduce the energy cost in Puerto Rico. The funds for onsite/rooftop initiatives can come from short-term and long-term sources including federal funds that would not result in rate increases. Through these programs, Puerto Rico could achieve the goals of the Queremos Sol proposal: 75% of homes must have a rooftop solar system of around 1.5 kW of generation capacity accompanied by a 10-kWh storage system by 2035 to increase the efficiency of residential electric service.

III. The Luma contract is a 20th century approach that will not prepare Puerto Rico for the climate crisis or serve the public interest

The Luma contract goes against the necessary transformation of PREPA that would allow Puerto Rico residents and communities to participate in the electric system through energy conservation and efficiency, PV systems sited on rooftops or close to the point of use, BESS and other alternatives to centralized generation at fossil fuel fired power plants and T&D. As discussed above, the alternatives to a centralized electric system set out in the Queremos Sol proposal are recommended by multiple experts and studies. By perpetuating South-North transmission, the contract with Luma facilitates the operation of the AES coal burning power

16 PREB Energy Storage Study, Section 6 1

17 PREB Energy Storage Study, Section 6 2

18 "Customer-Centric: which includes customer participation via energy efficiency, customer side energy resources and demand response with a predominant role in the supply and consumption matrix of Puerto Rico, and empowering customers to participate and take ownership on their energy security and affordability " IRP, at 1-1,

plant in Guayama potentially beyond the end of the AES contract term if the regulatory provisions against coal combustion are amended, as well as the rest of the central station fossil fuel plants located in Southern Puerto Rico.

The Luma contract is a long, expensive and exclusive scheme that creates a private monopoly. The Luma contract spans 15 years and may be terminated before or extended by mutual agreement with the approval of the PREB. Under the contract, PREPA must pay Luma a service fee that ranges from $83 million to $125 million per year and, in addition to virtually all Luma's costs through the so-called Operator T&D Pass-Through Expenditures,[19] some capital expenses and expenses during outage events. Luma has no obligation to invest its own funds.

From the service start date and for the rest of the term of the contract, the Operator, the contractors and their subcontractors will have the exclusive right, subject to Section 3.5 (right of access), to enter, occupy, and use the T&D system and its related areas.

Although the Agreement recognizes that electric service is an essential public service, no duty is established to provide that service to the public, though the entire T&D system would be under the Operator's control and Luma would also exercise control over the dispatch of the generation plants. (Luma contract page 35, pdf 42).

The Luma contract divides and dismantles PREPA into two different companies, while simultaneously providing Luma with multiple opportunities to abandon its responsibilities:

"GenCo" will be the entity that owns the generation assets--the existing generating plants-- after the PREPA dismantling. (Luma contract page 17, pdf 24.) "GridCo" is defined as the entity that acquires or obtains ownership of the T&D system. This arrangement essentially dismantles PREPA and creates heightened risk for Puerto Ricans should Luma terminate the agreement or fail to provide the requisite services under the extremely broad force majeure contract clause.

Luma is granted monopoly control over Puerto Rico's electric system that goes beyond the T&D system and customer service. In relation to generation services, Luma will control the dispatch of the power plants and management of energy supply. Luma is granted the authority to

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[19] **Details of T&D Pass-Through Expenditures to Be Paid by PREPA to Luma**

T&D transfer expenses will include, among others, the following four types of expenses as an example of the list of 22 expenditure types that PREPA must reimburse to the Operator:

1. wages, salaries, bonuses, employer contributions to medical pension and employee plans;

2. costs incurred by ServCo in the provision of O&M services, including the costs of all subcontracted employees, all goods and services, **subcontractor costs, employee allowances, administrative costs such as fees, subscriptions, meals, and entertainment**.

3. costs related to system capital improvements, including project management costs incurred by ServCo employees and the cost of debt for assets and all other costs associated with financing these improvements, except for Operator-owned capital improvements as provided in Section 5.5 (d) (Capital Improvements - Option to Propose Operator-Owned Capital Improvements) of the Agreement;

4. costs incurred with respect to professional services, including legal, engineering, accounting, finance, auditing, information technology, etc.

manage the acquisition of generation projects and generation supply contracts. Luma would acquire easements, fee interests and concession rights and, identify and constitute new easement areas. Similary, the Operator can acquire concession rights that allow for the use of real estate assets in the public domain, including **submerged lands, wetlands and areas designated as part of the terrestrial maritime zone by the Puerto Rico Department of Natural and Environmental Resources** for the operation, maintenance, repair, restoration, replacements, improvements, additions, and alterations to the T&D system.

