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Recovery Update: Status of FEMA Recovery Efforts in Puerto Rico & US Virgin Islands 5 Years After Hurricanes Irma & María
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I. Acknowledgments

Good morning, Chairman DeFazio, Ranking Member Graves, members of the Committee, and our Resident Commissioner Congresswoman González. Thank you for the opportunity to appear before you today to discuss the Puerto Rico Electric Power Authority's experience regarding the recovery and reconstruction of Puerto Rico's electric system in the aftermath of Hurricanes Irma and María. My name is Josué A. Colón Ortiz. I am an engineer and the Executive Director of the Puerto Rico Electric Power Authority, since September 29, 2021.

The Puerto Rico Electric Power Authority (referred to as "PREPA" in Puerto Rico) is a public corporation and governmental entity of the Commonwealth of Puerto Rico, created pursuant to Law 83 of May 2, 1941, with the duty of providing electric power in a reliable manner, contributing to the general welfare and the sustainable future of Puerto Rico, and maximizing the benefits and minimizing the social, environmental, and economic impacts.

PREPA is the sole provider of electric power in Puerto Rico, including the islands of Vieques and Culebra. Our system consists of generation, transmission, and distribution systems including six main power plants in four locations that generate and transfer base load power throughout the electrical grid. In addition to these main power plants, PREPA

owns and operates simple cycle gas turbine stations in the cities of Mayagüez and Arecibo, 18 peaking units located in remote sites, as well as hydroelectric stations located around the main Island. For various reasons, including geographical factors and major changes to industrial, commercial, and residential population distribution since the system was originally established, approximately 70% of the power generating capacity of Puerto Rico is located along the Southern coast of the main Island, while approximately 50% of the electric power consumption is in the Northeastern coast, especially in the San Juan metropolitan area. As currently configured, PREPA relies on its transmission lines that traverse the Island, generally running South to North over mountainous terrain, to deliver electricity to almost 1 million residents in the San Juan metropolitan area. Therefore, even a small disruption in the transmission lines can cause a loss of power to a large segment of the population of Puerto Rico, the primary business and commercial center of the main island, most of the governmental offices and buildings, the airport, and the Port of San Juan.

II. Background

Puerto Rico is an archipelago of the Antilles located between the Caribbean Sea and the Atlantic Ocean, essentially in the typical path of storms and hurricanes that form just off the West coast of Africa and move West Northwest along the Atlantic Ocean towards the continental United States. It is very common for these storms and hurricanes to first reach the Antilles at the Caribbean Sea. The best example of Puerto Rico's exposure to the path of major weather disturbances is the hurricane map of Figure 1 in Annex 1 which shows recorded storms and hurricanes that crossed or impacted the archipelago since 1852.

The most recent recorded major hurricanes affecting Puerto Rico occurred in 2017. During the evening of September 6, 2017, Hurricane Irma passed about 50 nautical miles to the north coast of Puerto Rico as a category 5 hurricane. Figure 2 in Annex 1 shows the closest location of Hurricane Irma from the coast of Puerto Rico.

As can be seen in the radar image of Figure 2, Hurricane Irma affected almost all of Puerto Rico. According to the National Hurricane Center Tropical Cyclone Report, Hurricane Irma, September 24, 2021[1], Hurricane Irma had the following characteristics when it passed near Puerto Rico:

- The highest wind speed reported in Puerto Rico was about 55 miles per hour with gusts of 74 miles per hour at San Juan. Tropical storm force winds were experienced across all of Puerto Rico.
- Heavy rains were experienced across all of Puerto Rico. Maximum inundation levels of 1 to 2 feet above ground level occurred along the coast of Puerto Rico, with the city of Arecibo being the location with the highest water level.

These tropical storm force winds and heavy rains impacted Puerto Rico's electrical infrastructure causing interruptions of the power service to almost all customers in the archipelago. The Puerto Rico Electric Power Authority or PREPA started the emergency restoration works just after the passage of Hurricane Irma, which lasted more than two weeks.

On the morning of September 20, 2017, fourteen days after the passage of Hurricane Irma and before PREPA could finish the power restoration work required as a result of Hurricane Irma, Hurricane María directly impacted Puerto Rico. According to the

[1] https://www.nhc.noaa.gov/data/tcr/AL112017_Irma.pdf.

National Hurricane Center's Tropical Cyclone Report, Hurricane María, February 14, 2019[2], "María's center crossed the southeast coast of Puerto Rico near Yabucoa around 1015 UTC (6:15 A.M., local time), and the hurricane's maximum winds at that time were near 135 knots (~155 miles per hour), i.e., just below the threshold of category 5 intensity. The hurricane's center crossed the island, roughly diagonally from southeast to northwest, for several hours and emerged into the Atlantic around 1800 UTC (2:00 P.M., local time). By that time, María had weakened after interacting with the land mass of Puerto Rico and its maximum winds were estimated to be 95 knots (~109 miles per hour)." Figure 3 in Annex 1 shows the landfall of Hurricane María on the southeast coast of Puerto Rico.

