November 20, 2019

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Washington, DC 20515

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Testimony of Ruth Santiago on the Applied Energy Systems (AES) Coal Plant in Guayama, Puerto Rico and the Impacts of Climate Change on Coal Ash Contamination

Chairman Tonko and Members of the Subcommittee on Environment and Climate Change, I appreciate the opportunity to testify today at the hearing entitled, "Building a 100 Percent Clean Economy: The Challenges Facing Frontline Communities" on behalf of Comité Diálogo Ambiental, Inc. ("Diálogo)" - a community environmental group and nonprofit corporation in Puerto Rico. Among one of many environmental justice issues in Puerto Rico is coal ash contamination due to the AES coal plant in Guayama, Puerto Rico and the severe consequences Hurricanes Irma and Maria have had on communities as it pertains to coal ash waste and contamination.

Introduction

Coal ash is one of the nation's largest industrial waste products and contains deadly toxic substances, including carcinogens like arsenic, cadmium and chromium, and neurotoxins such as lead and lithium, which have polluted air and water at hundreds of coal ash dump sites across the nation. Decades of dumping by the electric utility industry have created hazardous leaking dumps at almost all U.S. coal plants, and monitoring data found that 91 percent of U.S. coal plants are currently contaminating groundwater with toxic substances above federal health standards.

Throughout their history, coal-fired plants have disposed of coal ash in the cheapest way possible, with little regard for potential health or environmental harm. The most common form of disposal has been to simply dump coal ash (mixed with water) into massive, unlined pits adjacent to the power plant. It is important to realize that most power plants are located near bodies of water to provide the steam that generates electricity, meaning that these unlined, leaking pits of toxic waste have generally been located near rivers and lakes that get contaminated when the ash pits leak. EPA estimates that there are about 1,000 coal ash pits or ponds across the U.S., as well as more than 400 landfills and thousands of uncounted coal ash fill sites.

Coal ash is also sometimes stored or disposed in mountainous piles, including the ash pile in Guayama, Puerto Rico, which has reached an alarming height of 12 stories. These piles usually sit directly on the ground and are uncovered, leaving the coal ash open to the elements. Wind blows the ash onto nearby communities. Rain filters through the ash, and the contaminated water sinks into the ground, poisoning groundwater or runs off the pile - taking toxic ash along with it.

Hundreds of *millions* of tons of coal ash have also been used as fill material - a cheap but dangerous alternative to clean soil. Its application is vast and includes leveling ground for construction, filling in low-lying areas, and serving as foundations for roads and buildings, as a so-called “beneficial” use. In addition, this toxic mixture has been used at schools, playgrounds, and sports fields. Millions of tons of coal ash have been used as a substitute for clean fill throughout Puerto Rico.

Environmental justice communities — where residents are predominantly people of color and/or low-income — are disproportionately impacted by exposure to coal ash, as with so many other environmental hazards. Coal-fired power plants and their associated coal ash waste pits are disproportionately located near environmental justice communities. According to a 2012 report by

the NAACP, the average per capita income of those living within three miles of a coal-fired power plant is thousands of dollars lower than the national average, and 39 percent of them are people of color. Indeed, in 2016, the United States Commission on Civil Rights found that "communities that live downstream from coal ash impoundments tend to have a higher than average minority and low-income population."

Those who live close to these plants are at an increased risk of exposure to air, soil and water contaminated by coal ash toxins. But it goes well beyond that. Almost every disposal or use method for this waste product disproportionately endangers low-income communities or people of color, and this is particularly true in Puerto Rico. And the extreme weather hastened by climate change threatens to increase the harm wrought by coal ash.