Luma would provide "other" services, including "implicit" services. In addition, if requested by the Administrator, the Operator may perform additional services reasonably related to the T&D system not included in O&M services. (Luma contract pages 73-6, pdf 80-6).

The Luma contract mandates that the Operator must have complete flexibility as to the budget, and although it must consult the Administrator and PREB, their approval is not required, to (i) reassign, accelerate, or postpone expenses within the approved Operating Budget, (ii) reallocate, accelerate, or postpone expenses within the approved Capital Budget financed by the federal government, subject to federal financing requirements, and (iii) reallocate, accelerate, or postpone expenses within the approved Capital Budget not financed by the federal government, in each case, in such a way that the reallocations do not exceed 5% of the Budget. (Luma contract page 89, pdf 96). The grant of discretion to Luma over public funds, including federal funds is problematic as previous energy contracts in Puerto Rico have shown.

Luma will prepare the PREPA IRP. The Operator, as an agent of PREPA, will prepare a proposed IRP for the future long-term development of the Puerto Rico electric system, subject to PREB's review and approval. (Luma contract page 67, pdf 74). As the experience with the Siemens IRPs has shown, the ability to draft the IRP bakes in biases, such as a preference for fossil fuel generation into modeling inputs.

Luma may become part owner of the Puerto Rico electric system. Luma could carry out capital improvement projects that could become its property if it invests its own funds to build them. (Luma contract page 66, pdf 73).

Luma may request increases in the electricity rate. Although it is alleged that the Agreement is intended to lower the cost of electric energy, the Operator may submit a request to PREB to increase or change the customer rates or charges. (Luma contract page 67, pdf 74). In fact, according to PREPA's Fiscal Plan, PREPA now has a deficit roughly equivalent to the amount of the payment to Luma for the current fiscal year.

The Luma contract cites the Grid Modernization Plan ("Grid Mod Plan")[20] and other documents and requires alignment of the proposed T&D work. (Luma contract II-36, pdf page 2014). **The Grid Mod Plan was drawn up to request $20.3 billion or $21 billion in federal funds from the Federal Emergency Management Agency ("FEMA"), of which $12.2 billion is slated for reconstruction of existing transmission and distribution systems and some substations rather than the transformation of the system.** The major expense requirements of the Grid Mod Plan focus on the direct rebuilding of transmission and distribution systems and substations. Total expenses in those categories are $12.2 billion, or 60% of the total. Table 4-5 of the Grid Mod Plan details a list of South-North transmission infrastructure. Table 4-12 proposes

[20] https://recovery.pr/documents/Grid%20Modernization%20Plan_20191213%20(2).pdf

spending $1.7 billion to strengthen that transmission. Fossil infrastructure spending would be $3.8 billion, according to the Grid Mod Plan.

The London Economics International ("LEI") report[21] estimates that the Puerto Rico's electricity rates would increase to between 27.8 to 30 cents per kWh (nominal) over the next five years if the proposed T&D system projects and the Restructuring Support Agreement (RSA) for the restructuring of the PREPA debt are implemented **even with the investment of federal funds**. Rates will increase further, to 103 cents per kWh in 2047 (65 cents per kWh in 2019 real dollars) in the base case, and 60 cents per kWh (38 cents per kWh in 2019 real dollars) in the alternative case. These astronomical increases are mainly due to the proposed investments in T&D.

Under the Agreement, Luma is granted undue control over federal funds. The Operator will work with IEM (as its subcontractor) to manage federal funds. The Operator's first step after the initial transition begins is to establish a governance framework to manage long-term recovery using federal funds on behalf of PREPA. (VII. Federal Funds Procurement Manual). Under the Luma contract, the "Grant Administrator" is defined as "the relevant government agency and any third party, authorized by PREPA, and reasonably acceptable to ManagementCo, i,e, Luma to act as manager to administer federal funds. ManagementCo may request, to the extent permitted by applicable law, changes or modifications to federal funding (including modifications or reassignments between project worksheets related to the T&D system prepared by FEMA pursuant to Section 428 of Stafford Act) or the Integrated Resource Plan." (Luma contract page II-39, pdf 207).

