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# Powering Life in Puerto Rico

The struggle to transform Puerto Rico's flawed energy grid with locally controlled alternatives is a matter of life and death.

After Hurricanes Irma and María barreled down on Puerto Rico in 2017, communities in the shadow of a behemoth coal-burning power plant on the island's southern coast spent months without electricity. Despite being within the sacrifice zone of the privately-owned plant, they—like residents across the archipelago—remained at the mercy of the fragile, centralized grid. The system runs on imported fossil fuels, primarily methane “natural” gas, bunker C residual fuel oil, diesel, and coal. The coal plant, owned by Virginia-headquartered AES Corporation, did not provide power until the grid was restored months later.

The AES plant and various other large fossil fuel-burning power complexes that supply about 98 percent of the archipelago's electricity encapsulate the perils of Puerto Rico's dependency on methane gas, oil, and coal and the urgent need to transform the electric system. Most of these fossil fuel plants are located in southern Puerto Rico and rely on a vulnerable, high-voltage transmission system to send electricity across the island's central mountains to the San Juan metropolitan region in the north, where electricity demand is greatest. The 6.4 magnitude earthquake on January 7, 2020 caused another general blackout, in some locations lasting as long as a week, rattling the already precarious system.

With each power outage, the loss of human life and other detrimental harms are at stake. In the wake of the 2017 hurricane season, the most destructive in almost a century, Puerto Rico gained notoriety for experiencing the longest blackout in U.S. history and the second longest ever recorded globally. Each

major power failure also represents a blow to Puerto Rico's viability. Long blackouts propel working-aged people and their children to migrate stateside, often not returning to the archipelago. Increasingly, they are leaving behind an aging and under-resourced population.



Thermoelectric plant smokestacks in Aguirre harm the health of local communities to satisfy the north's electricity demand. (HILDA LLORÉNS)

Now, various independent initiatives aim to sustainably transform Puerto Rico's electric system. Since 2017, a few communities—including those with rural aqueducts—small-scale farmers, and an estimated 16,000 individual homeowners scattered throughout Puerto Rico have installed or are planning to install solar photovoltaic (PV) energy systems. For instance, the community-based organization Casa Pueblo, a leader in renewable energy in Puerto Rico, is currently implementing a PV project to power the Adjuntas town center as well as local small businesses. An organization called

AMANESER facilitated installation of small solar kits in the community of Veguita Zama in the municipality of Jayuya, which experienced a nine-month power outage after Hurricane María. Grassroots community collectives, like the Comité Diálogo Ambiental, the El Coquí Community Board, and the Iniciativa de Eco Desarrollo de Bahía de Jobos (IDE-BAJO), have planned and partially implemented a community solar project as an alternative to the oil-burning thermoelectric Aguirre Power Complex and the AES coal plant, both located in Jobos Bay. In the community of Toro Negro, the nonprofit organization Puerto Rico Community Foundation was instrumental in the installation of a large rooftop solar array. Several other foundations and nonprofit entities have also supported the installation of PV systems with battery energy storage systems (BESS) at community centers, schools, hospitals, and other critical facilities to serve as resiliency hubs during the frequent power outages.

These initiatives challenge the virtual stranglehold the coal, oil, and gas industries have on the Puerto Rico Electric Power Authority (PREPA), the public corporation that provides all the archipelago's electric power. But thus far, it appears as if each community is working on its own and "reinventing the wheel." Puerto Rico needs to jump-start the



Members of grassroots group Coquí Solar collaborated to install solar panels on their community center roof in 2018. (CATALINA DE ONÍS)

transformation of its electric system with the development of rooftop solar communities and businesses in a concerted effort led by civil society groups. The government's plan, outlined in the Electric Power System Transformation Law (Law 120-2018), to privatize the transmission and distribution system through concession agreements threatens these community initiatives.

Amid U.S. debates about a Green New Deal and increasing talk of green investment across Latin America, we urgently need to understand and learn from advocacy efforts for and barriers to solar energy transitions in Puerto Rico. These experiences offer lessons in how a solar transformation can fail, but also demonstrate the kind of work necessary for a genuinely just transition.

