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Chair Katie Porter
Subcommittee on Oversight and Investigation
House Committee on Natural Resources
Congress of the United States
Washington, DC 20515

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Written Testimony for Hearing to Examine the Impacts and Retirement of the Coal-Fired Power Plant in Guayama, Puerto Rico

Dear Chair Porter and Members of the House Subcommittee on Oversight and Investigation,

On behalf of the groups listed in the attachment to this letter, we appreciate the opportunity provided by the House Subcommittee on Oversight and Investigation of the Committee on Natural Resources, to testify and submit written comments on the impacts and the retirement of the AES Puerto Rico, L.P. ("AES") coal-fired power plant in Guayama, Puerto Rico. As further explained below, the groups that are joining this testimony have substantial concerns with both the impacts and the details surrounding the alleged retirement of the AES power plant in Guayama, Puerto Rico. Specifically, the groups request that the pertinent Federal and Puerto Rico agencies implement the following measures:

1. Revoke all AES permits, including but not limited to permits issued under the Clean Water Act ("CWA"), National Pollutant Discharge Elimination System ("NPDES"), Clean Air Act ("CAA"), Resource Conservation and Recovery Act ("RCRA"), Coal Combustion Residuals Rule ("CCR Rule"), AES' Siting Permit, among others and denial of any new permits.
2. Order the immediate and permanent shutdown of the AES Guayama plant.
3. Order the total and complete removal of the AES coal ash waste pile ("Agremax"/ "CCRs") and the clean-up of groundwater, the South Coast Aquifer and Las Mareas-Jobos Bay.
4. Mandate the investigation, monitoring and decontamination of all areas impacted by the AES toxic coal ash waste, as well as mandate public health studies related to pollution from the AES operation, medical monitoring, treatment, and other types of reparations to persons and communities harmed by the AES operation.
5. Require cleanup of the recent spill of AES coal ash waste off the coast of Atlantic Beach, near Jacksonville, Florida.

In addition to the closure of the AES coal-fired plant and the other requests, we urge this Committee, the Federal government, and the Puerto Rican government to require the Puerto Rico Electric Power Authority ("PREPA") to invest the Federal Emergency Management Agency ("FEMA") funds allocated for the electric system for on-site/rooftop solar and battery systems and energy efficiency programs that will provide life-saving electric service to the residents of Puerto Rico. Multiple studies have shown the viability, reliability and economic benefits of rooftop solar and storage in Puerto Rico.[1]

On January 29, 2021, PREPA filed a report with the Puerto Rico Energy Bureau that provides a breakdown on electricity generation as of that date. The report, titled Emergency Management KPI Dashboard, reflects that electricity generation was at 1960 MW, compared to the maximum capacity of the generating units in service of 3,361 MW with installed capacity of the units at 4596 MW, this includes the AES plant. Moreover, PREPA has additional units that could be put into service with an extra maximum capacity of 935 MW and with an installed capacity of 1,722 MW.[2]

A simple mathematical exercise shows that PREPA has excess generating capacity of at least 1401 MW, not counting the 935 MW of the units that were not in service but are functional. AES generation was at 448 MW of a maximum capacity of 514 MW, which illustrates that, if the AES plant closes, PREPA still would have excess generation of 953 MW, well above the necessary reserve, without counting other units that could enter service and provide another 935 MW. In short, if AES closes, Puerto Rico has more than enough electricity generation to meet the demand. Although demand is higher in the summer months, currently estimated at about 2200 MW, PREPA still has excess generation capacity and sufficient reserves.

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 laws that require the Puerto Rican government to shift to renewable energy and enable Puerto Rico residents to participate in this essential public service. The Queremos Sol proposal ("We Want Sun," queremossolpr.com), endorsed by the groups joining in this testimony 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 to achieve resiliency to the more frequent and intense hurricanes brought on by the climate crisis. PREPA's Transmission and Distribution

[1] Puerto Rico Low-to-Moderate Income Rooftop PV and Solar Savings Potential, National Renewable Energy Laboratory (NREL), 2020, Puerto Rico Low-to-Moderate Income Rooftop PV and Solar Savings Potential (nrel.gov); We Want Sun and We Want More (Summary), Fact Sheet, Puerto Rico Distributed Energy Resource Integration Study: Archieving a Renewable, Reliable, and Resilient Distributed Grid - Telos Energy, Puerto Rico Distribution Modeling - EE Plus, Puerto Rico Distributed Energy Resource Integration Study: Load, Energy Efficiency, and System Cost - Energy Futures Group, Sol + Techos – Página principal (cambiopr.org); Achievable Renewable Energy Targets ("ARET"), https://www.uprm.edu/aret/docs/Ch_4_Solar_resource_and_solar_thermal.pdf).

[2] See, Motion to Present Status and Final Progress Report and Request for Release of Order, page 23; Mocion-para-Presentar-Reporte-de-Estatus-y-Progreso-Final-y-Solicitud-de-Relevo-de-Orden-NEPR-AP-2020-0001-1.pdf

System Operation and Maintenance Agreement with Luma Energy, LLC would perpetuate the operation of the AES coal-fired plant in Guayama, Puerto Rico.

