PUERTO RICO’S ENERGY OVERVIEW

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I. Puerto Rico’s Energy Situation

• The Electric Power Authority (PREPA or Authority) maintains approximately 1.5 million consumers representing about $3.45 billion in total revenue.

• The generation system is approximately thirty (30) years older than the average in the electric power industry in the United States mainland.

• The electrical system includes 2,748 miles of transmission lines, 31,485 miles of distribution lines and 334 substations.

• The transmission lines include 230 kV, 115 kV and 38 kV circuits, which transmit the power from the generation plants to the distribution substations to be sent to consumers via lower voltage distribution lines.

• The Authority generates two thirds of the Island's electricity and the rest acquires it by purchase.

Source: Public Energy Policy Law of Puerto Rico, April 11, 2019
I. Puerto Rico’s Energy Situation

- The electricity demand decreased from a peak of 3,685 MW in fiscal year 2006 to 3,159 MW in fiscal year 2014 and 3,060 MW for August 2017.

- The Authority has a generation capacity of 5,839 MW, including the 961 MW provided by Ecoeléctrica and AES through power purchase agreements.

- The main generation units are in the southern area of the island, while the highest energy demand is in the north of the island.
II. Hurricane Maria’s Impact in the Electric System

- Puerto Rico’s electrical grid was already in a state of deterioration when hurricanes hit. Irma first caused a power outage for nearly 50% of the Island, then Maria caused a complete loss of power in all 78 municipalities.
- By 2 a.m. on September 20, 2017, Puerto Rico reached a total blackout.
- Due to a damaged outage management system, PREPA was initially unable to read meters in order to determine an accurate count of residents left without service. Nearly three months later fiber optic cables were repaired allowing the system to read meters and begin the targeted road to recovery.
- Power restoration has been hampered due to the sheer scale and complexity of the damage.
- Much of the Island’s 2,400 miles of transmission lines, 30,000 miles of distribution lines and 342 substations were severely damaged in the storm.
- Power restoration was a combined effort from the U.S. Army Corps of Engineers, FEMA, PREPA and the utility industry which, as of March 21 2018, had come together to restore 93.4% of PREPA customers, translating to service for more than 1,368,864 residents.
- The agency estimated full recovery by May 2018, but there have been setbacks along the way.

Source: Puerto Rico Disaster Recovery Plan CDBG-DR – Action Plan Amendment 2 – Effective August 23, 2019

• Privatize the electrical system of the Island, selling power generation assets, enter into a long-term concession of the transmission and distribution system. All based on a competitive process (Public-Private Partnership framework (Act 29-2009)).

• Approve a new energy public policy and regulatory framework bill in 180 days.


• Today: 2% power generation based on renewable sources.

• New energy policy targets: 40% renewable energy by 2025, 100% by 2050.

• Nat Gas (and Propane Gas) as transition fuels. Phase out from coal by 2028.

• New regulatory framework to transform our energy system to a resilient, reliable, cost-effective and robust one.
The Act establishes key guiding principles for the electric grid based on efficiency, quality, continuity, adaptability, impartiality, solidarity and equity. It also formulates the energy public policy on various aspects including:

- Universal access to electric service at costs that are fair, reasonable and not unduly discriminatory, establishing an aspirational goal of rates not surpassing 20¢ per kilowatt-hour.
- Ensuring availability of energy supply.
- Establishing penal consequences for the failure to comply with directives issued to electric service companies.
- The development and integration of solar communities, energy wheeling, community microgrids, and electric cooperatives, among others.
- Provide for the integration of “pro-sumers” through mechanisms such as net metering or tariff designs which promote behind the meter generation.

- Transitioning from a centralized system to a distributed generation system based on renewable energy and micro grids; promote energy storage technologies.
- Conversion of central generation sources to natural gas.
- Establishing demand response and energy efficiency programs.
- Efficient and responsible use of energy by government agencies and instrumentalities.
- Conversion of public lighting to LED.
- Designing and constructing a robust and resilient electric system that will survive severe weather events.
V. Public-Private Partnership (P3’s) Energy Projects Status

- Puerto Rico gov’t issues Request for Qualifications (RFQ) for energy partnership projects:
  - **Puerto Rico Electric Power Flexible Distributed Generation Units** (RFQ 2019-3 | Date Issued: April 16, 2019)
    - The government is interested in generation units that can be moved to existing powerplants when needed or to new locations in the future.
  - **Puerto Rico Electric Power Hydroelectric Power Plants Revitalization Project** (RFQ 2019-2 | Date Issued: April 16, 2019)
    - Design, management and operation of 16 generation units and turbines at nine hydroelectric plants.