### Converging and Diverging Projects and Demands

The lack of clear, publicly available information about the affordability of rooftop solar has thus far been an obstacle to people's widespread participation as "prosumers"—people who are both producers and consumers of energy—and the transformation of PREPA. But local groups and researchers have long proposed solutions. For instance, University of Puerto Rico-Mayagüez faculty members developed a small rooftop PV prototype intended to make solar energy accessible to low-income residents, which they created to respond to the urgent need for energy in these communities. Despite more affordable financing options, PREPA participation is still necessary to make rooftop solar accessible to all. To further boost the energy transition, the local credit-union sector could provide small loans to enable individuals, communities, and businesses to acquire and install PV and BESS systems. Loan guarantees from the public sector could incentivize credit unions to invest in this financing. In addition, energy literacy programs urgently are needed to promote efficiency and participation in demand response programs.

One initiative seeking to bridge the gap is Queremos Sol, a platform of civil society groups—including community, environmental, labor, and academic organizations—that seeks to sustainably transform Puerto Rico’s grid. The coalition launched a proposal in October 2018 detailing objectives and mechanisms to reach a goal of 100 percent renewable generation by 2050. The plan proposes incremental advances in energy efficiency, demand response programs, and onsite and community rooftop solar projects to expand renewable power generation. The proposal, which stems from a previous UPR faculty initiative known as *La Mesa de Diálogo Energético* (Energy Dialogue Roundtable), also includes specific recommendations for democratizing PREPA’s governance to include communities and workers. Concerned about the role of fossil fuels in the climate

crisis, Queremos Sol participants seek to promote a public discussion across multiple sectors about the consequences of the archipelago’s energy sources.

Shortly after the release of the Queremos Sol platform, Puerto Rico’s Senate rolled out a bill committed to achieving 100 percent renewable energy by 2050, which later became the Puerto Rico Energy Public Policy Act (Law 17-2019). Then-governor Ricardo Rosselló also soon embraced the same timeline and goal. Yet, there are extreme disparities in how Queremos Sol, the proponents of the new law, and the former governor and the executive branch have proposed to transform Puerto Rico’s electric system. Stateside media heralded the Energy Public Policy Act as Puerto Rico’s Green New Deal, but it is far from that.



Resistencia members gather for a meeting in Peñuelas in July 2018. (HILDA LLORÉNS)

The Energy Public Policy Act amended provisions related to electric system resource planning, including what is known as the Integrated Resource Plan (IRP)—PREPA’s 20-year plan for its future energy system. A draft IRP, crafted by multinational energy corporation Siemens, recommends the use of methane gas and is under review in the Puerto Rico Energy Bureau, as of this writing. Ten environmental and community organizations—including some members of Queremos Sol—are active parties, known as intervenors, in these proceedings. Represented by environmental law organization Earthjustice and Puerto Rico-based attorneys and with support from other individuals, these civil society groups have presented the Queremos Sol proposal as an alternative to the business-as-usual, methane gas-heavy draft IRP.

The IRP review process also is considering a proposal to stop coal burning at the AES plant this year. Former governor Rosselló announced the plan in April 2019, likely as a result of pressure from several grassroots groups and communities organized under the banner *Resistencia Contra la Quema de Carbón y sus Cenizas Tóxicas* (Resistencia). Together with members of the Puerto Rican diaspora and other organizations in the United States, the movement works to combat the humanitarian and health crises that AES Corporation has inflicted on local communities, including water contamination and air pollution containing toxic metals. Resistencia regularly organizes protests, engages in civil disobedience, and participates in administrative and legislative proceedings. The group’s efforts are part of the growing chorus of voices rejecting fossil fuel dependency.