The Hurricane María Report mentioned above also stated, among others, that:

- In Puerto Rico, winds of category 5 intensity were almost certainly felt at some elevated locations on the island.
- Maximum flood levels of 6 to 9 ft above ground level were registered along the coasts of Humacao, Naguabo, and Ceiba municipalities, levels of 3 to 5 ft occurred along the coast of Northeastern Puerto Rico, especially in the municipalities of Ceiba and Fajardo, and levels of 2 to 4 ft occurred along much of the northern coast of Puerto Rico.
- Heavy rainfall occurred in Puerto Rico, where one location had a storm total of nearly 38 inches, river discharges at many locations in the island were at record or near record levels, and severe flooding and mud slides affected most of the island, with the most significant flooding associated with the La Plata River.

[2] https://www.nhc.noaa.gov/data/tcr/AL152017_María.pdf

These extreme weather conditions devastated Puerto Rico, including its electrical infrastructure, causing a total blackout of the system, and interrupting the power service to all customers in Puerto Rico. The emergency power service restoration efforts after the passage of Hurricane María lasted more than one year, including areas that did not have power due to the passage of Hurricane Irma. A collapsed transmission and distribution system (T&D System), no power, no water, no communications, airports, and most of our main and secondary roads closed due to the debris and damages, were some of the dire circumstances under which our recovery and reconstruction process began, with help and support of the U.S. Federal Government and several utilities and contractors from the mainland in conducting these efforts. However, the road to the permanent reconstruction of the transmission and distribution of power is still in its initial stages.

III. Disaster Declarations

On September 10, 2017, the Commonwealth of Puerto Rico received a Presidential declaration of a major disaster (FEMA-4336-DR) due to the passage of Hurricane Irma, under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the "Stafford Act"). For this disaster, the Federal Emergency Management Agency or FEMA obligated approximately $17.5 million in Categories A and B funds for the reconstruction of the electrical infrastructure, of which PREPA has received reimbursements of about $15.1 million.

Due to the passage of Hurricane María, the Commonwealth of Puerto Rico received a Presidential declaration of a major disaster (FEMA-4339-DR) on September 20, 2017, under the authority of the Stafford Act. For this disaster, FEMA obligated approximately

$1.9 billion in Categories A and B funds for the reconstruction of the electrical infrastructure, of which PREPA has received reimbursements of about $1.6 billion.

The President separately declared emergencies and major disasters for both Hurricanes Irma and María. This created some initial confusion at first identifying and assigning damage to each storm separately. FEMA's eventual decision to put all Hurricane Irma work under Hurricane María helped tremendously streamline and bypass this confusion.

IV. Reconstruction of Puerto Rico's Electrical and Water Infrastructure

In September 2017, Hurricanes Irma and María decimated PREPA's electrical grid, causing an island-wide blackout. The transmission and distribution network infrastructure suffered the most damage.: over 2,700 transmission poles or structures were damaged, and 92% of inspected substations were affected, with 41% of substations suffering major damage.[3] About 75% of the distribution system circuits were damaged, while certain generation units also suffered significant damage.[4]

Furthermore, PREPA's water assets, including its irrigation systems, dams, reservoirs, and hydroelectric plants, suffered damage due mostly to Hurricane María. In particular, the Patillas and Guajataca dams suffered structural damage, and all reservoirs accumulated significant amounts of sediment. In addition, debris that typically is dragged by heavy rains affected other components of the hydroelectric system.

It is important to note that PREPA serves a unique population. Puerto Rico has been identified as a disadvantaged community by the Justice 40 Climate and Economic

[3]PREPA Central Office for Recovery, Reconstruction and Resiliency, Energy System Modernization Plan.
[4] Puerto Rico Energy Resiliency Working Group, Build Back Better.

Justice Screening Tool. Unemployment and poverty are above the 90th percentile for many communities. Unlike the continental United States, there are no alternative power options for critical facilities in Puerto Rico. All schools, hospitals, communications, and emergency providers rely daily on the ability of PREPA's lines to deliver sufficient power to provide those critical services necessary to save lives, protect public health and safety, and protect the improved property across the Island from mold.

Particularly vulnerable is the capital of San Juan with an estimated population of over 300,000. As discussed above, the San Juan metropolitan area receives the energy mainly from the power plants on the South coast of the main island. The northeastern portion of the Island around the San Juan area is growing the most rapidly in population and is the most vulnerable to power outages due to the current concentration of generation on the southern portion of the island. Until the permanent hurricane restoration work is completed, or at least substantially advanced, the San Juan metropolitan area will remain vulnerable to reoccurring power outages.