Context and Evidence of Coal Ash Contamination from AES-PR

Since 2002, AES Puerto Rico, LLP (AES) has owned and operated a 454-MW coal-burning power plant in Guayama, Puerto Rico and has no disposal facility for the approximately 300,000 tons per year of coal combustion residuals (CCR or coal ash) that it generates. For years, AES has been accumulating hundreds of thousands of tons of CCR at the southern end of the plant site in a mountainous, uncovered pile, in proximity to wetlands and coastal communities. Since its planning phase, AES maintained that the plant's CCR were not waste, since AES would mix and compact the CCR into a so-called product, which AES attempted to market as *Agremax*.[1] The Commonwealth had no law, rule or regulation that addressed the management and disposal of CCR, until 2017 when

[1] *In re: AES Puerto Rico, LLC*, PR Environmental Quality Board Res. Num. R-96-39-1 (Oct. 29, 1996).

it adopted a law to prohibit the disposal and use of coal ash.[2] That law, however, does not apply to *Agremax*.[3]

The U.S. Environmental Protection Agency ("EPA") saw the matter quite differently. EPA considers *Agremax* indistinguishable from CCR and considers AES' massive accumulation of CCR on the plant site to be a "CCR pile" under its 2015 CCR rule.[4] According to the CCR rule, the CCR pile is an "existing landfill" subject to all the requirements applicable to CCR landfills. The CCR rule specifies that any "non-containerized accumulation of solid, non-flowing CCR that is placed on the land is a CCR pile."[5] A pile of CCR that may someday be used beneficially (whether on-site or off-site) but is not yet beneficially used remains subject to the CCR rule.[6] Hundreds of thousands of tons of *Agremax* have been stockpiled at the AES plant site since the plant started operation in November 2002. The AES coal ash waste continues to be placed directly on the land at the facility without proper containment measures.

AES-PR's storage of CCR, in a huge, steep-sloped pile, exposed to frequent Caribbean storms and winds, is in conscious disregard of the health and safety of nearby communities. After Hurricane Maria, community members documented the surficial erosion, the reduction in height, and the removal of surface material, resulting from surface run-off and wind action on the coal ash waste pile at the AES plant site in Guayama, Puerto Rico.

Even absent an extreme weather event, fugitive dust from the coal ash pile has plagued residents of Guayama near the plant for years. Dust from the pile blows on schools and residential

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[2] Ley para Prohibir el Depósito y la Disposición de Cenizas de Carbón o Residuos de Combustión de Carbón en Puerto Rico, Law 40-2017.
[3] *Comité Pro Salud v. Junta de Calidad Ambiental*, 2018 WL 835044 (2018)
[4] 40 C.F.R. 257.53. *See also* 80 Fed. Reg. at 21355-56
[5] EPA letter dated December 22, 2016 in EPA AES file
[6] 80 Fed. Reg. at 21356

areas and even enters homes. Inhalation of coal ash is recognized to cause multiple adverse health impact, including heart and lung disease and cancer.

Inspection and groundwater monitoring reports by AES itself, required by the CCR rule, reveal serious water and air contamination caused by the CCR pile as well as poor maintenance. A July 2017 CCR Inspection Report for the AES coal ash waste pile containing 430,000 tons of CCR notes that, "[l]ocalized rills were observed on the surface of stockpile slopes, they appeared to be related to over-watering by the water sprinkler guns. . . . The water truck was not operational at the time. **Some fugitive dust caused by wind was observed on the west slope of the Stockpile at the time of inspection**."[7] Regarding the CCR pile, the inspection report describes that it had "increased to an estimated height of 120 feet," while its "slopes have become longer and steeper."[8]

The 2017 Annual Groundwater Monitoring Report (the "Report") for the AES Guayama plant site, as required by CCR rule, indicates that the groundwater in downgradient wells, especially wells MW-3 and MW-4, is highly contaminated with coal ash pollutants.[9] When compared with the upgradient wells (MW-1 and 2), the levels of coal ash contaminants in the downgradient wells are orders of magnitude higher, depending on the contaminant.[10] The direction of groundwater flow is away from the coal ash waste pile and towards the sea and a coastal community visible from the satellite photograph in the Report.[11] The Report results indicate the coal ash contaminants present in the groundwater as follows.