### Resurfacing Energy and Resiliency Debates

**P**uerto Rico experienced a general power outage in early January as a result of earthquakes and aftershocks that damaged the electrical system. The fortunate few who had PV solar systems on their rooftops were spared the life-threatening effects of large-scale and prolonged power outages, which are

especially dangerous for people who rely on oxygen therapy and refrigerated medication. But even those with the privilege of solar power did not escape unscathed. For one thing, many Puerto Ricans use diesel- or gas-powered generators that emit toxic fumes and produce unbearably loud noise. Additionally, power outages are retraumatizing for most people who experienced Hurricane María and the April 2018 total blackouts.

To make matters worse, the government’s plan for the electric system, the so-called Grid Modernization Plan (GMP), proposes to perpetuate centralized fossil fuel generation with new methane gas infrastructure. The multibillion-dollar plan will continue heavy reliance on transmitting electricity from southern Puerto Rico to the San Juan metropolitan area while paying lip service to demands for renewables. The proposal does little or nothing in terms of advancing energy literacy, energy democracy, demand management, or rooftop solar for communities, businesses, and industries.

Echoing the 2017 hurricane season, Puerto Rico is once again experiencing the shock doctrine in the aftermath of the December 2019 and winter and spring 2020 earthquakes and aftershocks. Yet Puerto Rico’s long and complex economic, social, and ecological crisis and colonial condition arguably have been the pretext for extended application of the shock doctrine. Similarly, the entire archipelago arguably qualifies as an environmental justice community, as it faces disproportionate pollution burdens. Some high-ranking PREPA officials have used the seismic activity and alleged damages to the oil-fired Costa Sur Power Plant as justification to add 500 megawatts of gas-fired “mobile generators” to the electric system. Initially, PREPA reported that the damage to the Costa Sur plant was minimal and that power would be restored in one or two days. But the executive director later claimed that the damage was so serious that it could take a year to repair. The main proponent of the gas build-out, PREPA executive director José Ortiz, is working closely with private contractors and the Federal

Emergency Management Agency (FEMA) to execute the strategy, mirroring the corruption and collusion of contractors and politicians in New Orleans after Hurricane Katrina.

This methane gas push has been on the government's agenda since well before Hurricane Maria. The former Rosselló and current Wanda Vázquez administrations lack credibility, and officials may be exaggerating the damage to the Costa Sur plant to advance the buildout of methane gas infrastructure in response to pressure from the U.S. fracking industry, which seeks to gain a larger foothold in Puerto Rico.

### Moving in the Wrong Direction

As the source of 43.7 percent of Puerto Rico's electricity, gas already exceeds oil reliance. But the government's GMP, and a related scheme known as the Electric System Modernization Plan (ESM), would add even more methane gas combustion to Puerto Rico's energy mix. Proponents argue that increasing gas generation is a temporary "transition" or "bridge" to renewable energy or that this material serves "fuel diversification" purposes. The GMP mentions a possible relocation of the Palo Seco power plant and warehouse—currently located in a flood zone—but maintains plans to build out methane gas capacity at the station. The GMP recognizes the need to use rooftop solar for distributed renewable energy, but, at the same time, the plan indicates that renewable energy projects must be located in accordance with the existing system.

Wall Street consultants prepared the GMP for Puerto Rico's Central Office of Recovery, Reconstruction and Resiliency (COR3). The plan seeks to request \$20.3 billion from FEMA, of which \$12.2 billion would be earmarked for the reconstruction—not transformation—of the existing transmission and distribution systems and some substations. This action would include \$1.7 billion to reinforce high-voltage transmission lines, mainly those that run from south to north. Only \$1.7 billion would be for distributed energy resources (DERs)

and microgrids, and not all DERs or microgrids would be renewables. Another \$3.8 billion would support expanding centralized fossil fuel infrastructure, particularly highly explosive methane gas projects billed as "natural." Methane gas plants and pipelines are usually taken out of operation during earthquakes and aftershocks to minimize explosions of this highly volatile fuel. Amid ongoing seismic activity in Puerto Rico, which can last months, the methane gas focus is severely misguided.