Further, most of the Island's medical facilities are also found in this vulnerable region. But the need for reliable power is a safety concern beyond just producing power for critical facilities. Streetlights need to stay lit, residents need to bathe children and cook food, and businesses need to be able to open their doors and provide services and commodities. Power is the lifeline to recovery and basic human needs.

When these extreme storms moved across Puerto Rico, PREPA's grid was already vulnerable due mainly to its fiscal challenges and the unique design characteristics as I mentioned earlier.

V. Bankruptcy Impact on Recovery

During the summer of 2017, and two months before the passage of Hurricanes Irma and María, PREPA started a bankruptcy process under Title III of the Puerto Rico Oversight, Management, and Economic Stability Act of 2016 ("PROMESA"), which was enacted by the Federal Government to oversee Puerto Rico's debt restructuring.

Pursuant to PROMESA, the Puerto Rico Fiscal Oversight and Management Board ("FOMB") provides oversight and is charged with approving the Fiscal Plan required under PROMESA. The entity responsible for drafting that Fiscal Plan is the Fiscal Agency and Financial Advisory Authority (or its acronym in Spanish, "AAFAF"). AAFAF is an executive agency of the Government of Puerto Rico.

Our fiscal situation was, without a doubt, the worst-case scenario under which any electric utility could face two category 5 hurricanes in a period of two weeks.

VI. Other Disasters Impact on Recovery

As the U.S. Federal Government is well aware, after these disastrous hurricanes, conditions were further aggravated by two (2) additional Presidentially declared major disasters: the 2020 seismic activity that impacted the Southern region of Puerto Rico, including important PREPA generation assets in the area where most of our Island's energy generation takes place, and the global pandemic, health crisis and consequential economic issues caused by COVID-19.

PREPA's situation was not isolated, as other infrastructure of the Commonwealth of Puerto Rico, which was also under the PROMESA Title III process, was severely damaged, like roads, highways, bridges, and water supply facilities. The typical FEMA Public Assistance program contemplates individual assessments, estimates, and scope

of work for individual projects- a process in our case proved to be incredibly slow due to the extensive damage not only to PREPA but to all infrastructure across the Island.

Given these scenarios, the U.S. Federal Government amended the FEMA policy procedures to provide a speedier and more flexible process for the application of federal funds to execute the permanent works needed to increase the reliability and resiliency of Puerto Rico's essential infrastructure. In 2020, FEMA announced the FEMA Accelerated Awards Strategy or "FAASt" process, which allows critical infrastructure projects to be grouped together to expedite the energy grid work in Puerto Rico.

In addition to approving the FAASt process, the U.S. Federal Government provided additional support by increasing the federal cost share for the Hurricane María disaster FEMA-4339-DR from 75% to 90%. Federal funds available for permanent work have a cost-sharing structure, which requires the applicant for federal funding to use its own funds for part of the project. Typically, FEMA provides 75% of the investment and the remaining 25% is provided by the local government. Increasing the federal contribution to 90% resulted in a decrease of the local share that the Commonwealth of Puerto Rico, including PREPA, must cover for the reconstruction projects to 10%. In the process of allocating federal funds for the reconstruction of the Puerto Rico power grid, PREPA was able to cover part of its 10% cost-share with funds from the Community Development Block Grant ("CDBG") Program[5], specifically the Disaster Recovery grant or CDBG-DR funds.

While FEMA prepared the FAASt process, in the summer of 2019, PREPA began formulating initial scopes of works for permanent work necessary for the reconstruction

[5]The CDBG Program is managed by the U.S. Department of Housing and Urban Development (HUD).

of the electrical system of Puerto Rico as a result of the damages suffered by Hurricanes Irma and María. On September 24, 2020, FEMA obligated about $9.5 billion in FEMA 428[6] funds for PREPA, which in turn submitted its work plan along with eight initial scopes of work to FEMA, on December 7, 2020. Then, on March 26, 2021, the Puerto Rico Energy Bureau (Energy Bureau) issued a Resolution and Order conditioning that all projects to be executed with federal funds shall be submitted for Energy Bureau's approval.

The Energy Bureau, as Puerto Rico's electric system regulator for all energy-related matters, has been deeply involved in the reconstruction process. Before formally submitting a project for the consideration of FEMA and the Central Office for Recovery, Reconstruction, and Resiliency ("COR3"), PREPA must obtain regulatory approval from the Energy Bureau to ensure consistency with applicable laws and regulations. This requirement applies to the request for all federal funding for development projects in the energy sector.