A true understanding of three points: price, reliability, and resiliency leads to the conclusion that AES can be retired without any adverse impact to ratepayers, grid reliability, or resiliency.
Price: Multiple studies, cited in this testimony have shown the economic viability and benefits of rooftop solar and storage in Puerto Rico. PREPA relies on an incorrect assumption that AES is in compliance with all local and federal environmental requirements: that is incorrect. AES's externalities are imposing costs on environmental justice communities in Puerto Rico and in the states and general societal and environmental burdens.
Reliability: PREPA's most recent dashboard of its system showed generation capacity, enough to meet peak load with the necessary reserve margin. The recent studies cited in this testimony demonstrate that a grid powered by rooftop solar and storage is more resilient, reliable and affordable than one powered by large, centralized fossil fuel plants.
Resiliency: AES depends on vulnerable long-distance transmission to provide power to northern Puerto Rico, especially the San Juan metropolitan area. Electrons from the AES plant did not reach San Juan for months after Hurricane Maria: this demonstrates the vulnerability of AES to hurricanes and multiple other natural events.

Basis of the Community, Environmental and Civil Society Demands

I. AES Has a Long History of Noncompliance with Environmental Laws and Regulations

The AES Puerto Rico, L.P. ("AES") coal-fired power plant in Guayama, Puerto Rico has accumulated hundreds of thousands of tons of coal ash waste at its plant site. Evidence of environmental contamination by AES is documented in various groundwater monitoring reports prepared by AES's contractor, DNA Environmental, LLC., as a requirement of the Federal Coal Combustion Residuals Rule ("CCR Rule"). The data from the DNA report indicate that the groundwater in the downgradient wells of the pile where the coal combustion waste, called Agremax™ is stored, (especially the wells designated MW-3 and MW-4) is highly contaminated with coal ash waste when compared to upgradient wells (designated MW-1 and 2).[3] AES's polluting practices have already contaminated part of the South Coast Aquifer, the sole source of potable water for tens of thousands of people in Puerto Rico. This contamination continues to occur at the AES plant site despite the mandate of the CCR Rule that requires AES to eliminate the source of the contamination and restore the groundwater to its original condition. To date, AES has failed to implement a cleanup at the site, and its proposed cleanup plan is not compliant with the CCR Rule.

In addition to contaminating groundwater at and around the AES plant site in Guayama, approximately 2 million tons of AES coal ash has been used as "fill" at dozens of locations mostly in southeastern Puerto Rico. Following complaints of illegal coal ash dumping, U.S.

[3] *See* DNA-Environment, LLC, 2019 CCR Annual Groundwater Monitoring and Corrective Action Report AES Puerto Rico LP, Guayama, Puerto Rico, January 31, 2020, https://www.aes.com/sites/default/files/2021-02/190173_AES_2019_Groundwater_Monitoring_and_Corrective_Action_Report%20(1)_0.pdf (last visited April 12, 2021). [Hereinafter, "DNA-Environment 2019 CCR Report"].

Environmental Protection Agency ("EPA") Region 2 personnel examined numerous coal ash dump sites in 2011. A letter from the EPA Region 2 Regional Administrator to the Puerto Rico Environmental Quality Board, dated November 11, 2011, indicates as follows:

> We have inspected ten sites in the municipalities of Arroyo, Guayama, and Salinas, where Agremax has been placed on the land, including residential areas and areas close to wetlands and surface water. It is our observation, based on these inspections and subsequent investigation, that the land placement of Agremax may constitute disposal at several of the sites inspected. The volumes observed placed on the land in some cases appeared to far exceed those we would consider necessary for the appropriate engineering use of the construction material for which Agremax was allegedly being substituted. In addition, several of the Agremax land placement sites appeared to have been abandoned, in that, despite the presence of signs indicating construction permit issuance, the slated construction projects had not been initiated and no construction equipment or activity was noted, while several sites appeared overgrown and had been used for the illegal deposition of waste materials.

The letter further states as follows:

> The locations at which some of the deposition of Agremax has taken place overlie shallow sole source drinking water aquifers and are thus particularly sensitive to environmental harm. A 2007 EPA report documents known damage cases from the mismanagement of coal ash in unlined landfills and surface impoundments and the subsequent contamination of drinking water aquifers through the leaching and ground water transport of contaminants in the ash. Two EPA Orders, issued in 2003 and 2004 under the Comprehensive Environmental Response, Compensation, and Liability Act, and a subsequent 2004 citizen suit taken under Section 7002 of the Resource Conservation and Recovery Act, address aquifer contamination by the leaching of toxic constituents from an unlined coal ash landfill in Pines, Indiana. The EPA proposed rule states that: ". . .EPA recognizes that seven proven damage cases involving the large scale placement, akin to disposal, of [coal combustion residues] has occurred under the guise of "beneficial use". . ." and that ". . .therefore, today's proposed rule explicitly removes these types of uses from the category of beneficial use.. ." (75 F. R. 35, 161). *Id.*

As an example of one of the disposal locations identified, an EPA inspector found that an access road adjacent to the Pfizer Guayama plant is "far more extensive (wider, higher) than appropriate for stated end use." Field Notes taken by L. Grossman of EPA.

AES has repeatedly violated the Clean Water Act. AES has also repeatedly failed to comply with the orders of the Environmental Quality Board, now Department of Natural and Environmental Resources ("EQB/DNER") (Ref. Nos. 17-14 and 17-21),[4] which required AES to cover the CCR waste pile at its facilities before the passage of Hurricanes Irma and María to avoid

[4] Puerto Rico Environmental Quality Board 96-9-1, 96-39-1, available at http://www.ac,remax.com/Downloads/R-00-96-2%20ENGLISH.pdf, and 00-14-2 available at http://www.agremax.com/Downloads/R-00-14-2%20ENGLISH.pdf R. 96-39-1 at 2.

fugitive dust and to safeguard the health and safety of the residents of the areas surrounding the plant. Prior to Hurricane Irma, EQB/DRNA ordered AES to contain and cover the coal combustion residuals and/or Agremax™ at its facilities to safeguard the health and safety of the residents (Resolution No. 17-14). AES refused to comply with the order and was fined $95,000.00. AES failed to comply with a second order issued by EQB, with the same requirements, as Hurricane Maria approached.

