

A wide-angle photograph of a renewable energy landscape. In the foreground, several solar panels are tilted towards the sun. In the middle ground, several white wind turbines stand on a grassy hill. The sky is bright blue with scattered white clouds.

# ENERGY | Conservation, Efficiency, and Renewables

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ENERGY AFFAIRS ADMINISTRATION

Government of Puerto Rico



# Agenda

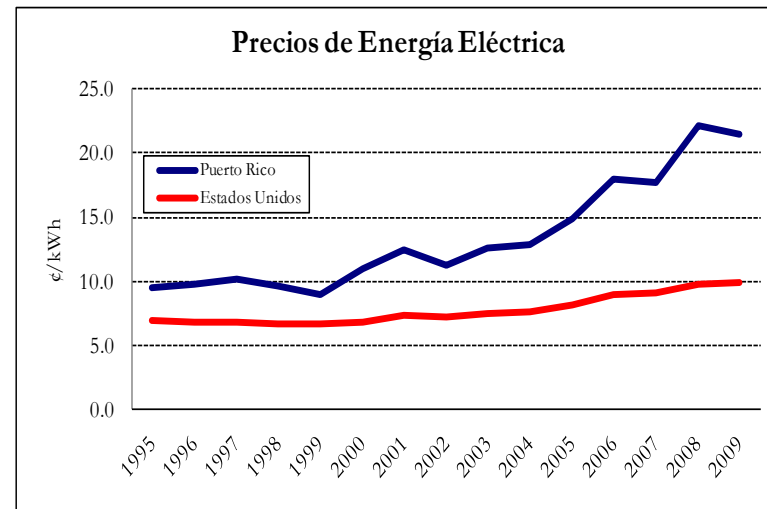
- Key Areas of Energy Policy
- Programs and Incentives related to Energy



- Electricity Cost Affects our Competitiveness

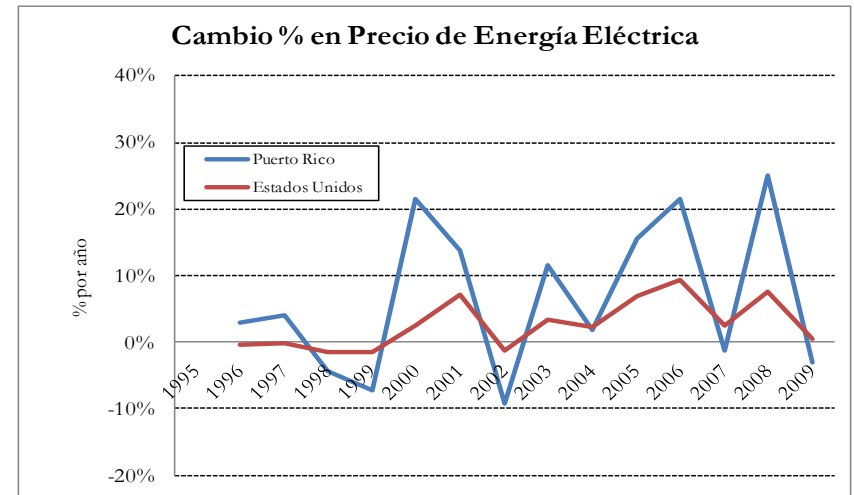
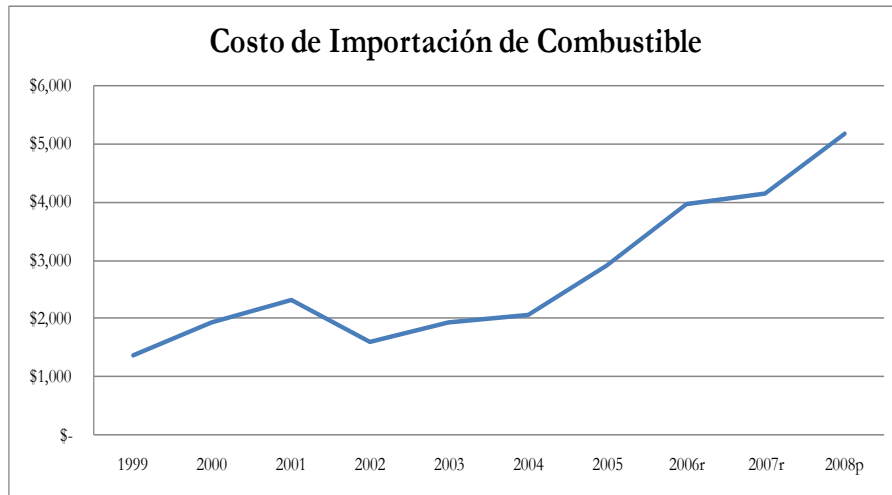
- 2 times greater than the average electricity cost in the U.S.
- Mainly due to our high dependency on fossil fuels (99%), specifically in oil (70%).
- From 2004-2008 PR experienced a 11.6% increase in electricity price, compare to 5.2% in the U.S.