Transformation of PREPA

Considering the vulnerable position that the electric power transmission and distribution system was before the storm events, and the devastating blow it took during the hurricanes, Puerto Rico embarked on a process to transform PREPA from a vertically organized utility into a corporation composed of different subsidiaries, facilitating the participation of the private sector in the operations and maintenance of the electrical

[6]Under Stafford Act § 428, Public Assistance Alternative Procedures, FEMA may award fixed cost grants for large permanent work projects, rather than on an actual cost basis. *See* Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work, FEMA-4339-DR-PR (Feb. 10, 2020), https://devrecovery.pr.gov/tp3/documents/PAAP_Guide_for_Permanent_Work_DR_4339_PR_V3_2_10_2020_FINAL_508.pdf.

infrastructure in Puerto Rico. This transformation's goal is to increase the resiliency and reliability of Puerto Rico's power system and maximize the use of modern and new technology to deliver a lower costing electricity service to all customers in Puerto Rico. As a first step, the Government of Puerto Rico entered into an operation and maintenance contract with LUMA Energy, LLC ("LUMA"), which became the Operator of PREPA's transmission and distribution system on June 1, 2021.

Before this transition, PREPA had already prepared a total of 73 initial scopes of work, 68 for the transmission and distribution system and other facilities and five in the areas of generation, hydroelectric, dams, reservoirs, and irrigation systems. As of that date, there were already 46 scopes of work approved by the Energy Bureau and with assigned FEMA numbers of placeholders to continue the formulation process for obligation, 41 for the transmission and distribution system, and five for generation and water assets.

PREPA has continued developing scopes of work and undertaken the required actions to conduct repairs, rehabilitation, mitigation, and permanent works in its generation system and water assets. This has been accomplished with the support of the U.S. Federal Government, provided through the different federal funding programs made available to Puerto Rico. Regarding the transmission and distribution system and other facilities, since June 1, 2021, PREPA has delegated to LUMA, the responsibility of developing the repairs, reconstruction, rehabilitation, and modernization of such systems, including following the processes of project formulation and reimbursement requests.

VII. Federal Funds for Reconstruction and Rehabilitation Works

The devastation caused by Hurricanes Irma and María in Puerto Rico, only a couple of weeks apart, paved the way for a historic obligation of federal funds from the Public Assistance program to Puerto Rico under FEMA's Public Assistance Alternative Procedures, commonly known as FEMA 428 funds. Of these funds, over $9.5 billion are destined for the reconstruction works related to PREPA's electrical and water infrastructure. This amount, which represents 90% of the total estimated cost of the permanent works to be executed, is complemented by a cost share of 10% amounting to more than $1 billion. The 10% cost share program under Community Development Block Grant Section Energy Grid Rehabilitation and Reconstruction Cost Share Program (ER1), estimated cost of the permanent works to be executed, is complemented with a cost share of 10% to be covered partially with funds CDBG-DR Program up to $500 million and funds from the commonwealth of Puerto Rico.

The permanent works total cost was initially estimated at approximately $10,704.76 million. Subtracting an estimated insurance contribution of $193.75 million from this amount results in a total estimated cost of $10,511.01 million, of which 90% equals approximately $9,459.91 million and the remaining 10% approximately $1,051.10 million.

Specifically, this funding will be used to rebuild the electrical infrastructure and repair or replace essential components of the electrical system that are to be hardened and modernized, for more resiliency and for providing sustainable and reliable power for the long-term future of Puerto Rico.

Given the above, the total amount of assigned federal and local funds to execute permanent works under the Public Assistance program is approximately $10.5 billion.

PREPA estimates that its insurers will contribute nearly $194 million to the works under this program, for a final estimated investment of approximately $10.7 billion. From the insurance contribution of $193.75 million, approximately $184.06 million are allocated to the transmission and distribution system and other facilities, and about $9.69 million are allocated to the Guajataca dam repair project of the generation system and water assets area. It is noted that claims to the insurance companies are still in process and, thus, these amounts are subject to changes.

In addition to the FEMA 428 Funds, FEMA obligated approximately $1.5 billion in federal funds under the Hazard Mitigation Grant Program (HMGP) or FEMA 404 funds for conducting permanent works on the electrical generation and water infrastructure.