Luma can abandon the tasks required under the contract after PREPA has been dismantled and when reinforcements for the electric system are most needed and almost at any time. In an extended force majeure event, Luma, as Operator has the right to terminate the contract, in the event that the force majeure event continues for a period longer than eighteen (18) consecutive months and materially interferes, delays or increases the cost of initial transition services (front-end) or operation and maintenance services (O&M). (Luma contract page 125, pdf 132). In addition, according to the contract, "force majeure event" is defined so broadly that it excuses Luma from performing the services required for almost any reason, including an interruption or blackout event (page 22, 29), computer sabotage or virus, quarantine, epidemic, or civil disobedience; any event that causes any Puerto Rico or federal government agency to declare any part of the geographical area of the T&D system as part of a "disaster zone", "state of emergency" or any other similar declaration; and a change in the law. (Luma contract pages 14-5, pdf 22. The definition of force majeure is very broad and allows the Operator to evade responsibility after receiving the benefits of the contract.

The Luma Agreement infringes upon the rights of PREPA employees. **Neither ManagementCo nor ServCo will be required to hire or compensate PREPA employees. ServCo will not be required to hire even the majority of PREPA employees and the determination of which employees it will hire will be made by ServCo in its sole discretion. Job offers will remain open for a period of 10 business days.** Any offer accepted within the 10-day period will be irrevocable only until the service start date. Job offers will provide employment with ServCo on the terms and conditions established in ServCo's sole discretion.

[21] https://creditorspr.com/wp-content/uploads/2020/02/Redacted-LEI-Report-filed-version.pdf

(Luma contract page 69, pdf 76). The Operator will not be required to assume PREPA pension payments. Employees hired by the Operator will not receive any credit for their previous service unless required by Law 120-2018. ServCo's benefit plan will not be obliged to cover pre-existing health conditions or other benefits for employees and their dependents. (Luma contract page 47-8, 54-55).

The contract provides for priority of payments to the Operator as administrative expenses in the PREPA bankruptcy Title III process to the detriment of other PREPA obligations. (Luma contract page IV-1, pdf 218).

Luma may suspend or terminate electricity service to government entities, such as municipalities. Luma will assume the implementation of Regulation 8818 of September 27, 2016 (Regulation on Contribution in Lieu of Taxes (CILT/CELI).Contrary to a public utility, Luma is not guided by the services that government agencies provide and how they may be impacted by suspension of electric service.

The contract requires PREPA to grant a liability waiver for damages to customers in favor of Luma. With the presentation of the initial budgets to the PREB, the parties agree to request the inclusion in the rate order of an exemption from liability from PREPA in favor of ManagementCo and ServCo as to customers or anyone who receives energy and electricity for any loss that arises in any way or in connection with the operation of the T&D system and the supply of energy and electricity, including any outage event, irregular or defective electrical service due to force majeure events, other causes beyond the control of PREPA, ManagementCo o ServCo or common negligence, gross negligence or willful misconduct of PREPA, ManagementCo or ServCo, or their respective employees, agents or contractors; and exemption in all cases of liability for any loss of earnings or income, among others. (Luma contract, page 44, pdf 51).

Luma may evade the requirement to maintain insurance policies. If any required insurance policy is not available at commercially reasonable prices, the Operator will have the right to request the Administrator's consent to obviate the requirement, the consent will not be denied, delayed or unreasonably conditioned. PREPA is required to pay the claims that would be covered under an insurance policy if Luma does not purchase the policy. (Luma contract page 103, pdf 110).

The Luma contract would perpetuate central station fossil fuel generation and the associated T&D system. The Grid Mod Plan to which the Luma contract must be aligned lists multiple methane gas facilities, including San Juan, Mayagüez, Palo Seco, Yabucoa, and other peaking units but admits that having four gas import points increases costs and is not "optimal". However, the government's consultants go on to discuss multiple mechanisms to deploy new methane gas infrastructure, which have been the subject of stiff civil society opposition. On page 55 of the Grid Mod Plan, Figure 4-10 shows that natural gas constitutes 43.72% (adding EcoElectrica and Costa Sur) of "Total Production per Fuel Type Accumulated," while diesel amounts to 13.53% and bunker C is 19.36%, totaling 32.89% for oil combustion generation. Therefore, methane gas generation already exceeds oil-fired generation. This undermines the argument of increasing gas generation as a "transition" to renewable energy or for "fuel diversification" purposes. Instead, any increase in gas generation would necessarily further exacerbate reliance on a single, imported fuel source.