The plan lists multiple methane gas facilities that rely on dual-fuel combustion—including in San Juan, Mayagüez, Palo Seco, Yabucoa, and other peaking units—but admits that this infrastructure would increase costs by creating four gas import points, which is not optimal and is potentially dangerous. The government's consultants also have discussed multiple options and mechanisms to deploy new gas infrastructure, including gas pipelines that previously have garnered strong civil society opposition. Furthermore, provisions in the Energy Public Policy Act requiring private investors to convert all plants to dual-fuel to burn methane gas would substitute one set of contaminants for another and prolong dependence on imported fossil fuels.

The GMP reiterates the government's request for a waiver of the Merchant Marine Act, also known as the Jones Act, to enable Puerto Rico to more easily import fracked gas from the U.S. mainland on foreign ships. The Jones Act requires goods shipped between U.S. ports, including to Puerto Rico, to be transported on U.S.-owned and operated vessels. Such a waiver, already requested by the island's government, would position Puerto Rico as the U.S. gas industry's pet project by expanding the market for excess fracked gas currently exercising downward pressure on methane gas prices in the United States. Indeed, the company PREPA contracted to convert its San Juan plants to gas combustion, New York City-headquartered New Fortress Energy, reportedly sources gas from Pennsylvania. Puerto Rico's nonvoting representative in Congress and groups like the Cato Institute—a right-wing think tank that

## We must ask: How many millions of dollars in public funds will be used for plans that contradict the best interests of the people of Puerto Rico?

has disputed climate science—are part of an aggressive campaign to promote the waiver. Such lobbying efforts suggest that gas industry interests are behind this ominous government plan to perpetuate energy colonialism in Puerto Rico. Groups concerned about fracking should be wary of the implications of the fossil fuel industry’s wheeling and dealing in Puerto Rico, as a new market for U.S. companies would also incentivize the gas industry to expand fracking operations.

The industry line that methane gas is a cleaner energy source than other fossil fuels is a myth. Methane gas combustion substitutes one group of pollutants, such as sulfur oxides and nitrogen associated with burning residual fuel oil, for another by emitting gases known as volatile organic compounds (VOCs), such as formaldehyde, benzene, toluene, hexane, and styrene. In addition, the methane liquefied “natural” gas (LNG) used in Puerto Rico is stored at very low temperatures and revaporized before it is used at the plants. The air permits for these plants demonstrate that LNG regasification produces higher greenhouse gas emissions than other fossil fuels. In sum, the GMP is a capitalist disaster in the making.

Although the government of Puerto Rico claims to want to transform the electric system with renewable energy, officials have proposed few to no alternatives. And they have done even less to promote community energy empowerment through solar and renewable systems. Far from adapting to the Puerto Rican reality, such as through extensive use of “rooftop resources,” the government and PREPA senior management—particularly its executive director—continue to push for a rollout of explosive and contaminating methane gas.

We must ask: How many millions of dollars in public funds will be used for plans that contradict the best interests of the people of Puerto Rico?

The multibillion-dollar price tag for the proposed methane gas infrastructure represents great business deals for the fossil fuel industry, and especially for the U.S. fracking industry. PREPA senior executives and the government have indicated that the funds for gas infrastructure and the reconstruction of the current system will come from federal sources; in fact, the GMP was created to justify the request for funds to FEMA. 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 the federal government and ultimately, U.S. taxpayers, will pay for it. This reflects a dependence mentality driven by the methane gas industry and corporations that sell gas generation units. The “free” gas infrastructure would tie Puerto Rico to methane gas-burning plants and LNG ports for decades to come and threaten public health and safety. The construction of this infrastructure would create long-term dependence on methane gas imports, impede the adoption of onsite rooftop solar and related options, and further frustrate the potential for energy democracy and self-determination in Puerto Rico. Another manmade catastrophe, this time with methane gas, is imminent.

This misguided plan closely resembles the decision in the late 1990s when the government approved the construction of the AES coal-burning power plant in Guayama. At the dawn of the 21st century, Puerto Rico began to burn coal, even when the dire consequences were already known. Today, the plant continues to endanger public health, and it has contaminated the South Coast Aquifer, the only source

of drinking water for tens of thousands of Puerto Ricans. Now, the country remains hostage to the AES Corporation and its pollution. Even if plans to phase out burning coal at the plant in 2020 move forward, AES's toxic legacy will remain.