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[7] Winston R. Esteves, CCR 2017 Annual Inspection Report AES Puerto Rico, Guayama, PR (July 2017) at p. 3 (*emphasis added*). *Available at*: http://aespuertorico.com/wp-content/uploads/2017/10/2017_Annual-Inspection-Report.pdf

[8] *Id.*

[9] DNA-Environment, LLC 2017 Annual Groundwater Monitoring Report AES Puerto Rico LP, Guayama, Puerto Rico (Jan. 31, 2018). *Available at*: http://aespuertorico.com/wp-content/uploads/2018/02/2017_01_31_AES_Groundwater-Monitoring-and-Corrective-Action_Annual-Report.pdf (Last visit April 30, 2018).

[10] *Id.*

[11] *Id.*, at p. 11.

Table 1. Concentration of selected contaminants at AES downgradient wells[12]

Contaminant	Well	Concentration	Background level	Level of contamination
Boron	MW-4	3800ppb	160ppb	22 times the background level
Sulfate	MW-4	16,000ppm	7.1ppm	2200 times the background level and 64 times the EPA secondary drinking water standard ("SMCL") of 250 ppm
Total Dissolved Solids	MW-4	41,000 ppm	460 ppm	89 times the background level and 82 times the SMCL

Table 2. Concentration of selected metals at AES downgradient wells[13]

Contaminant	Well	Concentration	Federal drinking water standard (MCL) or health-based threshold	Level of contamination above federal standards
Selenium	MW-3	98 ppb	50 ppb	Nearly twice the MCL
Lithium	MW-4	1100 ppb	There is no MCL for lithium. The EPA health-based threshold for tap water is 40 ppb.	27.5 times the health-based threshold
Molybdenum	MW-3	530 ppb	There is no MCL for molybdenum. The EPA health-based threshold for tap water is 100 ppb.	5.3 times the health-based threshold
Chromium	MW-3	31 ppb	The CA limit in drinking water for Cr6 is 10 ppb	3.1 time the CA drinking water standard for Cr6
Arsenic	MW-6	6.2 ppb	EPA MCL is 10 ppb.	62% of the EPA MCL
Radium 226 & 228	MW-3	1.07 pCi/L	California public health goal of 0.07 pCi/L (total radium).	15.2 times the CA public health goal

[12] *Id.*, at p. 7.
[13] *Id.* at p. 8-9.

These elevated levels of pollutants indicate the AES coal ash waste pile is releasing hazardous chemicals to the groundwater, which are flowing offsite. Selenium is very toxic to fish at low levels, and selenium bioaccumulates. Its presence in small fish, sediment and plants could endanger the greater population.[14] When ingested, sulfate will harm the digestive track and is particularly dangerous for infants and the elderly. Sulfate at this level will be dangerous for livestock and wildlife. Chromium from coal ash is primarily hexavalent chromium (Cr6), which is a very potent carcinogen in small doses.[15] There is not yet an EPA MCL for Cr6, but California set a limit of 10 ppb for drinking water.[16] Chromium is frequently found in coal ash leachate, and it is particularly high in the groundwater at the AES site. The arsenic levels are approaching, but not yet exceeding the EPA's MCL. Diálogo contends that the EPA MCL is not sufficiently protective and that any level of arsenic presents risks. A level of 6.8 ppb is likely to be an unacceptable risk in drinking water, because arsenic is a potent carcinogen for several cancers.

From approximately 2004 to 2012, over two million tons of the AES coal ash waste, *Agremax*, has been used as fill in various projects in Puerto Rico, including housing, commercial developments, and road projects. These pollutant levels raise questions regarding the status of all the coal ash fills in Puerto Rico. The fills are not monitored, yet the same dangerous chemicals may be leaching from them. Many of the AES fill sites are near drinking water wells,

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[14] *See e.g.* Lemly, AD (April 2002). Symptoms and implications of selenium toxicity in fish: the Belews Lake case example. Aquat Toxicol. 57(1-2):39-49.
[15] ATSDR, Toxicological Profile for Chromium. *Available at:* https://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=62&tid=17
[16] California Water Boards, Chromium-6 Drinking Water MCL, https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chromium6.html

thus threatening public health. The vast majority of construction sites where AES CCRs were disposed of are located in proximity to the AES coal plant in Guayama.