The Toxic Release Inventory ("TRI") published by the EPA reveals that the AES coal-fired plant is the largest polluting plant in Puerto Rico. According to TRI, since AES began operations, it has emitted 8,560,412.19 pounds of toxic substances and 63 percent of that pollution has been released into the air. Among the toxic substances released by AES daily into the air are arsenic, mercury, ammonia, barium, chromium, vanadium, and sulfuric acid.

EPA has also documented an informal enforcement action in the past 5 years, a Clean Air Act ("CAA") notice of violation dated 8/28/2020.[5]

AES has shipped hundreds of thousands of tons of its coal ash waste to Florida and most recently, a ship full of the coal combustion residuals capsized and spilled most of its cargo into the ocean, in the vicinity of Atlantic Beach, near Jacksonville.[6]

The AES Indiana Petersburg coal-fired power plant is one of four super polluter[7] coal plants located in Southwest Indiana. AES incurred in repeated violations of its air and water permits.[8]

AES has also been sued and has settled cases involving coal ash contamination and personal injuries to residents of the Dominican Republic.[9]

II. Environmental Justice

In addition to Executive Order 12,898, the Biden Administration's Executive Order, "Tackling the Climate Crisis at Home and Abroad" provides a further foundation for environmental justice claims and states in part as follows:

> To secure an equitable economic future, the United States must ensure that environmental and economic justice are key considerations in how we govern. That means investing and building a clean energy economy that creates well- paying union jobs, turning

[5] EPA, AES Puerto Rico L.P. Detailed Facility Report https://echo.epa.gov/detailed-facility-report?fid=110012141805#pane3110012141805, *supra*.

[6] This Barge Capsized and Leaked a Massive Stream of Toxic Coal Ash Near Florida https://www.vice.com/en/article/epnagz/coal-ash-florida-barge-capsize-aes-puerto-rico?ct=t(RSS_EMAIL_CAMPAIGN)

[7] Super Polluter

[8] AES Petersburg was identified by Indiana's newspaper of record as the worst water polluter in the state: https://www.indystar.com/story/news/environment/2020/06/08/ipl-petersburg-plant-faces-fine-more-than-100-permit-violations-idem-water-pollution/5261937002/
https://www.indystar.com/story/news/environment/2020/08/31/ipl-pay-millions-settlement-over-alleged-clean-air-act-violations/3447504001/

[9] https://periodismoinvestigativo.com/2018/12/arroyo-barril-coal-ash-and-death-remain-15-years-later/

disadvantaged communities — historically marginalized and overburdened — into healthy, thriving communities, and undertaking robust actions to mitigate climate change while preparing for the impacts of climate change across rural, urban, and Tribal areas.[10]

The Guayama region is an environmental justice community with high poverty rates and where the majority of residents are Afro-Puerto Ricans. Many residents in this region are descendants of enslaved Africans brought by the Spanish to toil in the region's sugar cane plantations. According to the Toxic Release Inventory this region suffers the greatest contamination of any region in Puerto Rico. The Guayama region also has among the highest unemployment and school dropout rates in Puerto Rico. The region has experienced a sharp decrease in medical services available to this environmental justice community with the closure of two hospitals and only one hospital currently in operation.

In 2016 and 2018, a team from the Program in Biostatistics and Epidemiology of the Graduate School of Public Health in the Medical Sciences Campus of the University of Puerto Rico completed epidemiological studies that focused on the communities of Puente de Jobos and Miramar de Guayama, closest to the AES coal plant, as well as in comparable communities in the municipality of Fajardo[11].

The purpose of the study was to determine if the prevalence of respiratory and skin diseases was higher in the Guayama communities, compared to the Fajardo communities. Information was collected on sociodemographic characteristics, housing, vulnerability factors to environmental pollution, perception of environmental pollution, reproductive and respiratory health, skin and cardiovascular diseases, and cancer.

The most relevant findings of the epidemiological study carried out are the following:

- 1 in 3 people in Guayama has been diagnosed with respiratory disease.
- 1 in every 4 inhabitants of Guayama has been diagnosed with cardiovascular disease.
- Pediatric asthma is approximately 5 times higher in Guayama;
- Severe asthma in boys and girls is 6 times higher in Guayama;
- The prevalence of urticaria 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 population over 45 years of age is 9 times higher in Guayama;
- The probability of suffering from pediatric asthma is approximately 6 times higher in Guayama.

[10] See Biden Administration, Executive Order on Tackling the Climate Crisis at Home and Abroad, January 27, 2021, Section 219, https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/

[11] See, University of Puerto Rico, Medical Sciences Campus, Graduate School of Public Health - Department of Biostatistics and Epidemiology, Epidemiological Study in the Communities of Puente de Jobos and Miramar in Guayama and Santa Isidra and Rafael Bermúdez in Fajardo.

The AES disposal of CCRs in the Guayama region in proximity to the plant and the AES CCR waste pile and operation of the plant imposes disproportionate public health risks to this environmental justice community. Scholars have documented the environmental and social injustices perpetrated by AES in the region.[12]

AES transports its coal ash to the Chesser Island Landfill in Folkston, GA, another environmental justice community. Folkston has a poverty rate of 41.7 percent, which is nearly four times the national average. Approximately 53.2 percent of the population is black or Hispanic, which is more than the state average of 44.1 percent nonwhite residents.[13] Coal ash dumping clearly places a disproportionate burden on environmental justice communities in both Puerto Rico and Georgia. How can these burdens be justified by continued operation of the AES-PR plant?