	¢/kWh
Wyoming	6.06
Louisiana	6.61
West Virginia	6.62
Illinois	9.29
Ohio	9.42
Pennsylvania	9.98
Texas	10.59
Florida	11.33
California	14.38
<b>Hawaii</b>	<b>19.06</b>
<b>Puerto Rico</b>	<b>21.50</b>
U.S. Total Av.	10.24



## Oil Imports represents a large capital leak

- Puerto Rico expends **\$5.2 billions annually** in fuel imports (Petroleum and Coal).
  - No control over the import fuel prices.
  - Hence, our economy becomes dependant to price fluctuations.





# Key Areas of Energy Policy

- **Diversify energy portfolio in Puerto Rico**
  - Increase generation from renewable energy sources.
    - Utility scale projects
    - Distributed generation
  - Employ the use of Alternative Energy Sources
- **Promote and Enforce Energy Conservation and Efficiency Measures**





# Energy | Programs and Incentives

- State Energy Program (**SEP**)
- Revolving Loan Program
- Upcoming Legislations
  - Renewable Portfolio Standard (RPS) and Renewable Energy Credits (RECs)
  - Green Energy Funds





# SEP – Overview

- The purpose of this program is to promote the conservation of energy, **to reduce the rate of growth of energy demand**, and to **reduce dependence on imported foreign oil** through the development and implementation of a comprehensive State Energy Program that includes:
  - **Energy Conservation**
  - **Renewable Energy**
  - **Energy Efficiency Projects**
- Projects under this award must promote job creation, stimulate the economy and be **“shovel ready”**.





# SEP – Overview

- SEP Regulation includes the following sub-programs:
  - **Sun Energy Program**
  - **Wind Energy Program**
  - **Building Energy Efficiency Retrofit Program**
  - **Solar Water Heater Rebate Program**
  - **Agriculture Renewable Energy Program**







# SEP : Sun Energy Sub-Program

- The Sun Energy Program will provide rebates for the purchase and installation of solar energy systems in homes, and businesses.
  - **Homes:** \$4/watt based on the total system capacity up to 50% of the cost, 30,000 max.
  - **Businesses:** \$4/watt based on the total system capacity up to 50% of the cost, 200,000 max.





## SEP : Wind Energy Sub-Program

- The Wind Energy Program will provide rebates for the purchase and installation of small wind (**<20kW**) energy systems in **businesses** facilities.
  - Up to 50% of the cost, 200,000 max.
- 20 kW limit is based on NEPA categorical exclusion and to comply with shovel ready projects, as established by DOE.





## SEP : Building Energy Efficiency Retrofit Sub-Program

- The Buildings Energy Efficiency Retrofit Program will provide rebates for energy efficiency retrofit projects for businesses.
- Businesses - Up to 50% of the total cost with a maximum of \$300,000
- Energy Audits – Maximum of \$5,000 per audit on awarded projects (\$0.20/ft<sup>2</sup>)





# SEP : Solar Water Heater Rebate Sub-Program

- The Solar Water Heater Rebate Program will provide rebates to homeowners when they purchase a new solar water heater
- \$500 per household/applicant
- As per Puerto Rico law, **taxpayer can deduce balance of costs after rebate.**





# SEP : Agriculture Renewable Energy Sub-Program

- Provide rebates for the construction of new renewable energy projects in the agriculture industry
- Up to 40% of the total cost with a maximum of \$100,000.
- Funds **can be** matched by other rebates or incentives awarded by the PR Department of Agriculture
- Projects must be endorsed by the PR Department of Agriculture.