Therefore, currently, there is a total of approximately $12.2 billion assigned for the reconstruction of PREPA's electrical system and water infrastructure in FEMA 428, FEMA 404, insurance, and local funds. The following chart shows the initial allocation of these funds:

Asset	Operator	FEMA 428	FEMA 404	Total
in million				
Buildings	LUMA	$ 125.09		$ 125.09
Substations	LUMA	781.89		781.89
Distribution	LUMA	5,499.84		5,499.84
Transmission	LUMA	2,642.13		2,642.13
Generation	PREPA	108.95	853.20	962.15
IT/Telecomms	LUMA	685.93		685.93
Dams, Irrigation and Reservoirs	PREPA	860.93	658.53	1,519.46
		$ 10,704.76	$ 1,511.73	$ 12,216.49
	Insurance reduction	$ 193.75		$ 193.75
	Local Share	$ 1,051.10		$ 1,051.10
	Federal Share	**$ 9,459.91**	**$ 1,511.73**	**$ 10,971.64**

Currently, PREPA is allocating approximately $1.2 billion for permanent works on the generation system and water assets, which results in about $8.2 billion of FEMA 428

funds for works on the transmission and distribution system and other facilities. The latter federal funds, when added to the estimated insurance contribution of $184 million and the local cost share of $913 million result in a current total of about $9 billion of funds for projects for the transmission and distribution system and other facilities. The following chart provides a summary of the current allocation:

Asset	Operator	FEMA 428	FEMA 404	Total
in million				
Transmission, Distribution, and Other Facilities	LUMA	$ 9,313.21		$ 9,313.21
Generation	PREPA	502.70	853.20	1,355.90
Dams, Irrigation and Reservoirs	PREPA	888.85	658.53	1,547.38
		$ 10,704.76	$ 1,511.73	$ 12,216.49
	Insurance reduction	$ 193.75		$ 193.75
	Local Share	$ 1,051.10		$ 1,051.10
	Federal Share	**$ 9,459.91**	**$ 1,511.73**	**$ 10,971.64**

The current allocation responds to the need of repairing Puerto Rico's generation system and water assets to assure a reliable, safe, and resilient energy and water supply. In particular, the current limitations on the dependable generation available to supply the energy demand in Puerto Rico are confirmed by the need to run emergency generating units, including the new mobile generators at the Palo Seco power plant, after the earthquakes of January 2020 and last year's major load shedding events caused by the lack of generation capacity. In addition to the FEMA 428 and FEMA 404 funds assigned to the generation system and water assets, PREPA applied to the Puerto Rico Department of Housing for the assignment of approximately $300 million in CDBG-DR funds for the retrofit of PREPA's hydroelectric generating units. This, under Section Electrical Power Reliability and Resilience Program (ER2) of CDBG electrical system optimization action plan.

Annex 2 of this document includes a detailed list of fifty-seven (57) projects to be developed on the generation system and water infrastructure, of which a summary follows[7]:

Projects Amounts (Millions)			
Funds Type	Water Assets	Generation System	Total
FEMA 428 (1)	$ 888.85	$ 502.70	$ 1,391.55
FEMA 404	658.53	853.20	1,511.73
CDBG-DR	0.00	300.00	300.00
Total	**$ 1,547.38**	**$ 1,655.90**	**$ 3,203.28**

(1) The quantities shown for this funds type include FEMA 428 funds, the insurance contribution, and the cost share.

Quantity of Projects			
Funds Type	Water Assets	Generation System	Total
FEMA 428	18	20	38
FEMA 404	2	2	4
CDBG-DR	-	15	15
Total	**20**	**37**	**57**

Under the Public Assistance program, to date, FEMA has obligated approximately $182 million through the FAASt process, approving eleven (11) Project Worksheets or PWs submitted by PREPA for repairs to its power generation plants at Aguirre, Costa Sur, Palo Seco, San Juan, Mayagüez, and Cambalache. These 11 projects group 65 scopes of work approved by the Energy Bureau for the repair of PREPA's generating units. PREPA completed 1 of these 11 projects and has requested reimbursement for an amount of $18 million, of which $15.9 million were received in reimbursements. In addition, PREPA is in an advanced stage of construction works in other three of the 11 projects. The three projects that PREPA has in an advanced stage are in the San Juan power plant (PWs 10615 and 10608), that total $62.4 million and are over 60% of completion; and Cambalache Power Plant Permanent Repairs (PW 10607) that total an amount of $2 million in which PREPA has an 85% of completion

[7]The shown quantities are estimates and the numbers are rounded.

of the total work. For these three PWs, PREPA has already summited the request for reimbursement to COR3.