The Luma contract, by virtue of the requisite "alignment" with the Grid Mod Plan perpetuates centralized generation with imported fossil fuels, especially new "natural," highly explosive, methane gas infrastructure that involves investments of billions of dollars and continued dependence on the transmission of electricity from southern Puerto Rico to the San Juan metropolitan area. It should be noted that methane gas plants and pipelines usually are taken out of operation during earthquakes to minimize explosions of this highly volatile fuel. This practice implies that the gas infrastructure would be inoperative during earthquake aftershocks that can go on for months as is currently the case in Puerto Rico.

The Action Plan in the draft IRP calls for the construction of three ship-based LNG terminals to be sited in San Juan, Mayaguez, and Yabucoa and one land-based LNG terminal in San Juan, four new Combined Cycle Generation Turbines (CCGT) of 302 MW each in Palo Seco, Costa Sur, Yabucoa, and Mayaguez, and the possibility of the conversion of the AES coal burning power plant in Guayama to burn gas; three (3) CCGTs of 38 MW each in the San Juan metropolitan area; 18 mobile 23 MW units, between 900 to 1800 MW of land-based solar projects and between 600 to 900 MW of BESS. The Plan also proposes the conversion of several existing plants to burn imported methane gas. The construction of these projects would create long-term dependence on methane gas imports and impede the adoption of on-site and rooftop solar and related options.

PREPA senior executives have indicated that the funds for methane gas infrastructure and the reconstruction of the current T&D system will come from federal sources. Implicit in this approach is the presumption that the people of Puerto Rico will be getting a "free lunch" and that they can request large sums for infrastructure of doubtful utility and security because it is paid by the federal government and ultimately, US taxpayers. This reflects a mentality of dependence driven by the methane gas/LNG industry and corporations that sell fossil generation units. The "free" methane gas infrastructure would tie Puerto Rico to methane gas-burning plants and endanger public health and safety.

A recent example of how the methane gas infrastructure can go against the public interest is the New Fortress Energy/NFEnergia (NF) Liquefied Natural Gas ("LNG") terminal in San Juan Harbor. Recently, the Federal Energy Regulatory Commission ("FERC") issued an Order to Show Cause against NF because NF built and operates the LNG terminal in San Juan without previously having obtained the requisite authorization under Section 3 of the Natural Gas Act. If NF had submitted an application for FERC authorization it would have been required to study the health and safety risks of the LNG terminal to nearby communities, workers, and properties.[22]

[22] Faith groups that represent thousands of concerned citizens living in or around the area of the proposed NFEnergia LNG facilities, including Cristian churches from various denominations in the Municipalities of San Juan, Guaynabo and Cataño sent a letter to FERC requesting the agency's intervention in the project. (See the attached letter). The churches include the following: (1) Iglesia Cristiana (Discípulos de Cristo) in Amelia, Guaynabo (serving Barrio Pueblo Viejo de Guaynabo, Sabana, Amelia, Vietnam, La Puntilla and others sectors between Guaynabo & Cataño); (2) Iglesia Cristiana (Discípulos de Cristo) in San Patricio (serving Northeast/Northwest Puerto Nuevo and Barriada Borinquen); (3) Iglesia Luterana El Redentor (serving Puerto Nuevo); and (4) Iglesia Cristiana (Discípulos de Cristo) of Puerto Nuevo (serving Puerto Nuevo and the Hermanas Dominicas de la Santa Cruz community in Cataño). The group is also backed by the Puerto Rican Council of Churches with more than 500 congregations among its ranks. Combined, the group represents more than a dozen pastors seeking answers as to why FERC has not assumed jurisdiction on such a dangerous project involving large amounts of flammable methane gas in proximity to communities and places of worship.

The NF project is plagued with irregularities and potential legal violations, recently revealed in an in-depth report published by Cambio Puerto Rico and the Institute for Energy Economics and Financial Analysis ("IEEFA"). [23]

The NF terminal is supplying methane gas to the PREPA San Juan 5 & 6 units, which are burning light distillate or gas.[24] **The cost of electricity from San Juan 5 & 6, burning gas is $10.79/MBTU, which makes those units the most expensive baseload units on PREPA's system**.

All the gas infrastructure build-out proposed is based on dubious legal exceptions and a proposed waiver of the Jones Act (Merchant Marine Act) exclusively to allow for shipping of methane gas extracted via hydraulic fracturing (fracking) from the continental United States in foreign vessels, which is not likely to be approved according to news sources. The executive branch's gas infrastructure buildout will leave no space or resources for customer-sited renewables.