VI. Status RSA – Puerto Rico Electric Power Authority

**Definitive Restructuring Support Agreement (RSA) - May 3, 2019**

- Execution of a Definitive Restructuring Support Agreement (RSA), which provides for substantial savings in the recovery of legacy costs associated with the financing of Puerto Rico’s electric infrastructure. Restructuring PREPA’s legacy debt obligations is a key component of Puerto Rico’s energy transformation and its successful conclusion will pave the way for a resilient, reliable, and affordable energy system.
VII. DEDC’s Energy Policy Program


Among DEDC’s new responsibilities:

• DEDC is the Governor’s speaker and advisor on all matters related to energy, including emergencies.
• DEDC must advise the Governor, all agencies, public instrumentalities, institutions and the general public in energy related technological aspects, socioeconomics, legal advice regarding generation, distribution and transmission and energy efficiency in Puerto Rico.
• Must draft and develop, before Hurricane Season, Puerto Rico’s Energy Assurance Plan.
• Related to energy efficiency, is the entity in charge of auditing the Energy Savings Plan of all governmental entities.
• Puerto Rico Energy Trust similar other states Green Banks, it will serve low and middle income families in energy efficiency related matters of their homes.
VII. DEDC’s Energy Policy Program (cont.)

We serve through the following programs

<table>
<thead>
<tr>
<th>State Energy Program</th>
<th>Weatherization Assistance Program</th>
<th>Green Energy Fund</th>
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| • Energy efficiency, conservation and consumption reduction for governmental and municipal installations  
  • Provides energy audits, energy efficiency projects | • Provides assistance to low income based families into achieving energy efficiency in their homes  
  • Helps reduce environmental impact through energy efficiency | • Act 83-2010  
  • This fund was created as an instrument to promote, for both residential and commercial needs, the alternative of solar energy systems |
VIII. Micro Grids: PRIDCO Pilot Project

- The Puerto Rico Industrial Development Company (PRIDCO), ascribed to the Department of Economic Development and Commerce (DEDC), is working on a **strategy in conjunction with the U.S. Department of Energy (DOE)** to develop a conceptual design and financial model to provide energy service to the PRIDCO industrial parks through Microgrids.

- DOE will provide PRIDCO with the energy models to follow in the various industrial parks depending on the characteristics of the site, as well as the technology to be implemented, the cost of the investment, and the technical support necessary for the development of request and evaluation of proposals, etc.

- This work will be carried out with the cooperation of Sandia National Laboratory in New Mexico and the Oak Ridge National Laboratory in Tennessee.

- PRIDCO and DOE evaluated ten (10) industrial parks around the Island that represent the various manufacturing sectors, with the purpose of replicating energy solutions in other similar areas.

- At the moment, the four (4) municipalities have been selected:
  - **AGUADILLA** (aerospace cluster)
  - **AÑASCO** (medical device cluster)
  - **JAYUYA** (medical device critical activity)
  - **SANTA ISABEL** (aerospace critical activity)
VIII. Micro Grids: Roosevelt Roads Old Naval Base

The Local Redevelopment Authority for Naval Station Roosevelt Roads (LRA) is negotiating with an operator to manage on an exclusive basis and independently from PARSA, the electrical distribution system at the former Naval Station Roosevelt Roads and operate an independent microgrid in the capacity as an electric service company with generation resources to supply all power requirements of tenants located and to be located at the former Naval Station. The project includes generation and distribution of electrical power; management of user accounts and services according to agreed-upon service levels; provision of emergency backup systems and disaster recovery and/or service continuity procedures in case of system failure.

**Status:**
- Operations and Lease Agreement to be signed by end of August 2019
- MVA: 75 MVA

**Projected Operation Date:**
- Phase 1: 50 MVA: Mar 2020
- Phase 2: 70 MVA: June 2021

**Timeline:**
- Aug ‘18: Certification Complete
- Sept 18: Proposed Approved by Board
- Mar 19: Terms Sheet
- Aug 19: Agreement Signed
- Mar 20: Phase 1 Design/Build
- June 20: Construction
- PV Solar Parks Location on Subzones I & G2
<table>
<thead>
<tr>
<th>Category</th>
<th>Funding</th>
</tr>
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<tbody>
<tr>
<td>Construction and Commercial Loans</td>
<td>$100M</td>
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<tr>
<td>Small Business Financing</td>
<td>$200M</td>
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<tr>
<td>Workforce Training</td>
<td>$40M</td>
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<tr>
<td>Energy &amp; Water</td>
<td>$436M</td>
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<tr>
<td>Agriculture</td>
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<td>Small Business Incubators and Accelerators</td>
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<tr>
<td>Tourism and Business Marketing</td>
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<tr>
<td>Strategic Projects</td>
<td>$125M</td>
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<tr>
<td>Economic Development Investment Portfolio</td>
<td>$800M</td>
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PUERTO RICO OCEAN TECHNOLOGY INDUSTRIAL PARK (PROTech)
Regional park dedicated to the creation of industries derived from the use of deep sea water (DSW-Deep Sea Water), fostering an ecosystem that integrates applied research, innovation and economic development.