The Guayama region, an environmental justice community according to the Toxic Release Inventory, is the most contaminated region in Puerto Rico. The Guayama region was known as the hunger route and has one of the highest percentages of people of African descent in Puerto Rico. High poverty rates, unemployment and school dropout rates characterize the Guayama region. The AES disposal of CCR in the Guayama region in proximity to the plant and the AES CCR waste pile pose disproportionate public health risks to this environmental justice community. The AES plant is among the disproportionate number of electric utility plants that are surrounded by areas with higher than average populations of children.[17]

Fugitive dust emissions from coal ash disposal and "beneficial use" can have grave consequences for environmental justice communities. In July 2016, the University of Puerto Rico, Graduate School of Public Health conducted an epidemiological study of communities in Guayama, downwind from the AES plant. The research project emerged as a response to residents' claims of adverse environmental conditions present in their communities, in particular, the exposure to ash from the burning of coal, that were adversely affecting public health.[18] The epidemiological study concluded that the Guayama community suffers higher incidence of respiratory disease, cardiovascular disease, asthma, hives, spontaneous abortions, bronchitis than a community whose air and environment are not impacted by the power plant. The most relevant findings of the epidemiological study carried out in the communities of Guayama and Fajardo

[17] Docket No. EPA-HQ-OLEM-2017-0286 at 35,288.
[18] Universidad de Puerto Rico, Recinto de Ciencias Médicas, Escuela Graduada de Salud Pública - Departamento de Bioestadística y Epidemiología, Estudio Epidemiológico en las Comunidades de Puente de Jobos y Miramar en Guayama y Santa Isidra y Rafael Bermúdez en Fajardo (2016 ppt) (attached).

found: 1 of every 3 people in Guayama has been diagnosed with respiratory disease; 1 of every 4 people in Guayama has been diagnosed with cardiovascular disease; pediatric asthma is approximately 5 times greater in Guayama; Severe asthma in children is 6 times higher in Guayama; The prevalence of urticaria (hives) is 7 times higher in Guayama; The prevalence of spontaneous abortions is more than 6 times higher in Guayama; The probability of suffering from chronic bronchitis in the larger population of 45 years is 9 times higher in Guayama; The probability of suffering from pediatric asthma is approximately 6 times greater in Guayama. These results were confirmed in a subsequent study in 2018.[19]

EPA's Phase 2 Proposed Rollback

After Trump was elected, AES filed a petition demanding the exemption of waste piles from the 2015 CCR Rule – the first-ever federal rule to provide safeguards for the disposal of coal ash waste. EPA responded with a proposed rule published on August 14, 2019, which it calls its "Phase 2 proposal."[20] EPA's proposal is a pass for industry that allows toxic coal ash waste piles to escape critical protective safeguards, including groundwater monitoring, dust control plans, cleanup requirements, limits on height and volume, inspections, liners, and closure and post-closure maintenance. These and other harmful exemptions from the CCR rule would further devastate the health and environment of environmental justice communities in Puerto Rico. Outside Puerto Rico, this is also a problem, as large coal ash piles are disproportionately located near low-income communities in the Continental U.S., Alaska and Hawaii.

[19] *Id.*; Luis A. Bonilla Soto, Prevalence of chronic diseases in the communities of Miramar and Puerto de Jobos in the municipality of Guayama: one investigation per survey (2018) (attached).
[20] Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Enhancing Public Access to Information; Reconsideration of Beneficial Use Criteria and Piles, 84 Fed. Reg. 40,353 (Aug. 14, 2019).