IV. The Luma contract will exacerbate PREPA's current system vulnerabilities and harm public health and safety

Hurricanes Irma and Maria demonstrated that the 230kV and 115 kV lines that carry power from the large, centralized power plants in the South to the North were a key vulnerability of the system. The Luma contract requires continued reliance on centralized fossil fuel combustion plants and these transmission lines, and even contemplates more large, centralized plants, also connected to the grid through the same vulnerable transmission lines. The South-to-North transmission lines are vulnerable to extreme weather events, vegetation growth, wildlife impacts, lack of investment in maintenance, and difficult access to servitudes and easements, among others.

The seismic events further demonstrated the vulnerability of large, centralized plants and the affiliated transmission system: Costa Sur and EcoElectrica are both damaged. The U.S. Geological Survey has determined that the areas where the San Juan and Palo Seco plants are located present high risk of liquefaction in the event of earthquakes.[25] The Great Southern Puerto Rico Fault Zone runs through the Jobos Bay area where the Aguirre Power Complex and the AES coal burning power plants are located. [26]

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[23] https://ieefa.org/wp-content/uploads/2020/06/Is-Puerto-Ricos-Energy-Future-Rigged_June-2020.pdf

[24] In May 2020, it appears that PREPA burned about 240,000 barrels of light distillate at San Juan 5 & 6, and 85,000 barrels of methane gas, according to the Reconciliation File May 2020, May-2020 Fuel Cost & Consumption tab, rows 45-52, PREPA's June 17th filing in PREB's rate case docket, NEPR-MI-2020-0001.

25 Bachhuber, Hengesh, & Sunderman, Liquefaction Susceptibility of the Bayamon and San Juan Quadrangles, Puerto Rico, at Figure 6, PDF p 30 (2008), https://earthquake usgs gov/cfusion/external_grants/reports/03HQGR0107 pdf (noting very high susceptibility zones in areas along the Bayamon coastal plain, Bahia de San Juan, and Laguna San Jose); Hengesh, & Bachhuber, *Liquefaction susceptibility zonation map of San Juan, Puerto Rico*, in Mann, P (ed), *Active tectonics and seismic hazards of Puerto Rico, the Virgin Islands, and offshore areas: Geological Society of America Special Paper 385*, at 249–262 (2005)

26 *Id.* at 250

The Palo Seco plant, depot and accompanying infrastructure are in a tsunami flood area.[27] The IRP fails to consider how much of the existing or proposed energy infrastructure is in flood prone areas or to provide documents related to sea level rise, storm surge, or other flooding risks for the plants and T&D infrastructure.[28]

The operation of all fossil fuel plants in Puerto Rico emit multiple contaminants that adversely impact public health and the environment. The Applied Energy System (AES) Corporation coal-fired power plant and the Aguirre Power Complex, located in southeastern Puerto Rico are the two primary sources of toxic emissions in Puerto Rico and disproportionately impact some of the poorest communities.[29] These two plants also extract large amounts of freshwater from the South Coast Aquifer and have contributed to the water scarcity that led to water rationing in summer 2019 and in previous years[30].

The AES coal burning power plant in Guayama transmits electricity to northern Puerto Rico, including the San Juan metro area and accumulates hundreds of thousands of tons of coal ash waste at its plant site. The facility and its polluting practices already contaminated part of the South Coast Aquifer, the sole source of potable water for tens of thousands of people in Puerto Rico.[31]

The Costa Sur and EcoElectrica plants in southwestern Puerto Rico both burn imported methane gas and also transmit energy long distance. Gas combustion is the substitution of one group of contaminants for others. The myth that methane gas is a cleaner energy source is a fallacy. The methane LNG used in Puerto Rico must be stored under cryogenic conditions and revaporized/regasified before it can used at the plants. These additional processes add to the total emissions of LNG use in a way that exceeds the CO2 emissions of other fossil fuels. Methane gas combustion also emits increased Volatile Organic Compounds (VOCs) such as formaldehyde, benzene, toluene, hexane, and styrene. [32]

Multiple scientific studies, including a recent Harvard University report found that, "A small increase in long-term exposure to PM2.5 leads to a large increase in COVID-19 death rate, with the magnitude of increase 20 times that observed for PM2.5 and all-cause mortality. Exposure

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27 GridMod Plan, at 107, Figure 6-6 ("Map of Palo Seco Plant and Depot in Flood Area," listing PREPA as the source of this information)

28 The terms "Storm surge" and "Flooding" each appear only once in PREPA's IRP, while "Sea Level Rise" is left out completely *Cf* Puerto Rico Climate Change Council (PRCCC), Puerto Rico's State of the Climate 2010-2013: Assessing Puerto Rico's Social-Ecological Vulnerabilities in a Changing Climate at 7 (2013), http://pr-ccc org/download/PR%20State%20of%20the%20Climate-FINAL_ENE2015 pdf (noting the demands of the scientific and academic community in Puerto Rico for "an immediate halt to the endorsement and approval of projects in coastal areas vulnerable to the effects of sea level rise")

29 https://enviro.epa.gov/triexplorer//tri_factsheet.factsheet_forstate?pZip=&pParent=NAT&pCity=&pCounty=&pState=PR&pYear=2018&pDataSet=TRIQ1&pPrint=0.

