



**Puerto Rico
Electric Power
Authority**

Puerto Rico Electric Power Authority (PREPA)

**Stakeholder Presentation
May 2020**

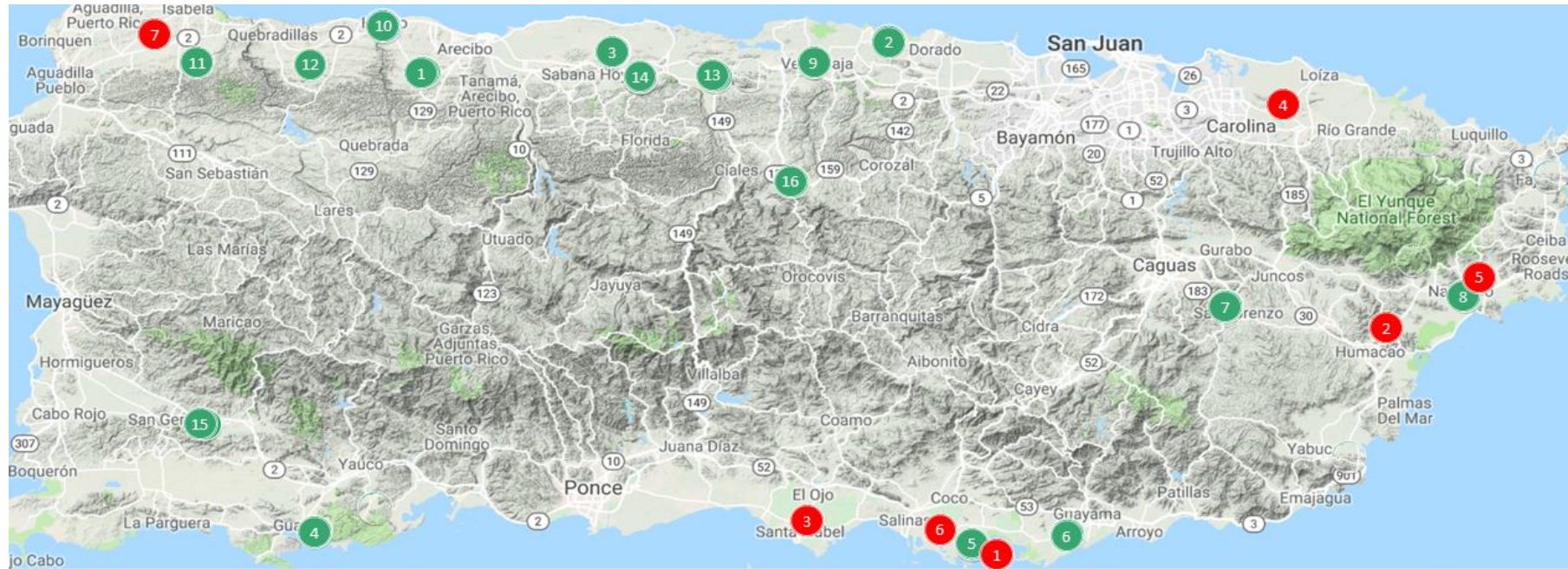
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Chief Executive Officer**

Presentation Outline

- Welcome Remarks
- Renewable Projects
- FEMA
- Private-Public Partnerships Authority (P3) Projects
- Closing Remarks / Questions



Renewable Energy Project Locations



Non-Operating Renewable Projects							
#	Project Name	Type	Current Capacity (MW)	#	Project Name	Type	Current Capacity (MW)
1.	Xzerta-Tec	Solar	60	9.	REA Vega Baja	Solar	25
2.	SolarBlue	Solar	25	10.	REA Hatillo (North)	Solar	25
3.	Blue Beetle	Solar	30	11.	Caracol	Solar	30
4.	Montalva Solar Farm	Solar	80	12.	Sierra	Solar	25
5.	Ciro One	Solar	90	13.	Atenas	Solar	40
6.	Guayama Solar Energy	Solar	25	14.	ReSun	Solar	35
7.	Solar Project San Juan	Solar	20	15.	Solaner	Solar	35
8.	Vega Baja Solar Project	Solar	15	16.	Morovis	Solar	33

Operating Renewable Projects			
#	Project Name	Type	Current Capacity (MW)
1.	AES Ilumina	Solar	20
2.	Humacao Solar Project	Solar	40
3.	Pattern Santa Isabel	Wind	75-95
4.	San Fermin Solar Farm	Solar	20
5.	Punta Lima	Wind	26
6.	Horizon Energy	Solar	10
7.	Oriana Energy	Solar	50