# SEP : General Notes

- The following requirements must be met in accordance to Regulations #7792 and #7796:
  - All renewable energy system (RES) equipment must be certified by PREAA
  - All RES installers must be certified by PREAA
  - All Energy Auditors must be certified by PREAA.
  - Any net metering equipment must be in compliance with PREPA requirements under Act 114 “Net Metering”.
  - For government facilities, or government occupied facilities, equipment must comply with the Buy-American provision of the Recovery Act.





# SEP : Applicant Required Documents

- Fill out the Rebate Reservation Form (RRF) and additional documents indicated on the RRF
- Download documents at [www.afi.gobierno.pr](http://www.afi.gobierno.pr) or [www.aae.gobierno.pr](http://www.aae.gobierno.pr).
- Submit application package to:  
PR Infrastructure Financing Authority  
Capital Center, North Tower, 16th Floor  
235 Arterial Hostos Avenue  
San Juan, Puerto Rico 00918-1454





# SEP : Application Procedure

- After submitting all required documents and application form, PRIFA will determine the eligibility and feasibility of the project.
- If project is approved (and funds are still available), PRIFA will send a notification for a rebate reservation (for a period of 6 month), in which the project must be completed.
- Once the system is installed, connected, and completed, the applicant should present to PRIFA a Rebate Reclaim form. Then, PRIFA will send an inspector for project approval.
- After final approval, PRIFA will emit the rebate within 30 days calendar from the date of approval.







# SEP : Revolving Loan

- **Loan program** for small and medium business.
- Designed to fill typical “finance gaps” in renewable energy and energy conservation oriented investments.
- Loans for eligible projects, offering up to 50% of investment with a maximum of \$300,000.
  - **4.95%** interest.
- Eligible projects include: **wind, sun, and retrofit.**
- Loan Application through Economic Development Bank (BDE)





# Renewable Energy Reform New Legislation

- The Renewable Energy Reform will consist on the following:
  - Adopting a Renewable Portfolio Standard (RPS) by law.
    - Energy Policy that enforce the generation of electricity from renewable energy sources, hence promotes diversification of the energy mix and reduction of dependency on fossil fuels.
    - Requiring a minimum percent of renewable energy generation in P.R. of 15% for 2020.
  - Implement a Renewable Energy Credits (RECs) system
    - Certificate representing an asset or economic value, which can be bought, sold and transferred between people, and represents the equivalent of one (1) megawatt hour (MWh) of electricity generated by renewable energy sources or eligible renewable alternate sources.





# Renewable Energy Reform New Legislation

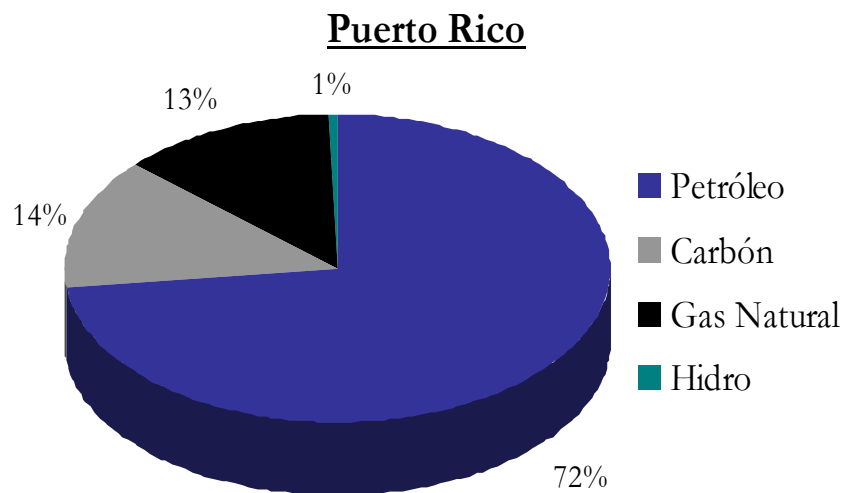
- Creation of a Green Energy Fund
  - All financial incentives will be granted by a special fund called Green Energy Fund, an investment fund for future generations
  - Will promote and develop a new and robust green industry, and create thousand of green jobs.