30 (https://waterdata.usgs.gov/pr/nwis/wu; https://www.periodicolaperla.com/acuifero-del-sur-retrocede-la-unica-fuente-de-agua-potable-de-30-mil-surenos1/)

31 Report On Corrective Measures Assessment Aes Puerto Rico – Agremax™ Staging Area Guayama, Puerto Rico https://aespuertorico.com/wp-content/uploads/2019/11/Corrective-Measures-Assessment-English.pdf, AES Puerto Rico Coal Combustion Residuals website; https://aespuertorico.com/ccr/

32 Pediatric Environmental Health Specialty Unit (PEHSU), Mount Sinai Medical School. pgs. 1-2. https://elibrary ferc.gov/IDMWS/search/advResults.asp, Case No. CP13-193-000.

to air pollution and COVID-19 mortality in the United States. [33]The study results underscore the importance of continuing to enforce existing air pollution regulations to protect human health both during and after the COVID-19 crisis." The specific findings demonstrate that, an increase of only 1 ug/m3 in PM2.5 is associated with a 15% increase in the COVID-19 death rate, at a 95% confidence interval. https://projects.iq.harvard.edu/covid-pm. Particulate matter is emitted by electric power plants, motor vehicles and other sources of air contamination. Continued reliance on these plants for energy transmission to San Juan and northern Puerto Rico is another disaster in the making.

V. The disastrous experience with privatizing energy and other sectors in Puerto Rico

Within the electric power sector, Puerto Rico already has several examples of generation by private corporations. The AES coal-fired plant generates approximately 17% of Puerto Rico's electric power and has incurred in multiple violations and instances of noncompliance with the plant siting permit, orders, and resolutions of the Puerto Rico Environmental Quality Board (EQB), violations of the Federal Clean Water Act and other violations that constitute sufficient basis for the rescission of the power purchase agreement between PREPA and AES prior to the expiration of the contract term. Evidence of environmental contamination by AES is documented in various Groundwater Monitoring reports commissioned by AES to its contractor, DNA Environmental, LLC as a requirement of the Federal Coal Combustion Residuals Rule. AES is now in the process of determining the corrective measures to implement to clean the groundwater contamination and prevent further water pollution at its plant site.[34] However, there are at least 40 sites where AES' Agremax was used as fill material over the South Coast Aquifer and various other sites in municipalities throughout Puerto Rico that have not been tested and are likely leaching heavy metals into water supplies.

Other examples of private energy generation in Puerto Rico are the renewable energy power purchase agreements. Table 5-6 of the 2015 Supplementary IRP prepared by Siemens Industry lists 43 power purchase agreements totaling 1056 MW. The prices of some of these contracts are as high as $197.00 per MWh, in addition to annual escalation costs and requiring payment for renewable energy certificates ("RECs"). In addition, almost all of these projects are built or proposed to be built on agricultural land or ecologically sensitive areas.

The Federal Oversight Management Board ("FOMB") approved the NF LNG project in San Juan Harbor as well as the new EcoElectrica/Naturgy agreements. Based on the LNG market analysis of Poten & Partners, the EcoElectrica/Naturgy agreements could cost approximately $500M in excess of competitively bid contracts over the twelve-year term of the agreements. The NF contract also includes above-market rates for LNG. Ultimately, PREPA ratepayers would be required to shoulder this burden. It's imperative that the FOMB explain the basis for its approval of the various dubious transactions mentioned above.

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[33] Xiao Wu, Rachel C. Nethery, Benjamin M. Sabath, Danielle Braun, Francesca Dominici. medRxiv 2020.04.05.20054502; doi: https://doi.org/10.1101/2020.04.05.20054502.

[34] DNA-Environment, LLC, 2017 Annual Groundwater Monitoring Report AES Puerto Rico LP, Guayama, Puerto Rico (Jan. 31, 2018). *Avaliable at*: http://aespuertorico.com/wp-content/uploads/2018/02/2017_01_31_AES_Groundwater-Monitoring-and-Corrective-Action_Annual-Report.pdf.