Operating Renewable Energy Projects – Overview

#	Project Name	Location	Type	MW ^[3]	Term (Original + Extension) ^[4]	Energy Price \$/kWh (Energy/GC ^[6])	Energy Esc Rate	Green Credit Esc Rate
1.	AES Ilumina	Guayama	Solar	20+5	20+5	\$0.15507 / \$0.0315	2.00%	0%
2.	Humacao Solar Project	Humacao	Solar	40	25+5	\$0.170	1.00%	N/A
3.	Pattern Santa Isabel	Santa Isabel	Wind	95	30+5	\$0.15815	Varies	N/A
4.	San Fermin Solar Farm	Loiza	Solar	20+4.5	20+5	\$0.1463 / \$0.031	2.00%	0%
5.	Punta Lima ^[1]	Naguabo	Wind	26	20 ^[2]	\$0.12392 / \$0.02335	1.50%	0%
6.	Horizon Energy	Salinas	Solar	10+10	25+5	\$0.1393 / \$0.0315	2.00% ^[5]	0%
7.	Oriana Energy	Aguadilla	Solar	50+10	20+10	\$0.1439 / \$0.02712	2.00%	0%

***Subject to Significant Revision - For Directional Use Only.**

^[1] Currently Not Operational.

^[2] Term to start at reconstruction date. Additional years past current contract term set at Market Prices** capped at \$0.141/kWh.

^[3] Additional Capacity set at Market Prices capped at \$0.141/kWh.

^[4] Additional Term extensions set at Market Prices capped at \$0.141/kWh.

^[5] Energy escalation stops at year 20 of the original agreement.

^[6] GC or Green Credits represent the costs associated with the environmental attributes of the renewable energy.

****Market Prices have been determined by the governing board to be \$0.100/kWh escalated at 2% and capped at \$0.141/kWh.**



Non-Operating Renewable Energy Projects – Overview

#	Project Name	Expected COD (after signing) ^[1]	Type	MW	Term	Year 1 Energy Price (\$/kWh)	Energy Esc Rate	Energy Price Cap (\$/kWh)
1.	Xzerta-Tec	30 months	Solar	60	25	\$0.099	2%	\$0.141
2.	SolarBlue	24 months	Solar	25	25	\$0.0995	2%	\$0.141
3.	Blue Beetle	29 months	Solar	30	25	\$0.0999	2%	\$0.141
4.	Montalva Solar Farm	31 months	Solar	80	25	\$0.0985	2%	\$0.141
5.	Ciro One	33 months	Solar	90	25	\$0.0989	2%	\$0.141
6.	Guayama Solar Energy	33 months	Solar	25	25	\$0.0995	2%	\$0.141
7.	Solar Project San Juan	36 months	Solar	20	25	\$0.100	2%	\$0.141
8.	Vega Baja Solar Project	36 months	Solar	15	25	\$0.100	2%	\$0.141
9.	REA Vega Baja	36 months	Solar	25	25	\$0.09999	2%	\$0.141
10.	REA Hatillo (North)	36 months	Solar	25	25	\$0.09999	2%	\$0.141
11.	Caracol	30 months	Solar	30	25	\$0.0975	2%	\$0.141
12.	Sierra	30 months	Solar	25	25	\$0.0975	2%	\$0.141
13.	Atenas	30 months	Solar	40	25	\$0.098	2%	\$0.141
14.	ReSun	24 months	Solar	35	25	\$0.099	2%	\$0.141
15.	Solaner	36 months	Solar	35	25	\$0.100	2%	\$0.141
16.	Morovis	33 months	Solar	33	25	\$0.099	2%	\$0.141

*Subject to Significant Revision - For Directional Use Only.

[1] Expected COD is an approximation based on the current timeframes under negotiation for the respective renegotiated PPOAs.

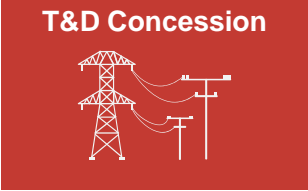



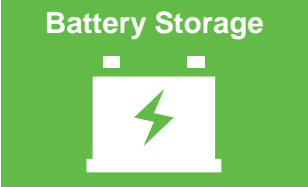


Non-Operating Interconnections Cost Summary

#	Project Name	kV	Miles	Current Estimate (\$M)
1.	Xzerta-Tec	115	0.57	\$3.2
2.	SolarBlue	38	1	\$5.8
3.	Blue Beetle	115	0.2	\$2.9 - \$4.7
4.	Montalva Solar Farm	115	7.81	\$15.7
5.	Ciro One	115	3.42	\$8.1
6.	Guayama Solar Energy	38	1.19	\$4.9
7.	Solar Project San Juan	38	0.5	\$3.7
8.	Vega Baja Solar Project	38	0.18	\$4.5
9.	REA Vega Baja	38	2.2	\$8.1
10.	REA Hatillo (North)	38	0.03	\$3.7
11.	Caracol	38	0.14	\$1.0
12.	Sierra	38	0.14	\$3.4
13.	Atenas	38	0.4 – 1.55	\$9.3
14.	ReSun	115	0.05	\$2.6 - \$4.4
15.	Solaner	115	0.08	\$4.1
16.	Morovis	115	4.34	\$12.1
Total (Commercially Agreed)				\$90 - \$100