The coal ash mountain at the AES plant in Guayama stands as a menace to health and wellbeing, especially during hurricanes and earthquakes, as pollutants contaminate air, water, and soil. (HILDA LLORENS)

### Connecting Struggles Across Borders

Since the Puerto Rico Oversight Management and Economic Stability Act (PROMESA) established a fiscal control board to manage the island's finances in 2016, there has been a noticeable uptick in the interest of continental U.S. politicians, congressional representatives, and political organizations in Puerto Rican affairs. This interest peaked in the aftermath of Hurricane María. President Trump, multiple politicians, members of Congress, and civil society organizations visited Puerto Rico to assess the situation. The U.S. House of Representatives Natural Resources Committee, which has jurisdiction over U.S. territories, conducted hearings and requested testimony on the rebuilding and privatization of PREPA.

Meanwhile, movements organizing for the Green New Deal have invited Puerto Rico-based organizations to participate in their discussions. At these meetings, many have referred to Puerto Rico and the Caribbean as “ground zero” of the climate crisis. The result of these encounters is still unfolding, but

it is important to note that the Puerto Rican diaspora has driven much of the attention of mainland entities and politicians.

While advocates of the Green New Deal in the United States continue to debate possible energy futures, the Queremos Sol platform envisions vindicating the public utility in Puerto Rico through citizen participation and “prosumer” generation. According to the American Public Power Association (APPA), public energy companies in the United States generally provide electric service at lower prices than private companies. APPA notes that residential rates of public energy companies were 14 percent lower than the rates of private energy companies, known as Investor Owned Utilities (IOUs). In Puerto Rico, private companies that generate electricity have received generous tax exemptions. Meanwhile, PREPA has historically made contributions in lieu of taxes to municipalities and other branches of government, and it also provides substantial subsidies to transnational hotel chains and other U.S.-based corporations by virtue of multiple legal provisions. According to a 2014 APPA survey, private electric power companies in the United States only pay 4.2 percent of their total operating income to state and local governments, while public utilities contribute an average of 5.6 percent of total operating income.

### Ending Energy Colonialism

The sale of the PREPA plants and concession contracts to private investors, as foreshadowed in Puerto Rico's Electric Power System Transformation Law, would create incentives to perpetuate centralized fossil fuel generation and long-distance transmission that negatively impacts public health and the environment, drains the Puerto Rican economy, and lacks resiliency. Puerto Rican electricity customers pay the second highest rates of any U.S. jurisdiction—about 25 cents per kilowatt-hour for residential customers as of mid-April, compared to a national average of 13 cents—and they will also pay

with their health for the so-called “transition” of the electric system set to double down on methane gas.

Sustainable, technically viable, and cost-effective alternatives that include the combination of power electronics, such as smart meters, energy efficiency and demand response programs, and community renewables, especially roof-top solar and battery energy storage systems, are currently accessible. Public funds and programs, such as loan guarantees for Puerto Rico credit unions and other incentives, could help transform Puerto’s Rico electric grid into the locally controlled, decentralized, renewable energy system that we so desperately need.

From the open-pit coal mines in Colombia to Chile’s coal-burning power plants owned by AES, the company that also burns this fossil fuel in Puerto Rico, these toxic assaults are interconnected, life-and-death struggles. All across Latin America, civil society groups are pushing to decarbonize their energy systems, which also involves conversations about democratizing and decolonizing power systems in all forms. Together, we stand at an urgent crossroads that demands cross-boundary collaborations and solidarities. **■**

*Puerto Rico, Vieques, and Culebra compose the human-inhabited islands of the Puerto Rican archipelago. Often, Puerto Rico, “the island” or “the main island” are used as a shorthand for the archipelago; however, doing so reproduces the political, economic, and linguistic marginalization and erasure experienced by residents of the offshore island municipalities of Vieques and Culebra. Throughout this piece, we use “archipelago” to refer to the full set of of inhabited Puerto Rican islands and “the island” to refer to the largest island.*

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