A study on the privatization of the Puerto Rico Aqueduct and Sewer Authority ("PRASA") concluded as follows:

> [P]rivatization did not improve the quality of water services either, and certainly led to many more fines and expenses for Puerto Rico, as evidenced by the work done by the Office of the Comptroller of Puerto Rico. Contrary to what was believed and argued by those that supported privatization of the water supply services, two different privatization projects, with different companies and varying contractual terms, failed. Cortina de Cardenas, Susana Maria. "Does private management lead to improvement of water services? Lessons learned from the experiences of Bolivia and Puerto Rico." PhD (Doctor of Philosophy) [35]

The study concludes that, "There is no evidence that supports the notion that privatizing any service *per se*, including water, through any kind of contract, a concession or otherwise, will lead to the delivery of better services." Id pg. 192.

VI. The public model is necessary to transform the Puerto Rico electric system

The Queremos Sol platform envisions the vindication of the public utility in Puerto Rico through citizen participation and "prosumer" generation. According to the American Public Power Association, known as APPA, public energy companies in the United States generally provide electric service at lower prices than private companies:

Public power utilities provide reliable electric service at comparably low cost, and they do so because they are staffed by dedicated and highly qualified individuals who have years of experience. Employees of public power utilities understand their local communities and take pride in keeping the lights on for their neighbors (http://c.ymcdn.com/sites/members.iamu.org/resource/resmgr/informer_2016/APPA_Pay_Report.pdf, pg.1). The study cited indicates that the residential rates of public energy companies were 14% lower than the rates of private energy companies known as Investor Owned Utilities ("IOUs"). (Id. pg.2). Meanwhile, in the commercial sector, the rates of public companies are a little lower and in the industrial sector they are comparable with the rates of private companies. The total rates of public companies are on average 7 cents lower than the tariffs of the IOUs. Id. pg.2. In terms of service reliability, public electric power companies in the United States, on average outperform private companies in the industry parameters. Subscribers of public companies on average experience fewer blackouts than customers of other kinds of electric companies (Id. pg.3).

In Puerto Rico, private companies that generate electricity have received very generous tax exemption benefits. While PREPA has historically made contributions in lieu of taxes ("CILT") to municipalities and other branches of government and provides substantial subsidies by virtue of multiple provisions of law. According to a survey conducted in 2014, private electric power companies in the US only pay 4.2% of their total operating income to state and local governments while public utilities contribute an average of 5.6% of total operating income, this is 33% more than the payments of private companies (Id. pg.4).

[35] thesis, University of Iowa, 2011, pg.109., http://ir.uiowa.edu/etd/941.

Public utilities provide other tangible and intangible benefits to their local communities. Public ownership of the assets provides local control over investments, energy supply options and programs. Representatives of subscribers of public companies have the right to participate in meetings where decisions are made. Planning is often done with a view to incorporating community input. The contributions, together with the local participation also promote local economic development. Public utilities are also innovative in terms of technology and many public energy companies have taken a leadership role in preparing their communities for the future by searching for new technologies as an integral part of community growth. They serve as sources of information in a variety of technological fields, such as environmental stewardship, high-speed internet capacity, security and the development of community technology. Some public electricity companies have begun to offer telecommunications services, which foster economic development because private companies cannot offer these services to smaller communities at competitive prices. Other advantages of public companies include greater efficiency of local government through the exchange of personnel, equipment, and supplies. The management and operations of public companies provide additional community leadership for innovation and development. This local leadership tends to have a greater commitment to conservation, security and the environment. Local control affects special programs such as energy conservation, rate relief for certain classes of customers, the aesthetics of the electrical distribution system and design. Local control allows local resources to be linked to local needs without an economic and political bias toward high-cost and capital-intensive techniques or technologies. Place-based management facilitates the implementation of innovative techniques and technology to meet the energy needs of communities. The main mission of public companies is to provide a reliable and more affordable service. (Id.)

VI. The necessary transformation of PREPA governance

The following specific proposals included in Queremos Sol are necessary for the transformation of PREPA governance to best serve the public interest:

1- PREPA's **board of directors** should be appointed or elected to fixed terms and possess relevant professional qualifications and energy industry expertise. Terms should be staggered. Three board members should be appointed by the governor from lists submitted by: (1) environmental organizations; (2) labor unions; and (3) small business organizations. Two board members should be appointed directly by (1) the Puerto Rico Cooperative League and (2) the Association of Economists. A sixth member should be selected from the engineering faculty of Puerto Rico universities. Two members should be elected by PREPA's residential and commercial customers as consumer representatives, and one should be elected by industrial consumers as an industry representative. Board members should be dismissed only for cause and only if the resolution authorizing dismissal receives more than six votes. The board must have finance and audit committees, and the members of these committees should not overlap.