Location: Southeast Region
Municipalities to impact: Arroyo, Maunabo, Patillas, Humacao and Yabucoa.
Family income Average area: $15,744
% with income under Poverty level: 47.7%
PUERTO RICO OCEAN TECHNOLOGY INDUSTRIAL PARK (PROTech)

**DIRECT INDUSTRIES**
- Agriculture
- Aquaculture
- Seaweed cultivation
- Potable water production
- A/C cooling with DSWC
- Conversion of oceanic thermal energy

**INDIRECT INDUSTRIES**
- Research
- Manufacture
- Commerce
- Business center
- Tourism
- Education
ENTERPRISES DEVELOPED AT THE HAWAII OCEAN TECHNOLOGY PARK – Model for Puerto Rico
REDEVELOPMENT OF THE PR127 CORRIDOR (CORCO)
X. Proposed Projects: PR-127 Redevelopment

The PR127 corridor represents 3,500 acres of land, the vast majority of which has been classified as "Brownfields" by the EPA

Typical Brownfield Re-development Process
1. Environmental Site Assessments (Phase I & II)
2. Land Acquisition
3. Re-development as per Master Plan (Private Developers)

DDEC Expectations
1. Development of an industrial park with Liquid Natural Gas (LNG) as energy supply (Collaboration between PRIDCO and Eco Eléctrica)
2. Demolition of refinery facilities and equipment along the PR-2
3. Establish the "BIO Economy Center of Excellence" (Center for applied research and incubator of new products, services and processes associated with biofuels, sustainable agro-industries, etc.)

Potential Economic Impact (Preliminary – To be Validated via Updated Master Plan)
- $500 million in private investment of new industries
- 200 direct jobs
- 850 construction jobs

Current Investments
- Federal Funds – EPA Revolving Fund $1 MM (pending approval)
- Federal Funds – EPA Funds $200,000 (pending approval)
- DDEC – $330,000 (EDA Federal Funds Matching); $60,000 to Update Master Plan
XI. Workforce Development

• The *Workforce Innovation & Opportunity Act (WIOA)* it’s a federal law signed by President Obama on July 22, 2014.

• The purpose of WIOA is to better align the workforce development system with education, training and economic development initiatives to create a collective response to labor market challenges on the national, state and local levels.

• WIOA – Benefits for employers and their employees
  • **On the Job Training**
    ➢ Hands-on method of teaching the skills, knowledge, and competencies needed for employees to perform a specific job within the workplace.
  • **Customized Training**
    ➢ Training that is designed to meet the special requirements of an employer (including a group of employers)
  • **Incumbent Worker Training**
    ➢ Designed to meet the special requirements of an employer (including a group of employers) to retain a skilled workforce or avert the need to lay off employees by assisting the workers in obtaining the skills necessary to retain employment.
XI. Workforce Development (cont.)

- **Registered Apprenticeship**
  - Created by the National Apprenticeship Act, or Fitzgerald Act, in 1937 to develop labor standards, safeguard the welfare of apprentices, and work with states. It is administered by the U.S. Department of Labor.
  - Purpose:
    - The model is designed to keep pace with advancing technologies and innovations in training and human resource development, providing unique opportunities for workers seeking high-skilled, high-paying jobs and helps employers create the talent pipeline needed to build and sustain a qualified workforce.
  - Registered Apprenticeship programs take the basic apprenticeship model of paid on-the-job training and educational instruction.

- **Services and benefit thru our American Job Center under WIOA Title I**
  - Youth Program
  - Dislocated Workers
  - Adult Program
XI. Workforce Development (cont.)

PREPA Regulation 7796 – “Renewable Energy Systems Certification Regulation”

• Purpose
  - Implement the minimum technical requirements for the certification of all the components of photovoltaic systems, Eolic, thermal-solar, or any other renewable energy system to be sold, installed or manufactured in Puerto Rico.

• Energy Policy Program- Renewable Energy Electric System Installer Certification
  - Electric Engineers (P.E.)
  - Expert Electrician (Licensed)
XII. New Incentives Code

Puerto Rico’s Incentives Code (Act 60-2019) was signed on July 1st, 2019.

What is it?
• It is an economic development tool with clearer rules and more efficient processes.
  ➢ Purpose: Promote the environment, opportunities and tools needed to create a sustainable development in Puerto Rico.

Objectives:
• Consolidate and simplify the processes needed to obtain de incentives.
• Provide more transparency:
  ✓ The decree holder’s name will be disclose and under which Code’s chapter possesses the decree.
  ✓ Requires an annual report of the beneficiary’s activity.
  ✓ Establishes a rights letter related to the beneficiaries’ information.