In addition to exempting waste piles from protective regulations, EPA's Phase 2 proposal would also exempt from regulation most re-use projects involving placement of toxic coal ash on land for "beneficial use." Though EPA itself determined that toxic coal ash used in landscaping or construction projects near homes, wells, and bodies of water has in the past severely contaminated drinking water, soil, lakes, streams, and air sites across the country, it is now seeking to remove critical protections for this dangerous use of coal ash. EPA's proposed rule would permit the use of unlimited volumes of toxic coal ash in projects where it is placed on land without any safeguards to prevent leaking, without any monitoring requirements to detect water contamination, and without controls protecting against fugitive dust that blows from re-use projects. Coal ash used as fill material across the U.S. – to level playgrounds, schools, roadways and other construction sites – more often occur in environmental justice communities.

In Puerto Rico, most local municipal authorities have rejected the use of AES CCRs within their respective jurisdictions. This form of haphazard regulation, based on personal observation and experiences related to CCR disposal, is not protective of human health and the environment because CCR generators and secondary users relocate to municipalities that are unaware of the risks posed by land filling or application of CCRs. In fact, the Puerto Rican legislature just passed a bill on November 14, 2019, prohibiting CCR disposal or deposits on all roads and land – including landfills and bodies of water -- within the territory of the government of Puerto Rico.[21] The prohibition includes the use of non-encapsulated CCR, whether or not it can be considered as "beneficial use." The passage of this bill reflects the Puerto Rican

[21] P. del S. 1221, Senate of Puerto Rico. 18va. Legislative Assembly. March 13, 2019.

government's recognition of the very significant threat to health and the environment posed by disposal and "beneficial use" of CCR.

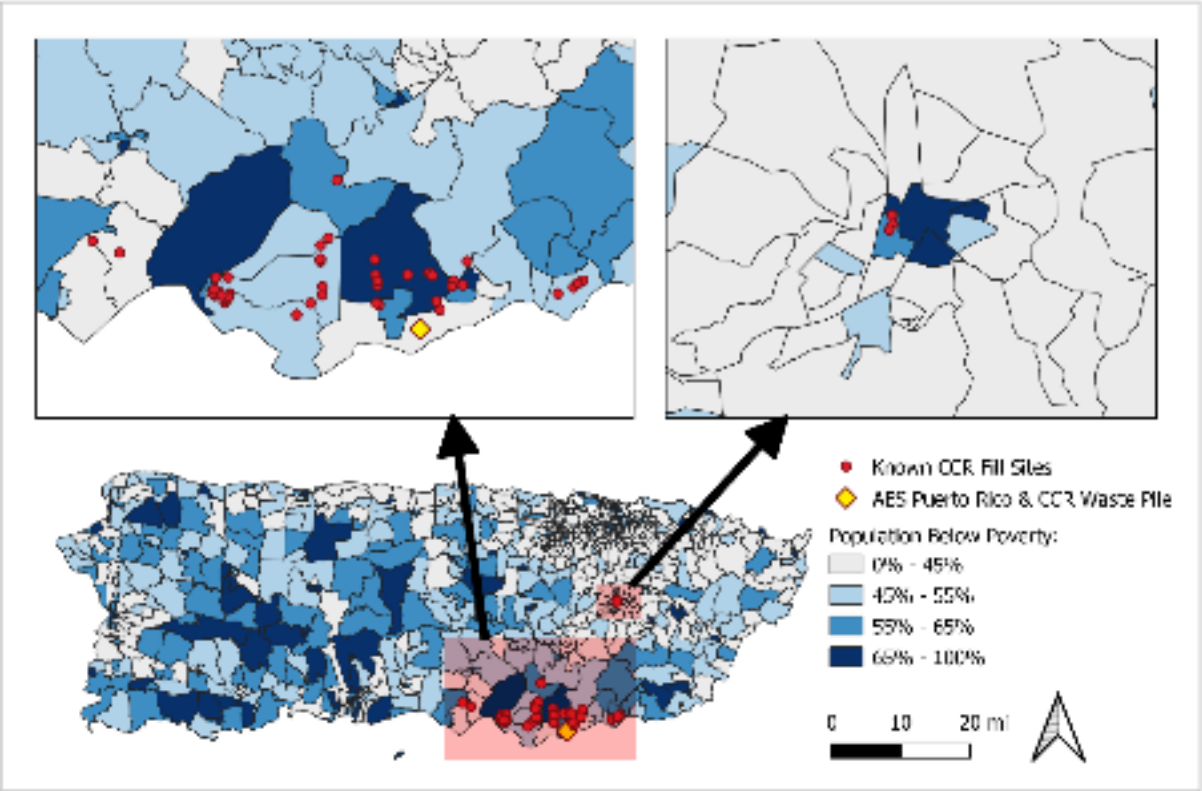
From approximately 2004 to 2012, more than 2 million tons of toxic coal ash from the AES-PR Guayama Power Plant were used as fill material in dozens of construction projects throughout Puerto Rico. Instead of disposing of the coal ash it generated in a secure landfill, AES-PR sold or gave away the ash as a means of ridding itself of the toxic material. The ash was used to build roads, serve as foundations for buildings, or simply to level land and fill voids. It ended up next to homes, schools and hospitals, and was not always buried or covered - piles of ash have stood for years in places where people, including children and animals can be exposed to its dust and toxins.