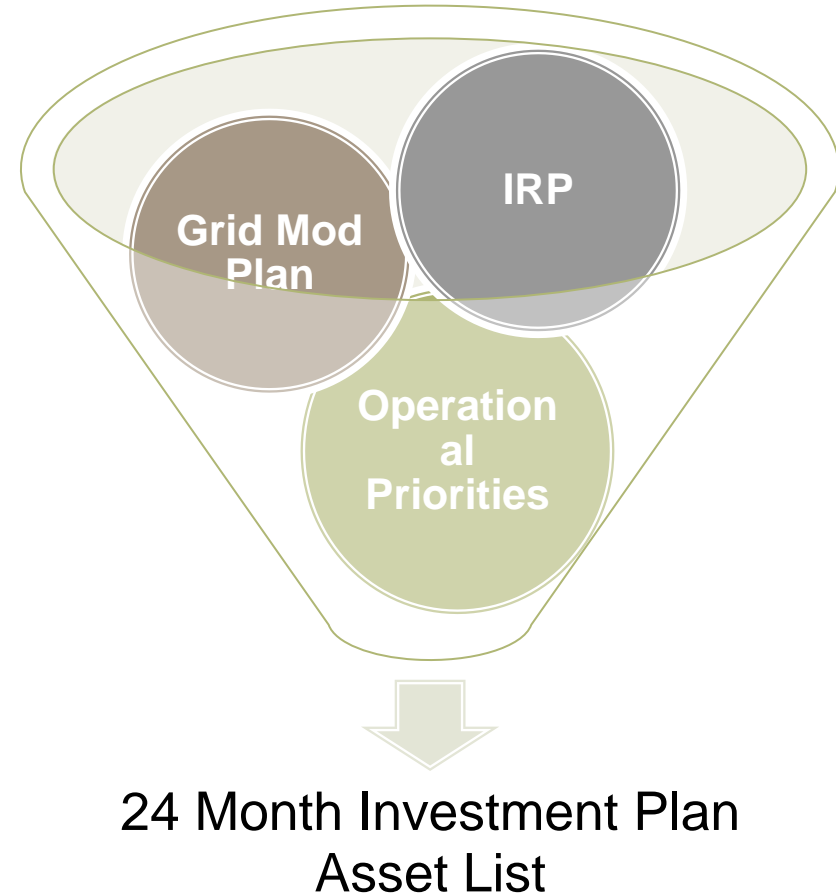


P3 Authority – Overview of Energy Projects

	Description	Expected Benefits
 <p>T&D Concession</p>	<p><i>Long term agreement to manage and operate Puerto Rico’s electric power transmission and distribution (“T&D”) system, including the administration of federal disaster recovery funding</i></p>	<ul style="list-style-type: none">▪ Improve T&D system resiliency and reliability▪ Deploy new technologies and exercise industry best-practices and operational excellence
 <p>Hydro</p>	<p><i>Long term agreement to rehabilitate, upgrade, manage and operate 16 hydroelectric generating units and their respective turbines, switchyards, dams and reservoirs at 9 facilities.</i></p>	<ul style="list-style-type: none">▪ Improve the reliability and efficient operation of hydroelectric units▪ Increase the MW contribution of clean hydroelectric power▪ Reduce the cost of energy generation
 <p>Peaking Units</p>	<p><i>Develop, construct, manage, and operate new mobile and/or fixed (or a combination thereof) flexible distributed generation units, pursuant to a twenty-five year (25-year) power purchase and operating agreement.</i></p>	<ul style="list-style-type: none">▪ Replace PREPA’s existing, aging flexible distributed generation units so that peaking capacity continues to be available for dispatch in the near to mid-term
 <p>Northern Generation</p>	<p><i>Provide generation capacity to replace existing generation through a new facility to be located in northern Puerto Rico at a location on the grounds of or adjacent to the existing Palo Seco power plant.</i></p>	<ul style="list-style-type: none">▪ Provide generation capacity in northern Puerto Rico to assist in recovery efforts from Hurricanes and other atmospheric events▪ Obtain flexibility in generation operation and rapid response to help manage the integration of renewable energy resources
 <p>Battery Storage</p>	<p><i>Develop, finance, design, construct, operate and maintain a battery electric storage system (BESS) at to-be-determined locations of PREPA’s transmission system</i></p>	<ul style="list-style-type: none">▪ Provide ancillary services such as frequency regulation, voltage response, and black start▪ Facilitate the integration of renewable energy resources

Projects Selection Criteria

- ✓ Compliant with FEMA eligibility criteria.
- ✓ Projects with short permitting process.
- ✓ Underground of critical loads per Municipality:
 - **Utilities, Education, Medical, Emergency Services.**
- ✓ Hardening of critical assets within the No Regret Projects:
 - **LMM Airport, SJ Medical District, Eastern Pharma Corridor, North/South Backbone, Humacao District.**
- ✓ Priority given to critical transmission lines for operation and system recovery.
- ✓ Aligned with **IRP** and **Grid Mod Plan**.