III. AES Obtained Permits Based on Fraudulent Misrepresentations

As required by the CCR Rule, AES commissioned the Corrective Measures Assessment ("CMA") Report.[14] The Report lists clean up alternatives for the aquifer contaminated with toxic AES coal ash, known as Agremax™, which AES has accumulated for years in an immense, exposed pile and left in direct contact with the soil, wind, and rain in the open air at its plant in Guayama, Puerto Rico.

AES opted to implement "Monitored Natural Attenuation" ("MNA") and to excavate 4-6 feet of contaminated soil, replace it with clean fill material, install a liner, and pipe storm water to a pond adjacent to the coal pile as the main components of the corrective measures. In furtherance of the corrective measures proposed, AES filed various documents with the Puerto Rico Permits Management Office ("PMO"), including an Environmental Assessment ("EA"). In the EA submitted by AES to obtain approvals and permits for the liner construction project, AES falsely alleges the AES-PR plant produces 454 Megawatts of energy.[15] In reality, AES currently has an

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[12] Lloréns, Hilda. "In Puerto Rico, Environmental Injustice and Racism Inflame Protests over Coal Ash." *The Conversation,* December 8, 2016. http://theconversation.com/in-puerto-rico-environmental-injustice-and-racism-inflame-protests-over-coal-ash-69763.

Lloréns, Hilda. "Puerto Rico's Coal-Ash Material Publics and the Summer 2019 Boricua Uprising." In "Puerto Rico, Protests and Politics," Special issue, *Society and Space*, February 25, 2020. https://www.societyandspace.org/articles/puerto-ricos-coal-ash-material-publics-and-the-summer-2019-boricua-uprising.

De Onis, Catalina, Energy Islands, Metaphors of Power, Extractivism, and Justice in Puerto Rico, 2021, https://www.ucpress.edu/book/9780520380622/energy-islands

[13] https://datausa.io/profile/geo/folkston-ga#demographics

[14] Haley & Aldrich, Inc., Report on Corrective Measures Assessment ("CMA") AES Puerto Rico - Agremax ™ Staging Area Guayama, Puerto Rico, (September 2019, amended November 8, 2019), *available at* https://www.aes.com/sites/default/files/2021-02/Corrective-Measures-Assessment-English.pdf (last visited April 12, 2021). [Hereinafter, "Haley & Aldrich Report"].

[15] Caribbean Architects & Engineers and AES Puerto Rico, Evaluación Ambiental Agremax™ Staging Area Liner Project AES Puerto Rico L.P. Guayama, PR ("EA"), p. 3, October 2020. [Hereinafter. "EA"].

installed capacity of 524 MW.[16] That is an extra 70 MW of generation capacity, with the corresponding amount of additional coal ash waste, than what AES reported to the PMO in its filings to the administrative agency.

Furthermore, the Environmental Assessment submitted by AES falsely alleges as follows:

> The plant is classified as a zero liquid discharge process water plant. The AES-PR plant is considered zero discharge because it reuses its process waters and does not discharge process waters either to PRASA or to bodies of water.[17] (Translation provided)

Again, AES' allegations in the EA are false. In 2012, the EPA imposed a fine of $170,000.00 against AES for discharging contaminants into the wetlands near the Guayama plant and for multiple violations of the Clean Water Act ("CWA"). The AES Consent Agreement and Final Order, Docket No. CWA-02-2012-3452 establishes as a finding of fact that AES, "discharged process wastewater from an overflow of the cooling tower basin through outfall serial number 003 into the wetlands" and "industrial wastewater and/or stormwater associated with industrial activity through outfall serial number 003 into a water of the United States without a National Pollutant Discharge Elimination System ("NPDES") permit, in violation of section 301 (a) of the CWA" in addition to illegal discharges of stormwater.[18] The EPA issued an Administrative Compliance Order ("ACO") in Docket No. CWA-02-2012-3100 to address the years of illegal discharges by AES in violation of the CWA. Subsequently, and due to AES' continuous illegal discharges and violations of the CWA, EPA issued an Administrative Order on Consent with the following findings:

> Based on the findings of the CEI (NPDES Water Compliance Inspection Report (CEI Report), dated October 3, 2011) and further investigations, EPA found Respondent to be in violation of the CWA and the applicable NPDES regulations for its discharges of pollutants into waters of the United States without NPDES permit coverage and for its failure to apply for a NPDES permit. On December 16, 2011, EPA issued to Respondent (AES) an Administrative Compliance Order (ACO), Docket Number CWA-02-2012-3100, in an effort to bring Respondent into compliance with the CWA and its implementing NPDES regulations.[19]

In the 2015 Administrative Order on Consent Docket No. CWA-02-2015-3102, ("AOC"), EPA documents additional CWA violations by AES:

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[16] *Moción para Presentar Reporte de Estatus y Progreso Final y Solicitud de Relevo de Orden*, Docket No. NEPR-AP-2020-0001, January 29, 2021, p. 23, https://energia.pr.gov/wp-content/uploads/sites/7/2021/02/Mocion-para-Presentar-Reporte-de-Estatus-y-Progreso-Final-y-Solicitud-de-Relevo-de-Orden-NEPR-AP-2020-0001-1.pdf (last visited April 12, 2021).