Child playing on coal ash pile in Puerto Rico. *Photo by Victor Alvarados*.

Now, at dozens of sites, coal ash lies exposed on the ground. At some of these sites, a thin soil cover was worn away by wind, water and severe storms. Many of these exposed areas

of ash are in residential areas or in areas, such as schools and hospitals where sensitive populations -including children or the infirm - can come in direct contact with the ash and breathe its dust. Most of these areas are in the poorest communities in Puerto Rico. A map below of the known coal ash fill sites indicates that this is an environmental justice problem.

Puerto Rico – CCR Fill Sites, Waste Pile, and Percent Population Below Poverty Estimates[22]



Hurricane Maria/Climate Solutions for Environmental Justice Communities In Puerto Rico

[22] U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates, Table S1701 - Poverty Status in the Past 12 Months (Puerto Rico Census Tracts). Note: The state and national average estimates provided in QuickFacts and in Table S1701 - Poverty Status in the Past 12 Months differ slightly. Table S1701 lists the Puerto Rico percent persons in poverty as 44.4%, and the national percent as 14.6%.

Over 100 coal ash waste storage sites are located in areas that federal emergency managers have labeled high risk for flooding.[23] Due to the planet's increase in temperature, extreme weather – heavier rains, more frequent occurrences of 100-year storms, and hurricanes – lead to rising water tables that flow into coal ash impoundments, causing groundwater contamination. According to the 2018 National Climate Assessment, as greenhouse gas emissions rise, floods and hurricanes will gravely increase. Thus, if coal ash pond flood protection measures do not take climate change and flood risks into account, they will be rendered futile.

When talking specifically about Puerto Rico, Hurricane Maria must be at the center of the conversation. Hurricane Maria decimated the island's entire electrical grid, kicked off a ten-month blackout—the longest in U.S. history—which ultimately raised the official death toll to nearly 3,000. This high death toll is attributable to the lack of electric service to power life-saving medical equipment, lack of access to medical treatment, and medication. The elderly are especially vulnerable during power outages, and Puerto Rico's population is growing increasingly older as working age people flee, in droves, in search of job opportunities that could be locally available with a swift transition to solar - at or close to the point of use and other alternatives to central station, fossil fuel generation and long-distance transmission.

More than two years after Hurricane Maria, Puerto Rico is still depending on unreliable transmission lines that transport energy from the large, central station, fossil fuel plants in the southern part of the Island, through the central mountain range and tropical forests to the load centers in the San Juan metro area in northern Puerto Rico rather than rooftop solar communities, energy efficiency and demand response programs, as well as energy storage systems. The

[23] *Id.*

transmission lines are frail and subject to constant breakdowns. Various blackouts after the alleged restoration of the electric grid have been due to transmission line failures that tripped the whole or a substantial part of the grid.