2- The PREPA **executive director** should be appointed by the board through an open recruitment process. The board should have just cause before dismissing an executive director.

3- **Reform of contract and enforcement policies** to systematically address all contract irregularities discovered in audits by the Office of the Comptroller and by the 2016 Senate investigation into the purchase of fuel.

4- **Internal restructuring** should be informed by various audits and investigations of PREPA fuel purchase practices that have highlighted the centralization of power and responsibility within its Fuel Office. The board should 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.

5- The Legislature should authorize the creation of a non-profit, membership-based **PREPA Consumer Advisory Board** with access to all information available to PREPA board members, including all internal audit reports, and with the right to responses from the executive director to all written questions and statements submitted by advisory board members and with the ability to compel enforcement by the PREB in the event that PREPA does not cooperate.

6- **Attraction and retention of an appropriate labor force** through policies aimed at reducing administrative costs associated with the large number of political appointments within the agency. Opportunities for workforce training, especially in renewable energy, should be prioritized. An effective investigation into the costs of salary and benefits that PREPA has incurred due to political appointments should be conducted.

7- Acknowledgement of **climate change as central to decision-making.**
Climate change must be understood as one of the central forces in the transformation of the energy sector, which is why it is imperative that PREPA integrate adaptation measures in infrastructure planning and that climate considerations be inserted as a pillar in the design of all public policy, legislation and decision-making processes.

8- **Effective opportunities for citizen participation and education**. Providing and supporting spaces for citizen participation in PREPA in the spirit of publicly owned power companies, vital to achieving baseline levels of agreement informed by inclusiveness and transparency. An energy literacy program including energy audits should be developed and aimed especially at small and medium-sized businesses and industry to implement conservation and reduction in electric bills.

9- **Promotion of labor sector participation**. Electrical industry workers are key to the sort of system change that will lead to a clean energy future. The term “just transition” is defined as societal evolution toward cleaner energy resources and lower-emission economies while guaranteeing sustainable lifestyles and suitable workforce transition. In a just and equitable transition, affected workers, unions and communities are equal partners in a well-planned and carefully managed shift from fossil fuels to clean energy. A just transition provides employment opportunities and guarantees job security and livelihoods for energy-industry workers and impacted community members. Pensions and health plan benefits are preserved, and workers and members of affected communities have the right to first employment for the jobs created through the dismantling of fossil fuel energy structures. Workers also receive education and training and ideally are unionized with similar salaries and benefits. A just and equitable transition will commit each level of government and business in a unified effort; provides workforce training; replaces lost tax revenues; and creates lasting and good jobs that strengthen the economy and support working families, especially jobs related to clean energy, energy efficiency and climate resilient infrastructure. A just transition requires that those responsible for pollution are held accountable for clean-up to achieve usable land and clean water.

10- **Appointment of an Independent Private Sector Inspector General (IPSIG).** An IPSIG is an independent firm with expertise in auditing and management that would have the power to investigate and audit the day-to-day PREPA operations and report relevant findings and progress.

11- **A comprehensive audit of the debt** (and holding accountable those who participated in illegal debt issuances) **and a debt restructuring** that protects local bondholders (individuals, small businesses, cooperatives) while ensuring a substantial reduction or elimination of debt repayment by PREPA ratepayers to achieve an affordable and financially sustainable electrical system.

Sustainable, technically viable and cost-effective alternatives that include the combination of energy conservation, efficiency and demand response programs, community-sited renewables, especially on-site roof-top solar, and BESS are currently viable as documented above. Puerto Rican electric customers pay the second highest electric rates of any U.S. jurisdiction and ratepayers will ultimately pay for the transformed electric system. The Luma contract would perpetuate a centralized, imported fossil-fuel based electric system and compromise energy resiliency in Puerto Rico. The proposed acquisition and procurement for on-site, rooftop solar systems and BESS, installed by qualified PREPA personnel and the other measures discussed above will help to achieve the necessary transformation of the Puerto Rico electric system toward a locally controlled, decentralized, renewable energy system.

Sincerely,

s/ Ruth Santiago

[redacted]