[17] EA, *supra*, p.3.

[18] *AES Consent Agreement and Final Order*, Docket No. CWA-02-2012-3452, March 27, 2012, pp. 3, 5 and 6, https://yosemite.epa.gov/OA/RHC/EPAAdmin.nsf/Filings/0B584DB6CF2B0B89852579CF001B82E0/$File/AES123452.CAFO.pdf (last visited April 12, 2021).

[19] *AES Puerto Rico, L.P. Administrative Order on Consent*, p. 8. Docket No. CWA-02-2015-3102, ("AOC")..

> Based upon an EPA Region 2 enforcement officer walkthrough of the Facility on January 28, 2015, and further review of Respondent's submittals, EPA found Respondent to be in non-compliance with the MSGP and ACO, as set forth below: a. failure to provide a Final Progress Report indicating and documenting the implementation of the non-structural BMPs and structural BMPs at the Facility, per the EPA May 5th, 2013 letter; b. Part 2.1.2.5 (Erosion and Sediment Controls) — lack of soil stabilization in areas near the coal pile, limestone dome, and coal pile runoff pond; c. Part 2.1.2.5 (Erosion and Sediment Controls) — lack of installation and/or replacement of the silt fence in the perimeter of the coal storage piles and coal handling areas; d. Part 2.1.2.12 (Dust Generation & Vehicle Tracking of Industrial Materials) — lack of a dust and fugitive emissions control plan for areas in which ashes are handled (e.g., Agremax™ storage pile); e. Part 3.2 (Conditions Requiring Review to Determine if Modifications Are Necessary) — did not address the exceedances of the applicable benchmarks (e.g., aluminum and iron) for the period up to June 2014 concerning storm water discharges through outfalls 001 and 002; f. failure to prepare and submit the comprehensive site inspection reports pursuant to Part 4.3.2 of the MSGP for the December 13, 2012 and December 19, 2013 comprehensive site inspections; and g. Part 7.1 (Reporting Monitoring Data to EPA) — failure to submit MSGP discharge monitoring report forms (MDMR forms) all monitoring data collected since Respondent obtained MSGP coverage on September 29, 2013.[20]

Furthermore, EPA has documented AES violations to NPDES permit number PRR053093 since January 2018.[21] AES has failed to submit Discharge Monitoring Reports as required under the NPDES permit since at least January 2018. Additionally, AES has incurred in violations that include: "WW Storm Water Non-Construction - Discharge without a permit, WW Storm Water Non-Construction - Failure to Implement SWPPP/SWMP, WW Storm Water Non-Construction - Failure to properly install/implement BMPs, WW Storm Water Non-Construction - Failure to properly operate and maintain BMPs, and WW Storm Water Non-Construction - Failure to submit required report (non-DMR)"[22] since approximately November or December 2019.

Therefore, it is clear that AES is not a "zero liquid discharge process water plant" and that AES knowingly submitted false information to the PMO both as to the water discharges and the generation capacity. Puerto Rico Law 161-2009, as amended, presumes the accuracy of permits, but "when there is fraud, deceit, deception, extortion, bribery or the commission of any crime in granting or denying a final determination or permit, or in such cases in which the structure poses a risk to the health or safety, or to environmental or archaeological conditions, the final determination so issued and the permit granted by the Permit Management Office, by the Autonomous Municipality with I to V granted hierarchy or by the authorized professional, must

[20] AOC, pages 9-10.

[21] *See* EPA, AES Puerto Rico L.P. Detailed Facility Report, *available at* https://echo.epa.gov/detailed-facility-report?fid=110012141805#pane3110012141805 (last visited April 12, 2021).

[22] *Id*.

be revoked..."[23] All permits issued by PMO to AES should be revoked and pending permit applications should be denied.

IV. AES's Plan Does Not Meet Federal Requirements and Lacks Public Health Protection Measures

AES has admitted that the source of the groundwater pollution at the Guayama plant site is its massive coal ash waste pile. Pursuant to the CCR Rule, AES is required to control the source of the contamination and clean up the groundwater.[24] Instead of removing or containing the coal ash pile to prevent releases to air and water, AES's cleanup plan consists of "Monitored Natural Attenuation" and constructing a liner beneath the existing pile. Merely monitoring the pollution in the groundwater does not constitute cleanup. In addition, expert analysis of the AES liner construction project, concludes that the AES filings raise numerous questions relating to the liner components and their compatibility with the wastes that will be accumulated on the liner.[25] In addition, the expert noted,

> Additional questions remain relating to the preparation of the sub-surface before placement of the liner including the extent to which previously contaminated soils will remain in place or how it will be verified that all contaminated soils are removed, especially given the very shallow depth to groundwater in the area. As noted, construction of the liner so close to groundwater cannot protect against contaminant migration and achieve adequate source control. And, lastly, no construction details, which are essential to ensuring that the liner will be effective, are provided.[26]

The groundwater level according to AES's documents is 3 feet below the liner.[27] AES proposes to excavate 4-6 feet and replace the excavated contaminated soil or materials with clean fill, then place the liner and use the site to again pile its coal ash. AES's plan would violate the location requirements of the federal CCR Rule (40 CFR Part 257, subpart D). As noted in the attached Sahu Report:

> Pursuant to 40 C.F.R. § 257.60(a), waste piles must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer. Clearly, by AES' own admission, the liner does not meet this standard. AES has also failed to demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due

[23] Law 161-2009, as amended, Article 9.10, 23 L.P.R.A. § 9019i.
[24] 40 C.F.R. §§ 257.90-98.
[25] See Comments on the Liner Proposed for AES, Puerto Rico by Ranajit Sahu, PhD attached as Exhibit 1.
[26] *Id.*
[27] Note that this high level of groundwater was not previously disclosed by AES and, in fact, AES' 2019 Corrective Measures Assessment indicates a groundwater level greater than 10 feet below the ground surface. *See* Haley & Aldrich Report.

to normal fluctuations in groundwater elevations (including the seasonal high-water table), as required by the regulation.[28]

Furthermore, AES proposes to use the CCR waste known as Agremax™, as part of the liner system. Using the Agremax™ as a project component defeats the purpose of the liner that is meant to establish a barrier between the CCRs and the groundwater.