11 Approved Project work sheet (PW) for Generating Units Repairs

PW#	Location	Project Title	#SOW	Fund	Asset	Project Formulation Status	FEMA Approval	Date of Completion	Percentage of Completion
10571	Aguirre	FAASt Aguirre Power Plant Infrastructure Projects 001	4	428	Generation	**Approved**	**3,031,265**	Apr-23	19%
10568	Aguirre	FAASt Aguirre Power Plant 002 Units 1 & 2 Projects	4	428	Generation	**Approved**	**14,937,046**	Aug-23	43%
10622	CC	FAASt Aguirre Power Plant 003 Combined Cycle	5	428	Generation	**Approved**	**5,405,870**	Jun-23	17%
10615	San Juan	FAASt San Juan 001 – Units 5 & 6	12	428	Generation	**Approved**	**60,080,016**	Mar-24	60%
10608	San Juan	FAASt San Juan Power Plant - Auxiliary Infrastructure	9	428	Generation	**Approved**	**2,368,247**	Jan-23	67%
10702	Costa Sur	FAASt Costa Sur Permanent Repairs 5 & 6	20	428	Generation	**Approved**	**42,299,739**	Oct-24	20%
10694	Costa Sur	FAASt Costa Sur Permanent Repairs	2	428	Generation	**Approved**	**1,250,000**	Nov-22	16%
10606	Palo Seco	FAASt Palos Seco Steam Plant Unit 3-4	11	428	Generation	**Approved**	**28,774,423**	Jan-24	36%
10609	Palo Seco	FAASt Palo Seco Steam Plant Permanent Repairs	2	428	Generation	**Approved**	**3,495,578**	Jun-24	20%
10607	Cambalache	FAASt Cambalache Power Plant Permanent Repairs	4	428	Generation	**Approved**	**2,038,588**	Jun-24	85%
10455	Mayaguez	FAASt Mayaguez Hydro-Gas Power Plant Permanent Repairs	1	428	Generation	**Approved**	**18,192,583**	Jul-22	100%

PREPA will submit for FEMA approval 4 additional Project Worksheets amounting approximately $176.35 million, which group 37 scopes of work for the repair of the generating units 7, 8, and 10 in San Juan and unit 1 at Cambalache, once it gets the approval of 6 scopes of work that are currently under the reconsideration of the Energy Bureau, as the regulator already approved 31 from the total of 37 scopes of work that make up the 4 Project Worksheets. The Energy Bureau denied the six scopes of work mentioned above in its resolution and order on June 4, 2022. After that order, PREPA submitted two reconsideration motions requesting the approval of these six scopes of work for the repairs of generating units. Currently, PREPA continues assessing the condition of its power plants to prepare additional scopes of work to complete the repairs of all its generating units.

In the case of the water assets projects, PREPA already received approval from the Energy Bureau and FEMA for eighteen (18) initial scopes of work and two (2) application packages for approximately $1,547.38 million that are currently in the architecture and

engineering phase, which is required by FEMA before approving the corresponding Projects Worksheets of this type of project.

It is noted that FEMA obligated a Project Worksheet amounting approximately $486 million for architecture and engineering design services to be utilized in the development of detailed scope of works to be submitted to FEMA for approval. PREPA is using these funds to procure architecture and engineering design services to develop detailed scopes of work for its dams, hydroelectric system, and irrigation systems. Once the architecture and engineering phase is complete, PREPA will submit the resulting documents to FEMA for the approval of the construction Project Worksheets. In the case of the water assets projects, the Project Worksheets will amount to nearly $889 million in FEMA 428 funds and $658.53 million in Hazard Mitigation Grant Program or FEMA 404 funds.

Regarding the approved FEMA 404 funds for new generation amounting $853.20 million, PREPA submitted a reallocation strategy of such funds for the Energy Bureau's approval on August 2, 2022. Annex 3 of this document includes, among other motions, a copy of PREPA's motion requesting the Energy Bureau's approval, which is currently under evaluation provided by the Energy Bureau. This Annex also includes PREPA's motions requesting the Energy Bureau's approval for the repair of generating units and conversion to natural gas. Out of the $853.20 million, $280.82 million are currently assigned for emergency-generation or simple cycle combustion turbines, $5 million for engineering studies of a new combined cycle in the North of Puerto Rico, and $567.38 million for the new combined cycle project.

After analyzing the development of these projects considering the current needs of Puerto Rico's power system, PREPA determined to redistribute the available FEMA 404 funds, in particular the $572.38 million approved by FEMA, as follows:

FEMA 404 Funds Purpose *in million*		Estimated Cost
Emergency Generation Peaker Units	$	490.00
Costa Sur and Yabucoa Black-Start Units		190.00
Fuel Conversion of San Juan Units 7 to 10		138.50
Small-scale residential PV with storage		34.70
Total	$	853.20

The feasibility studies of the current projects for the new generation mainly resulted in that, even though a new combined cycle at San Juan or Palo Seco power plants is feasible and recommended from an engineering point of view, this construction is a long-term project, as it will take about ten (10) years to be completed. In addition, the original estimated cost of $572.38 million was calculated in 2020 dollars and, when updated to reflect 2023 dollars and inflation, resulting in approximately $723.6 million. This means that there are insufficient funds to develop the combined cycle project, as there is a deficiency of $151.22 million. Given PREPA's current power generation struggles, and that the development of the combined cycle project is a long-term effort, PREPA must execute short- and medium-term measures to improve the existing thermal generation assets.