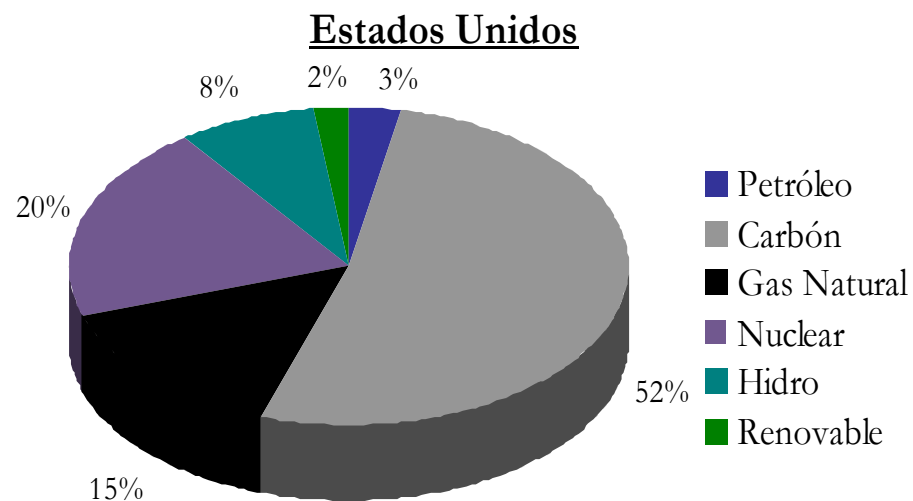


# Puerto Rico's Lack of Diversity on Generation Mix

- Electricity Generation by Source



RPS Goal:  
**15% by 2020**



RPS Goal:  
**20% by 2020**

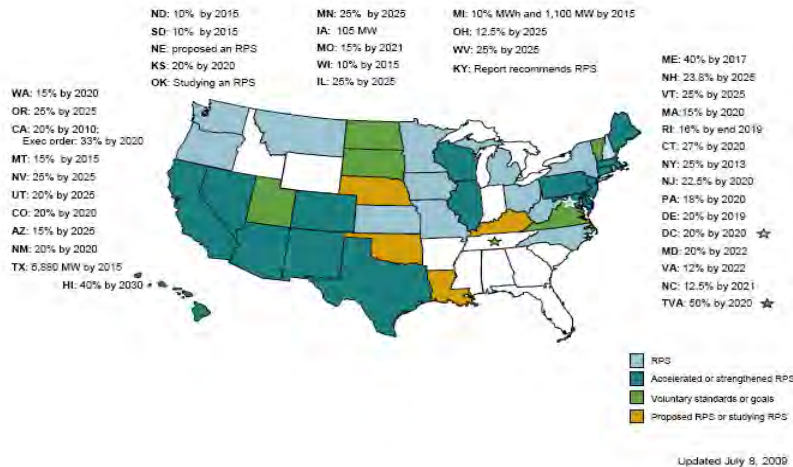




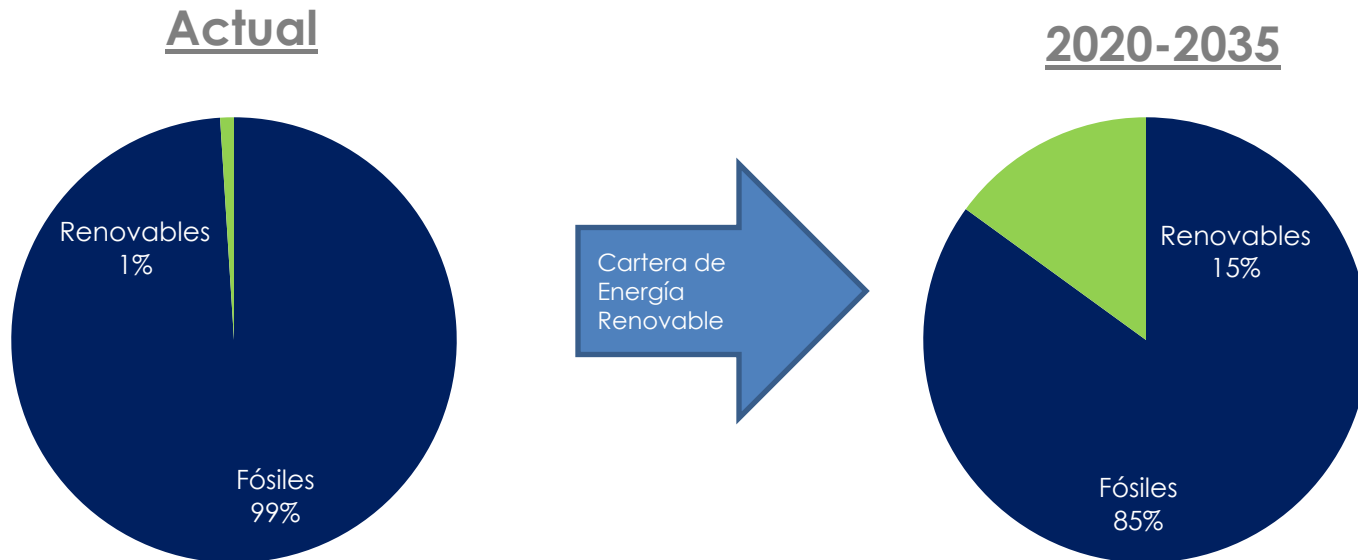
# Renewable Energy Portfolio

- **Diversification is the Key to Reduce Energy Price**

- The Renewable Energy Portfolio (or Renewable Portfolio Standard-RPS) is a legal energy policy that requires an increment in renewable energy production through the use of wind, solar, biomass and geothermic among others
- This diversification will reduce Puerto Rico's oil dependency
  - **Diversification** → Helps reduce and stabilize electricity prices
- 29 states and the District of Columbia have implemented an RPS



- **RPS policies foster the implementation of renewable energy**
  - Between 2015 and 2035 every retail energy provider will be required to have a certain percentage of its sales from renewable energy.