PR Energy Grid Reconstruction Typical Project Scenarios

ID Project	Project	Permits	Transactions Amount	Qty of Projects
1	Transmission Lines Hardening Existing line segment	B,C,D,E,F,I,L,M,N,P,Q,U,Z,AA,FF,HH	16	46
2	New Transmission Line Segment	A,B,C,D,E,F,G,H,L,M,N,P,Q,U,Z,AA,FF,HH	18	10
3	Hardening Distribution feeder - Aerial	B,C,D,E,F,I,L,M,N,Q,U,Z,AA,FF,HH	15	100
4	Install New Submarine Cable to Vieques	A,B,C,D,E,F,G,H,M,N,Q,FF,HH	13	2
5	Undergrounding New Distribution feeder segment for critical loads	A,B,C,D,E,F,G,H,LN,M,N,O,P,Q,U,Z,AA,FF,HH	20	60
6	New Distribution Feeder - Aerial	B,C,D,E,F,I,L,M,N,Q,U,Z,AA,FF,HH	15	10
7	Repair existing Substation	B,C,D,E,F,I,L,M,N,Q,R,T,U,Z,AA,DD,FF,HH	17	330
8	Install New control Building for Substation	B,C,D,E,F,I,L,M,Q,R,T,U,Z,AA,DD,FF,HH	17	6
9	Build New Substation - relocate	A,B,C,D,E,F,G,H,K,L,M,N,O,P,Q,T,U,Z,AA,BB,DD,FF,HH	23	9
10	Install Transmission Fiber Optic (OPGW)	A,B,C,D,E,F,G,H,L,M,N,O,P,Q,U,Z,AA,FF,HH	19	7
11	Repair Commercial and Technical Building	I,L,M,Q,R,T,AA,BB,CC,DD,EE,FF,HH	13	48
12	Build new Technical Center Building	A,B,C,D,E,G,H,K,L,M,N,O,P,Q,T,U,Z,AA,BB,CC,DD,EE,FF,GG,HH	25	7
13	Remove Sedimentation from a Reservoir	A,B,C,D,E,G,H,M,U,Z,AA,FF,HH	13	11
14	Repair the Guajataca Dam	A,B,C,D,E,G,H,L,M,O,P,Q,R,S,T,U,Z,AA,BB,CC,DD,FF,GG,HH	24	1
15	Repair Hydroelectric plant	A,D,E,G,H,L,M,O,P,Q,R,S,T,Z,AA,BB,CC,DD,FF,GG,HH	21	12
16	Repair Power Plant	A,D,E,G,H,L,M,O,P,Q,R,S,T,Z,AA,BB,CC,DD,FF,GG,HH	21	9
17	Repair Fuel tank or containment	I,M,Q,R,T,AA,BB,DD,FF,HH	10	2
18	Install Peaking Units (Temp Gensets)	A,B,C,D,E,G,H,L,M,N,O,P,Q,T,U,Z,AA,BB,CC,DD,FF,HH	22	3
Total				673



FEMA 428 Permanent Projects – Next Steps

The table below illustrates the remaining to complete to obtain FEMA Final Cost Estimates and obligation of funds.

	Step	Days	Owner	Description
FEMA San Juan	Emmie Submission		FEMA CRC	DDD, Scope and Cost is uploaded to FEMA Emmie and PW # is assigned.
	Insurance Completion	1	FEMA CRC	Conversations have already taken place to automatically deduct total anticipated insurance proceeds.
	406 HMP Completion and EHP Review	2	FEMA CRC and FEMA Sector	Both steps will perform high-level review. Detail review will be subsequently on a project by project basis.
	PDMG, Final FEMA, Recipient Final and Applicant Project Review	1	FEMA, COR3 and PREPA	All parties perform final review before obligation.
	DIU Emmie Final Record Upload	2	FEMA	All project information is uploaded to FEMA Emmie for Federal Review.
FEMA HQ	OLA Review – Greater than \$1M	45	FEMA, HQs, DHS, OLA & OMB	Please refer to next slide for approval process.
	Applicant Signed Project	1	PREPA	PREPA perform Final review and approved project for obligation.
	Obligation	2	FEMA PA	FEMA performs award bundle in system for recipient drawdown.