Considering the constraints described above, PREPA found that, even though the construction of the combined cycle in the North is feasible and beneficial for the electrical system, there are not enough funds for completing the project and there are more imperative actions to be taken on the short- and medium-term, for which the combined

cycle project approved funds can be used. These actions include those needed to keep the existing thermal generating units operational and in service to supply the energy demand in Puerto Rico, support the reliable and safe integration of renewable energy, and provide the energy needed during the restoration of the electrical service after major events. It is essential that the generating units' operation comply with all environmental regulations.

Therefore, PREPA submitted to the Energy Bureau that the combined cycle project would be delayed until sufficient funds are available and its assigned funds of $572.38 million would be allocated to the above-mentioned projects:

- Emergency Generation Peaker Units – This generation project is the second one approved by FEMA to be funded with FEMA 404 funds. The original project estimate was $280.82 million in 2020 dollars, but considering inflation, the estimate of executing this project is a minimum of $490 million. Hence, it is needed to add funds to this project for executing it.
- Costa Sur and Yabucoa Black-Start Units – Currently, this project is defined under the Public Assistance program with an original FEMA 428 funds assignment of $90.4 million. However, this estimate was updated to account for the inflation and the recent disruption in the supply chain, resulting in a new estimate of $190 million. Hence, it is needed to add funds to this project for execution. This project was previously approved by the Energy Bureau.
- Fuel Conversion of San Juan Units 7 to 10 – This project has the main purpose of keeping the steam units in the San Juan Power Plant operational and in service, burning natural gas as their main fuel. The fuel conversion

of these units will allow them to achieve environmental compliance with the Sulfur Dioxide (SO_2) State Implementation Plan in the Non-Attainment area of San Juan and the Mercury and Air Toxics Standards (MATS) rule. On February 11, 2022, PREPA submitted this project for the evaluation of the Energy Bureau.

- Small-scale residential PV with storage – PREPA intends to invest the remainder of the $572.38 million after executing the projects detailed above, if any, on the installation of PV plus storage systems behind the meter of customers located at those sectors where the power service was restored last after Hurricane María. Currently, the remaining amount is estimated at about $34.7 million.

This amount does not consider what could potentially be hundreds of millions of dollars in additional funding for hazard mitigation measures as allowed by the Public Assistance program under the Stafford Act, and such measures will be part of each project's scope of work to be developed. While the Public Assistance program or FEMA 428 is focused on attending to damages caused by a disaster, FEMA 404 funding is used to provide protection to undamaged parts of a facility or to prevent or reduce damages caused by future disasters.

Proyect Number	Project Title	Asset	Approved Amount	Reimbursed
4339-0010	Simple Gas Turbines	Generation	280,822,500	268,437
4339-0012	Early Warning System	Dams	100,000,000	-
4339-0008	North Generation	Generation	572,377,050	363,095
4339-0010	Patillas Dams	Dams	558,530,000	-
			$ 1,511,729,550	**$ 631,532**

Furthermore, PREPA is completing the formulation of the following projects related to the 2020 earthquakes, mostly focused on one of PREPA's most important generation power plant known as Costa Sur, which are sure to positively impact the generation-side of PREPA's operations:

Proyect Number	Project Title	Asset	Estimated Cost	Approved Amount	Reimbursed
171513	Costa Sur Work Completed	Generation	3,444,365	3,444,365	-
171515	Costa Sur Buildings	Generation	3,623,083	529,036	-
171512	Costa Sur Tanks	Generation	5,071,207	5,660,599	-
171517	Costa Sur Discharge Channel	Generation	6,700,000	66,576	59,919
			$ 18,838,655	**$ 9,700,577**	**$ 59,919**

Permanent Work Assets	Scopes of Works	Project Amount	Approved Funding	Pending Funding	Reimbursed
in million					
New Generation Units	4	943.6	853.2	90.4	0.3
Aguirre Power Plant	3	29.5	18	11.5	0.7
Aguirre Combined Cycle	1	5.3	5.4	-0.1	
San Juan Power Plant	4	133.5	62.4	71.1	
Costa Sur Power Plant	2	40.8	40.8	0	0.3
Palo Seco Power Plant	4	96.3	32.3	64	0.8
Cambalache Power Plant	2	38.5	2	36.5	
Mayaguez Power Plant	1	18.2	18.2	0	15.9
Repairs to Peaking Units - Islandwide	1	50.2	0	50.2	
Hydroelectric Units - Islandwide	15	300	0	300	
Dams, Reservoirs, Irrigation Channels	20	1547.4	0	1547.4	
	57	3203.3	1032.3	2171	18