Applicability
• All the changes established in the new Incentive Code are prospective. Do not affect the enterprises or individuals with decrees, credits or incentives approved before its approval.
• Those who want to apply under the existing laws may do so until December 31, 2019.
XII. New Incentives Code (cont.)

INFRASTRUCTURE & GREEN ENERGY CHAPTER

ENERGY PRODUCERS AND SELLERS, BASED IN THE USE OF NATURAL GAS, PROPANE GAS AND HIGHLY EFFICIENT ENERGY/RENEWABLE ENERGY

• Any company dedicated to the production and sale of commercial green energy, either as owner or operator of the system, will be eligible to a 4% fixed income tax rate for 15 years, among others.

• 5 years are added for producers and sellers of highly efficient energy (natural gas, propane gas and others, as defined by the DOE).

• It’s clarified that it’s not mandatory to sell the energy to PREPA, in order to receive the benefit.

• Access to Cash Grant Funds such as Job Creation, Machinery & Equipment & Infrastructure investments, and the Green Energy Fund (from previous Act 83-2010).
XIII. Opportunity Zones

Activities that qualify as Priority Projects for Opportunity Zones state/local incentives (preferred tax rate and tax exemptions, investment tax credit, and expedited permitting process):

- Development (acquisition of property and construction thereon and/or substantial improvement of existing property) of residential real property that is a Low-Income Housing Project as defined in Section 42(g) of the United States Internal Revenue Code of 1986, amended, or by the Puerto Rico Department of Housing, for sale or rent.

- Development (acquisition of property and construction thereon and/or substantial improvement of existing property) of residential and/or commercial real property for sale or rent.

- Development (acquisition of property and construction thereon and/or substantial improvement of existing property) of industrial real property for sale or rent.

- Substantial improvement of an existing commercial property for sale or rent.

- All other activities not covered above, such as renewable energy projects, might qualify for other incentives covered in the New Incentives Code and might be designated as Strategic Projects (expedited permitting process) under Act 19-2017.

Source: Press Release AAFAF August 21, 2019
XIV. Permit Reform (Act 19-2019)

Green Projects

- Puerto Rico’s Green Permit will be issued to all buildings or drawing of plans that highlight compliance with our adopted Green Design Guidelines, among others.

- As designing guides, Puerto Rico has adopted that the proponent can choose to design under the International Code Council’s International Green Construction Code or the U.S. Green Building Council’s Leadership in Energy and Environmental Design Reference Guides.

- All projects prequalified for Green Permits will exempted of infrastructure exactions.

- The objectives of the Green Permit are the following:
  a. Maximize energy efficiency and savings in maintenance and operation costs.
  b. Reduce Green House Effect’s emissions caused by climate change.
  c. Prolong the life of the dwellings and other types of construction.
  d. Reduce potable water consumption.
  e. Increase the recollection of grey water and storm water.
  f. Reduce the generation of residues during construction and operation.
  g. Improve the interior environmental quality of buildings & health of its occupants.
  h. Provide accessibility to efficient modes of transportation.
XIV. Permit Reform (cont.)

Joint Regulation for the Evaluation and Issue of Permits Related to Development, Land Use and Businesses Operations (the “JR”)

- The JR is uniform and applies to all Puerto Rico; only one set of rules.
- It applies to both the Central Government and the Autonomous Municipalities.
- Establishes that all permits and licenses that fit zoning and construction parameters (that are not discretionary) can be evaluated by either the DEDC’s Permits Management Office or an Authorized Professional.
- Creates the figure of the “Permiso Único” Inspector which can make inspections related to permitting sites and “Permiso Único's" renovations.
- The JR consolidates certifications, licenses and permits into the “Permiso Único”; it contains, in only one application you get the Use Permit, Environmental Compliance, Sanitary License, Fire Prevention Certificate, Alcohol and Cigarettes Sales Certificate, and any other needed licenses for the operation of a business.
- Construction Permit: 4 permits into just 1: Before: Construction Permit, Remodeling Permit, Demolition Permit and Urbanization Permit.
- Related to construction, now we have the “Permiso Único Incidental Operacional”: 4 permits into just 1: Cutting and Pruning Authorization, General Consolidated (Environmental Permits), Incidental Activity Permit and Incidental Activity for Other Works Permit.
XIV. Permit Reform (cont.)

The Single Business Portal (SBP) is the one-stop-shop digital platform for all businesses to apply for permits and economic incentives.

Digital Implementation of Permit Reform 2019
- Consolidates dozens of licenses, certifications and use permit into a Single Permit
- Consolidates various construction related permits into a Single Construction Permit
- Consolidates various construction operational activities into a Single Construction-Operational Permit
- Updates the Joint Regulation and Digital Platform to include municipalities with permits office

Digital Implementation of the New Incentives Code
- New Incentives Code, based on the concept of Unique Profile for each business