In addition, there are inconsistencies and omissions concerning the testing of the CCR waste to be placed on top of the liner. Specifically, as explained in the Sahu Report, AES indicates that the concentrations of various metals are "zero." In fact, the reported concentrations for almost all of the metals such as arsenic, cadmium, copper, iron, mercury, nickel, and lead are shown as zero, meaning less than 0.02 ppm or 0.005 ppm depending on the metal. This is not credible and indicates that the analyses are likely flawed and therefore unreliable. It is concerning that this characterization of the wastes was used/might have been used for liner compatibility analysis.

In addition, the Sahu Report also notes that, "the reported levels of calcium, magnesium, and potassium from the 2018 tests are quite different and much higher than the levels reported in the liner compatibility studies" and that, "high levels of these constituents can adversely affect the clay in the GCL [liner]."[29] In fact, AES did not consider the constituents of concern in the liner compatibility tests. Therefore, the record is barren of any data that might indicate whether the proposed liner would be an effective barrier against leaching from Agremax™.

AES's commissioned studies show that toxic CCR from its coal plant is polluting groundwater with lithium, selenium and molybdenum. The AES' commissioned studies on groundwater quality, conducted by DNA Environmental, confirmed that metals such as lithium, selenium and molybdenum have leached from the AES coal ash waste pile into the aquifer, its toxic concentrations exceeding 4-11 times the safety levels.[30]

The 2017 Annual Groundwater Monitoring Report for the AES Guayama plant site, and subsequent reports required by the CCR Rule, indicate that the groundwater in downgradient wells, especially wells MW-3 and MW-4, is highly contaminated with coal ash pollutants.[31] 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. 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 2017 Report. These elevated levels of pollutants indicate the AES coal ash waste pile is releasing hazardous chemicals to the groundwater, which are flowing offsite. These toxic metals cause neurological damage, gout, and liver and kidney disease in humans. In addition, selenium is highly toxic to fish and other aquatic species, and it bioaccumulates, meaning it can permanently destroy wildlife populations as it

[28] *Id*.
[29] *Id.*
[30] AES Puerto Rico, CCR RULE Compliance Data and Information, Groundwater Monitoring and Corrective Action Reports 2017-2020, *available at* https://www.aespuertorico.com/en/ccr-0 (last visited April 12, 2021)
[31] *Id.*

moves through the environment over a period of years. The proposed AES liner construction would continue to pollute groundwater.

An EPA study using the Leaching Environmental Assessment Framework ("LEAF") shows that multiple hazardous substances, including aluminum, arsenic, boron, cadmium, chloride, chromium, fluoride, lead, lithium, molybdenum, selenium, sulfate, and thallium, can leach from the AES coal ash waste at high levels and then contaminate the local environment around the sites at which coal ash has been disposed.[32]

The 2015 Coal Combustion Residuals Rule mandates that companies that pollute groundwater above federal health standards must develop a strategy to prevent new releases to groundwater, ameliorate pollution, and restore the affected area to their original condition. 40 C.F.R. § 257.96 (a). AES's selected remedy to allegedly comply with the CCR Rule, namely installation of a liner plus Monitored Natural Attenuation ("MNA"), fails most of the criteria and objectives of the applicable regulation, 40 CFR 257.97(b) and (c), because it does not entail removal of the pollutants in the groundwater. This is cause for concern because the direction of the flow of groundwater is moving away from the AES pile of coal ash waste towards the coastal community and then to the bay.

AES's plan is flawed for several reasons. The plan does not meet CCR Rule requirements because of the deficiencies in the research commissioned by AES and the limitations of the proposed solutions. These are serious deficiencies and make the cleanup plan inadequate to remedy past and ongoing contamination of groundwater, air, and (potentially) surface waters with CCR from the AES plant. The law requires AES to submit a plan to the community that meets federal standards.

The measures proposed by AES do not prevent continued contamination from the CCR waste pile. The installation of a plastic liner to reduce future groundwater contamination would provide, at best, only a temporary barrier to CCR contaminants. The proposed liner does not meet the standards of federal law for an engineered CCR landfill and would not be effective in the long run. The AES cleanup proposal will not stop ongoing contamination from CCRs. Contaminated runoff and toxic fugitive dust are not adequately addressed in AES' proposed measures.

AES does not propose long-term or truly effective solutions to avoid continuous toxic CCR contamination. AES's plan does not present an effective solution to prevent the continued spread of CCR via air, groundwater and/or surface runoff. Containment measures for CCR should include placement in secure storage silos with impermeable floors and walls, as well as engineering

[32] A.C. Garrabrants, D.S. Kosson, R. DeLapp and Peter Kariher, Leaching Behavior of "AGREMAX" Collected from a Coal-Fired Power Plant in Puerto Rico, EPA 600/R-12/724 December 2012 | www.epa.gov/ord. See also, Independent laboratory tests conducted by TestAmerica and background levels for these metals taken from ATSDR Study, available at http://www.atsdr.cdc.gov/HAC/PHA/reports/isladevieques_02072003pr/tables.html#T2. (last visited April 12, 2021).

safeguards to contain CCR under severe wind and rain conditions in seismic-activity proof locations.