Currently, 97-98 percent of electric energy in Puerto Rico is generated from central station, fossil fuel combustion and only 2-3 percent from renewables, not nearly achieving the Renewable Portfolio Standard ("RPS") established via legislation.[24] Historically, the Puerto Rico Electric Power Authority ("PREPA") has made huge outlays of funds, up to three billion dollars ($1 to $3B) per year for fossil fuel purchases and payments under power purchase (and operation) agreements. The oil, coal and methane (natural) gas burned by PREPA and the two private electric energy plants in Puerto Rico is sourced from wells and mines far from the Island, which increases the cost of energy generation. The operation of all fossil fuel plants in Puerto Rico produces multiple contaminants that adversely impact public health and the environment. The main electric plants: the Aguirre Power Complex and Costa Sur (South Coast) and the plants with which PREPA has power purchase agreements, AES Puerto Rico, L.P. and EcoEléctrica are located in southern Puerto Rico and require an elaborate, costly and now, weakened transmission system to deliver power to the load centers in the north, particularly to the San Juan metropolitan area.

The AES Corporation 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. The AES coal burning power plant in Guayama, which transmits electricity to the San Juan metro area, accumulates hundreds of

[24] The Puerto Rico Energy Diversification Through Renewable Sustainable and Alternative Energy Public Policy Law (Law No. 82 of July 19, 2010), requires generation of sustainable renewable energy to be produced in Puerto Rico at the rate of twelve percent (12%) renewable energy production by 2015, fifteen percent (15%) by 2020 and 20% by 2035.

thousands of tons of coal ash waste at its plant site that have already contaminated part of the South Coast Aquifer, the sole source of potable water for tens of thousands of people in Puerto Rico.

The two large plants in southwestern Puerto Rico both burn methane (natural) 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 has to be stored under cryogenic conditions and revaporized 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.[25]

Continued reliance on these plants for energy transmission to San Juan and northern Puerto Rico is another disaster in the making.

Civil society groups, including community, environmental, labor and academia have come together to promote a platform for the transformation of the Puerto Rico grid known as, "Queremos Sol," or "We Want Sun" (www.queremossolpr.com). The proposal sets forth a vision, objectives and mechanisms to reach a goal of incremental advances in energy efficiency, demand response programs and escalating amounts of renewable generation based on community rooftop solar that would achieve 100 percent renewable generation by 2050. The Queremos Sol proposal stems from a previous effort known as "La Mesa de Dialogo Energetico" or "Energy Dialogue RoundTable". Shortly after the release of the Queremos Sol platform, the

[25] 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.

Puerto Rico Senate issued a bill to establish the Energy Public Policy for the Island that adopted the same 100 percent renewable energy goal. Afterwards, the Governor of Puerto Rico also announced the same energy goal, which is where any similarities end. There are extreme disparities in how the Queremos Sol platform, the proponents of Senate Bill 1121, the Governor, and the executive branch of government propose to transform the Puerto Rico electric system.

Historically, PREPA's decision-making has been by partisan politics rather than a commitment to energy planning in the public interest. PREPA must be freed of partisan politics and democratized. The transformation of PREPA must include multisector participation and transparency so that the voices of multiple sectors of Puerto Rican society are reflected in the governance of the utility.

The following specific proposals included in Queremos Sol are necessary for the transformation of PREPA 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** should 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 Puerto Rico Energy Bureau in the event that PREPA does not cooperate.

6- **Attraction and retention of an appropriate labor force** through appropriate 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. An effective investigation into the costs of salary and benefits that PREPA has incurred due to political appointments.

7- Acknowledgement of **climate change as central to decision-making.** Climate change has typically been only an accessory in governmental conversations and priorities, in spite of

the significant impacts by way of social, fiscal and political impacts in Puerto Rico. 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 adaptation be inserted as a pillar in the design of all public policy, legislation and decision-making processes funded either publicly or privately.