VIII. Path Ahead

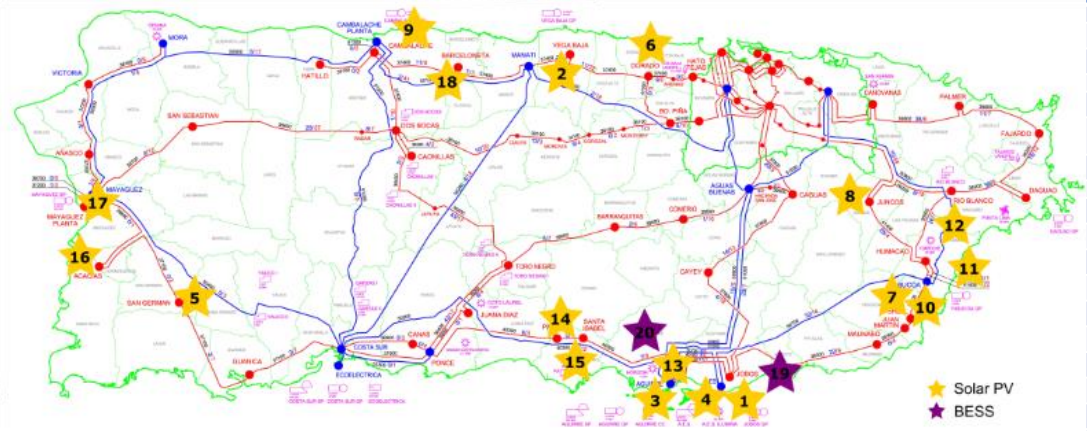
PREPA's path ahead will be focused on ensuring the proper expenditure of its Federal grants that will be used to create a modern, sustainable, reliable, efficient, and resilient energy system. Our goal is to ensure, through the partnership with LUMA, that we are building an electric system that can adequately withstand any future storm. It is

imperative that we provide the people of Puerto Rico with a more reliable system that has fewer and shorter outages, if any, and at a reasonable cost.

We believe that doing so, will jumpstart a long-term revitalization of the Puerto Rican economy. Reliable power means more investment in the Island and support for economic development.

We recognize, however, that taking on such a monumental rebuilding project will take time. We ask that this Committee continue to support Puerto Rico and FEMA in this long-term endeavor. FEMA should be encouraged to continue to make timely, reasonable, and flexible decisions to support this unique recovery.

Regarding PREPA's renewable energy initiatives, 18 solar photovoltaic ("PV") projects, totaling 844.47 MW, have been submitted by PREPA for regulatory approval. In addition to reaching the execution of 18 solar PV PPOAs amounting to 844.47 MW, PREPA executed two (2) contracts for energy service storage agreements ("ESSA")



New Number	Tag	Point of Interconnection	Project Name	Gen Capacity (MWAC)
1	A-1-P	Jobos TC	Jobos Solar	80
2	AB-1-P	Vega Baja TC	Vega Baja Solar	25
3	AD-1-P	Aguirre SP TC	Ciro Two Salinas	33
4	AE-1-P	Jobos TC	Guayama	25
5	AI-1-P	San German TC	San German	35
6	AJ-1-P	Brenas Substation 9201	Bemoga	25
7	AK-1-P	Juan Martin TC	Yabucoa	32.1
8	AQ-1-P	Juncos TC	Juncos I PV	100
9	AS-1-P	Cambalache TC	Tetris Power	20
10	AT-1-P	Yabucoa TC	Yabucoa Energy Park	38.7
11	B-1-P	Daguao TC	Naguabo Solar A	25
12	B-2-P	Naguabo	Naguabo Solar B	20
13	C-1-P	Aguirre SP TC	Salinas Solar	120
14	I-1-P	Line 40300 (New Sect)	Coamo Solar	100
15	N-1-P	Santa Isabel TC	Esmeralda Solar Farm	60
16	O-1-P	L1200 (New Sect	Enerxia Cabo Rojo	20.7
17	O-2-P	L5600 (New Sect	Diversys Mayaguez	24.97
18	W-3-P	Barceloneta TC	Barceloneta Solar	60
19	A-2-E	Jobos	Jobos Solar (BESS)	100
20	C-2-E	Aguirre	Salinas Solar (BESS)	100

totaling 100 MW each, for a four-hour duration utility-scale battery energy storage project that is co-located and operationally integrated with two of the solar PV PPOA's for Incentive Tax Credit (ITC) compliance. PREPA is currently negotiating six (6) additional ESSAs, which are currently under review by LUMA. The illustrations and tables in Annex 4 provides further details regarding PREPA's renewable energy initiatives.

IX. Conclusion

PREPA continues to strive for the full obligation and execution of its recovery and reconstruction projects, which will allow for a better, more resilient Puerto Rico and ultimately achieve a stable energy system that our 3.2 million U.S. citizens living in Puerto Rico can depend on. The use of federal funds will not only reduce costs but will create better economic opportunities for our people, all of which are goals that we are confident are shared by FEMA, this Congress, and the rest of the federal government.