Furthermore, AES did not adequately investigate or characterize the nature and extent of the spread of contaminants from the CCR waste pile as required by the CCR Rule.[33] This is an essential first step to developing a cleanup plan. First, as a threshold matter, AES failed to characterize the CCR waste using the Leaching Environmental Assessment Framework ("LEAF"),[34] a battery of tests that accurately detects the leaching potential of coal combustion residuals. Second, AES failed to assess the extent of the CCR releases and their migration from the waste pile into adjacent wetlands and water bodies.

The EA indicates that the project site is a flood-prone area, with flood levels exceeding 3 meters. In addition, the EA documents the wetland area in the southwest area of the project site where AES proposes to continue to accumulate tens of thousands of tons of coal ash waste. Lithium variations above the drinking water detection level were detected in the extreme southwest of the property in the TW-C well, yet no explanation is provided for these data.[35] Furthermore, AES failed to survey the large wetland area just south of the plant to determine if there were heavy metals from CCR contamination in its sediment, surface water, or its underlying groundwater. Contamination of the wetland areas is likely to negatively impact aquatic life, birds, and crustaceans. Since the area is a habitat for game birds caught for human consumption, this can have adverse impacts on both public health and the local economy. Furthermore, the EA does not address the impact of proposed excavation on the aquifer water table, wetlands, and a flood-prone area.

AES also did not investigate CCR contamination in discharge areas of Las Mareas Bay. Although AES admits that contaminated groundwater is discharged into the bay in the low-tide zone,[36] it did not sample the water near the port nor the sediments in the area. Instead, AES sampled much deeper waters in the bay.

Lastly, AES cited an outdated survey on groundwater use in Las Mareas, a community neighboring the contaminated groundwater to the south. The survey used by AES dates back to 2002. To ensure that all households obtain water from a public drinking-water pipe or if there are existing private wells in the area, AES must carry out a new survey.

Further, confirmation of the leaching of dangerous contaminants from Agremax™ at the Guayama site highlights the risks from the use of 2 million tons of AES' Agremax™ as fill

[33] 40 C.F.R. § 257.95 (g) (1).

[34] An EPA study using the Leaching Environmental Assessment Framework ("LEAF") shows that aluminum, arsenic, boron, cadmium, chloride, chromium, fluoride, lead, lithium, molybdenum, selenium, sulfate, and thallium can leach from the AES coal ash waste at high levels and then contaminate the local environment around the sites at which coal ash has been disposed. A.C. Garrabrants, D.S. Kosson, R. DeLapp and Peter Kariher, Leaching Behavior of "AGREMAX" Collected from a Coal-Fired Power Plant in Puerto Rico, EPA 600/R-12/724 December 2012 | www.epa.gov/ord.

[35] Haley & Aldrich Report, p.100-110, https://www.aes.com/sites/default/files/2021-02/Corrective-Measures-Assessment-English.pdf (last visited April 12, 2021).

[36] DNA-Environment 2019 CCR Report (last visited April 12, 2021).

throughout southeastern Puerto Rico. Sample analyses commissioned by Earthjustice in July 2019 determined that the level of arsenic found in the coal ash deposited in Urb. Parque Gabriela and the Ranchos Guayama community, in Salinas, and the Dulces Sueños Connector, in Guayama, exceeds EPA standards and is considered harmful to human health. Levels of arsenic found in the ash, which remains exposed on the ground, are 9 to 22 times higher than the level considered safe for arsenic in residential soils, and 2 to 5 times higher than the level considered safe for soil in industrial properties established by the EPA. These levels of contaminants raise questions regarding the status of all coal ash fill sites in Puerto Rico where AES discharged its waste. It is highly likely the ash deposits are leaching harmful coal ash contaminants to underlying groundwater and/or nearby surface waters, similar to the documented damage occurring at the Guayama site. These unmonitored and often uncovered fill sites also pose serious dangers to human health from direct contact and inhalation of coal ash dust. Yet, to date, AES has not acknowledged their responsibility for cleanup of these sites nor is there any plan to test, monitor or remediate any of the fill sites.

V. AES's Plan Will Worsen Fugitive Dust Pollution

The AES coal ash waste pile grew to an accumulated amount of (at least) 487,000 tons of CCR in 2019, making it the largest CCR pile of any jurisdiction in the United States and its territories.[37] Fugitive dust from the CCR waste reaches nearby communities on a daily basis and contaminates the lungs of people who breathe the toxics contained in the ashes.