8- **Effective opportunities for citizen participation and education**. Providing and supporting spaces for citizen participation in PREPA is in the spirit of publicly owned power companies and is vital to achieving baseline levels of agreement informed by inclusiveness and transparency. Energy conservation and resource issues should be incorporated into school curricula. Alliances should be established between the State Office of Energy Public Policy with universities and other organizations. Establishment of a roster of experts and companies complemented with the development of incubators for energy entrepreneurship and creativity. 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”, 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 for those who have traditionally been left behind and guarantees job security and livelihoods for energy-industry workers.

Pensions and health plan benefits are preserved, and workers and members of affected communities have the right to first employment for any work 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-ups so that communities in transition have usable land and clean water.

10- **Appointment of an Independent Inspector General of the Private Sector (IGISP).** An IGISP 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. For more information on the use of an IGISP in New York see: https://getnicklaw.com/areas-of-practice/independent-monitoring/case-studies/new-york- racing-association/.

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 in order to achieve an affordable and financially sustainable electrical system.

EPA's Proposal to Extend the Operating Life of Coal Ash Ponds Threatens Environmental Justice Communities

EPA's recent rulemaking proposal[26] to extend the operating life and delay closure of coal ash ponds threatens the health and well-being of environmental justice communities throughout the United States. This proposal, called "Part A," postpones the closure dates for coal ash ponds, allowing unlined leaking ponds, ponds in unstable areas and ponds in areas subject to flooding to remain open for years longer than the existing rule. For the average coal plant, such delays would add over a million tons of toxic waste to these dangerous impoundments. Furthermore, this threat is significantly heightened by the storms and flooding caused by

[26] Pre-Publication Version of the Proposal: Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; A Holistic Approach to Closure Part A: Deadline to Initiate Closure, Docket No. EPA-HQ-OLEM-2019-0172, *available at* https://www.epa.gov/coalash/pre-publication-version-proposal-holistic-approach-closure-part-deadline-initiate-closure

climate change.

Although there are no coal ash ponds in Puerto Rico, it is essential to note that failure to close hundreds of coal ash ponds located throughout the nation increases the risk of catastrophic spills and groundwater contamination, and this risk is disproportionately borne by low-income communities and communities of color. As was documented following Hurricane Florence in North Carolina, flooding inundated CCR impoundments and caused the washout of CCR.[27] This was not the first instance,[28] nor will it be the last. As storms grow stronger as a result of climate change, it is likely that more coal ash spills will occur with greater frequency and severity.[29] Because, as the United States Commission on Civil Rights found, "communities that live downstream from coal ash impoundments tend to have a higher than average minority and low-income population," these coal ash spills, flooding and contamination threaten environmental justice communities disproportionately.

Conclusion

Alongside various communities, Puerto Rico remains at the forefront of the environmental justice fight. Our people have suffered for over a decade due to coal ash contamination from AES' coal plant and its egregious disposal practices. Continued reliance on both AES and the Aguirre Power Complex for energy keeps the island in a state of devastation and causes tremendous toxic emissions, disproportionately affecting the poorest communities. Climate change and specifically, Hurricane Maria, has exacerbated the harms caused by the electric

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[27] *See* A. Vengosh, E.A. Cowan, R.M. Coyte, et al., Evidence for unmonitored coal ash spills in Sutton Lake, North Carolina: Implications for contamination of lake ecosystems, Science of the Total Environment, 10.1016/j.scitotenv.2019.05.188

[28] *Id.*

[29] *See* Z. Coleman, "The toxic waste threat that climate change is making worse," *Politico*, Aug. 26, 2019, *available at* https://www.politico.com/story/2019/08/26/toxic-waste-climate-change-worse-1672998

power companies and coal burning utility. EPA must always consider these realities when addressing CCR disposal and cleanup – rather than weaken the existing safeguards, it must protect the environment and health of communities and not cater to industry.

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