A July 2017 CCR Inspection Report for the AES coal ash waste pile at the AES plant site, containing 430,000 tons of CCR, notes that "localized rills were observed on the surface of stockpile slopes, they appeared to be related to over-watering by the water sprinkler . . . . 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." Regarding the CCR pile, the Report describes that it had "increased to an estimated height of 120 feet," while its "slopes have become longer and steeper."[38]

AES's plan according to the EA and its engineering consultants, Winston Esteves and Steven Putrich (Haley & Aldrich), is to move half of the accumulated CCR on the Guayama site in order to install the first section of a plastic liner. The EA and the Report indicate that the liner placement would be done in two phases: phase 1 would consist of placing half of the CCR pile over the other half (located in an area identified for phase 2); the plastic liner would then be

[37] CCR 2017 Annual Inspection Report AES Puerto Rico, p. 3, July 2017, https://www.aes.com/sites/default/files/2021-02/2017_Annual-Inspection-Report.pdf (last visited April 12, 2021).
[38] *Id*.

installed in the original phase 1 area, and finally the entire CCR pile accumulated in the phase 2 area would be placed over the liner located in the phase 1 area.[39]

The movement of the AES coal ash waste would inevitably create clouds of toxic ash particles and migrate to nearby and densely populated communities such as Miramar, Santa Ana, San Martín, Puerto de Jobos, Mosquito and San Felipe. Residents of these nearby communities have filed several complaints with the Department of Natural and Environmental Resources because of fugitive coal ash dust reaching their homes on normal days of operation of the plant. The correction measures that AES proposes would require excavation and moving tens of thousands of tons of coal ash waste and would inevitably mobilize more fugitive dust than during normal operations.

The Siting Location issued by the Puerto Rico Planning Board for the AES plant required AES to transport and dispose of the coal ash waste outside of Puerto Rico due to the anticipated serious health hazards associated with the heavy metals and constituents of concern.

In the permit application documents, AES does not address compliance with Puerto Rico Law 5-2020, known as "Law to Prohibit the Deposit and Disposal of Coal Ash or Coal Combustion Residues in Puerto Rico," which obliges the company to remove the ashes of its facilities within 180 days.

VI. AES's Closure Announcement is Suspect

Recently, the AES Executive Vice President and COO, Bernerd Da Santos, made the following statements in an article in Caribbean Business, dated April 30, 2021, "AES Enters Retail Renewable Energy Market"[40] The article states: "Bernerd Da Santos, executive vice president and chief operating officer of AES, said the company is still in talks with PREPA to 'determine the solutions that are adequate for the Puerto Rico market.'" The article quotes Mr. Da Santos as stating, "We have the intention of transforming our energy production from coal to renewables before the 2027 deadline." Regarding the Energia Plus digital system, COO Da Santos stated, "We could bring this solution to Puerto Rico in the future. Puerto Rico would have to make regulatory changes for this system."[41] We strongly urge the Committee to request copies of the documents that would evidence AES's allegations. As noted in the previous sections of this testimony, AES made materially false statements with respect to its operations.

[39] Haley & Aldrich Report, p. 13 (section 4.3.1), https://www.aes.com/sites/default/files/2021-02/Corrective-Measures-Assessment-English.pdf (last visited April 12, 2021).
[40] https://caribbeanbusiness.com/aes-enters-retail-renewable-energy-market/?cn-reloaded=1
[41] *Id.*

Government regulations in different jurisdictions where AES operates require AES to retire 5 GW of coal-fired generation within 8 to 10 years.[42] Experts have noted AES's heavy debt burden and have called into question how AES would finance the new projects proposed.[43]

Another example of the untrustworthiness of AES are the recent actions of the AES Gener. In February 2021, AES Gener announced an agreement to sell the Guacolda thermoelectric plant, which is located in Huasco, Chile.[44] Groups in Chile denounced that AES Gener had committed to closing Guacolda, among other plants before 2040 but instead is selling the plants to a company that is not part of the decarbonization agreement.[45]

As in Puerto Rico, AES is attempting to improve its image as a greener company, but Chilean civil society groups underscore the damage to the health of the population and the lack of reparations.[46] They insist on the closure of the AES coal-fired plants in Chile to reduce local and global pollutant emissions, protect the health of the population and comply with the country's commitment to the Paris Agreement. "Commitments that AES Gener has permanently tried to avoid," according to Chilean experts.[47]

Conclusion

For the reasons summarized in this written testimony, we urge the Committee to procure the immediate closure of the AES coal-fired power plant in Guayama, Puerto Rico, prioritizing the safety of the air, water and soil, as well as the health of the affected communities. We urge the establishment of a just transition plan for the workers affected by the AES closure, particularly with rapid deployment by PREPA of on-site/rooftop solar and storage. Further, we ask for the total and complete removal of the AES coal ash waste in Puerto Rico, including the so-called Agremax™ mountain and other coal combustion residuals used as fill, as well as the full cleanup of the groundwater contaminated by the AES coal ash waste. Monitoring and decontamination of all areas impacted by the AES toxic coal ash is also necessary. AES must accept and assume responsibility for the damage to public health from its operations. Considering AES's history of fraudulent practices there should be an immediate suspension of all negotiations of new contracts with AES, including its affiliated companies. This inquiry should also include PREPA's Transmission and Distribution System Operation and Maintenance Agreement with Luma Energy, LLC which would perpetuate the operation of the AES coal-fired plant.

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[42] https://seekingalpha.com/article/4434545-aes-corp-stock-transformation-opportunity-has-a-hurdle#comments

[43] Id.

[44] https://www.eldesconcierto.cl/medio-ambiente-y-naturaleza/2021/02/25/venta-de-termoelectrica-guacolda-levanta-dudas-sobre-el-proceso-de-descarbonizacion.html

[45] *Id.*

[46] https://www.elciudadano.com/chile/coalicion-chao-carbon-critica-venta-de-5-unidades-de-guacolda-de-aes-gener-y-reafirma-que-cierre-de-estas-industrias-debe-ser-por-ley/02/25/

[47] *Id.*

In Salinas, Puerto Rico, on June 28, 2021.

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Attachment:
List of organizations that join in this testimony
Comments on the Liner Proposed for AES, Puerto Rico by Ranajit Sahu, PhD