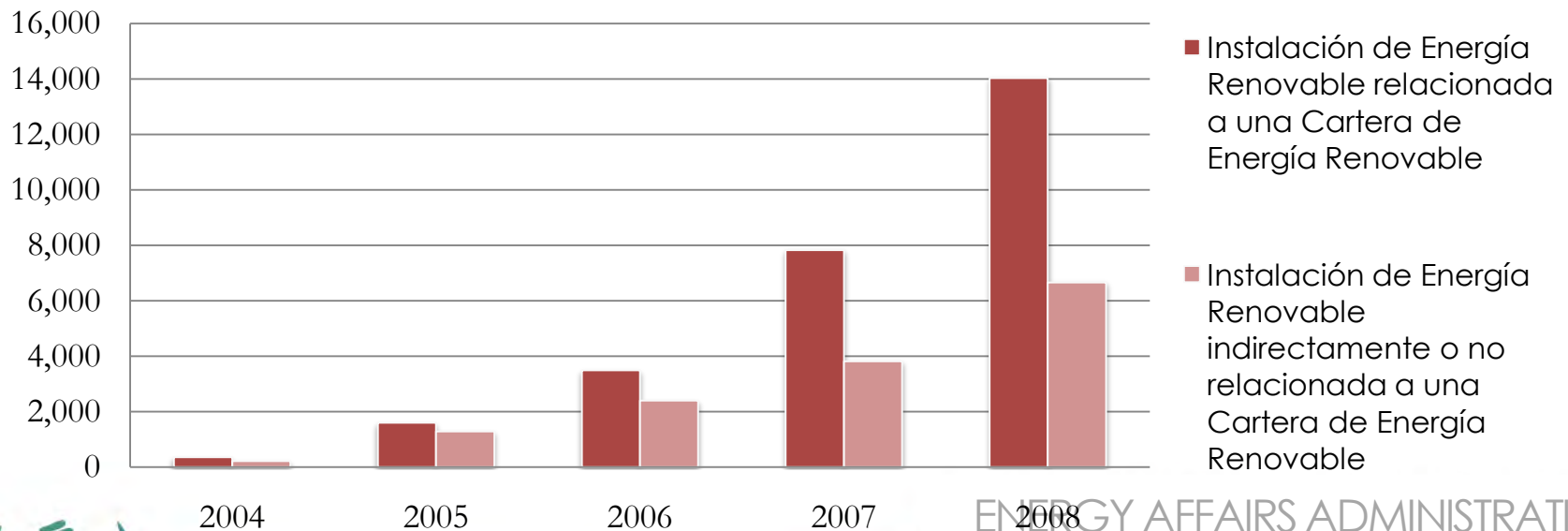


# Renewable Energy Portfolio

- **Drivers for Development**

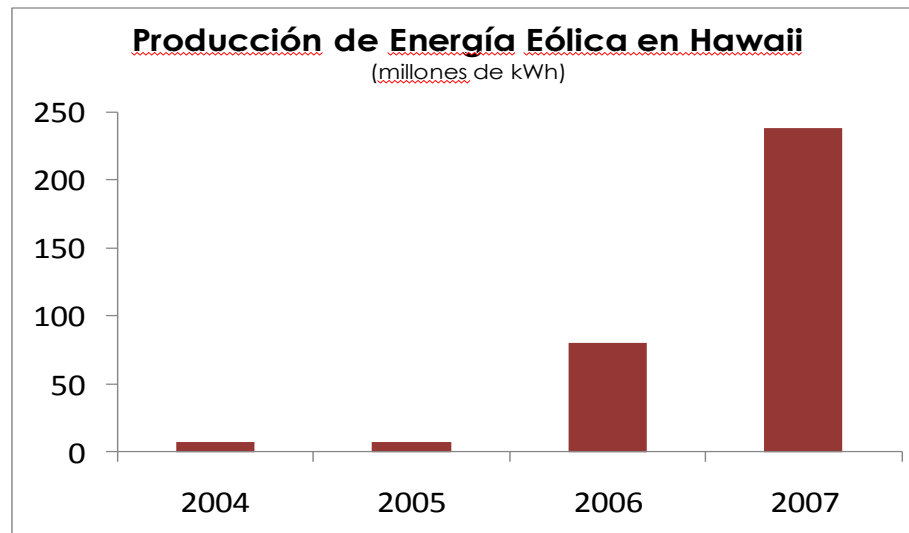
- The adoption of an RPS incentivize the development of renewable energy projects thus the diversification of energy
- During the last five years the development of renewable energy facilities directly related to RPS doubled in comparison with facilities not directly related with an RPS

## Instalación acumulativa de Energía Renovable en los EE.UU.



- **Hawaii's Case Study**

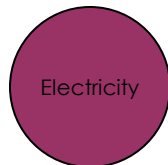
- Hawaii and Puerto Rico have similar economies (“island economies”)
- The first RPS approved by the State of Hawaii was on 2004
- From 2004 to 2007 wind energy production increased from 7 million kWh to 238 million kWh





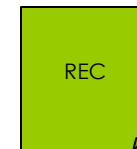
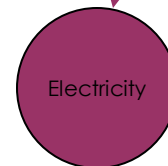
- **Creation of Renewable Energy Credits (RECs)**
  - Puerto Rico will adopt a Renewable Energy Credit system
  - **REC** – a **certificate** considered as an instrument with economic value that can be bought, sold or transferred between persons and that represents the equivalent of one (1) MWh of electricity generated from a renewable energy or alternate renewable energy source

## Conventional Generation



1 Product

## Renewable Energy Generation



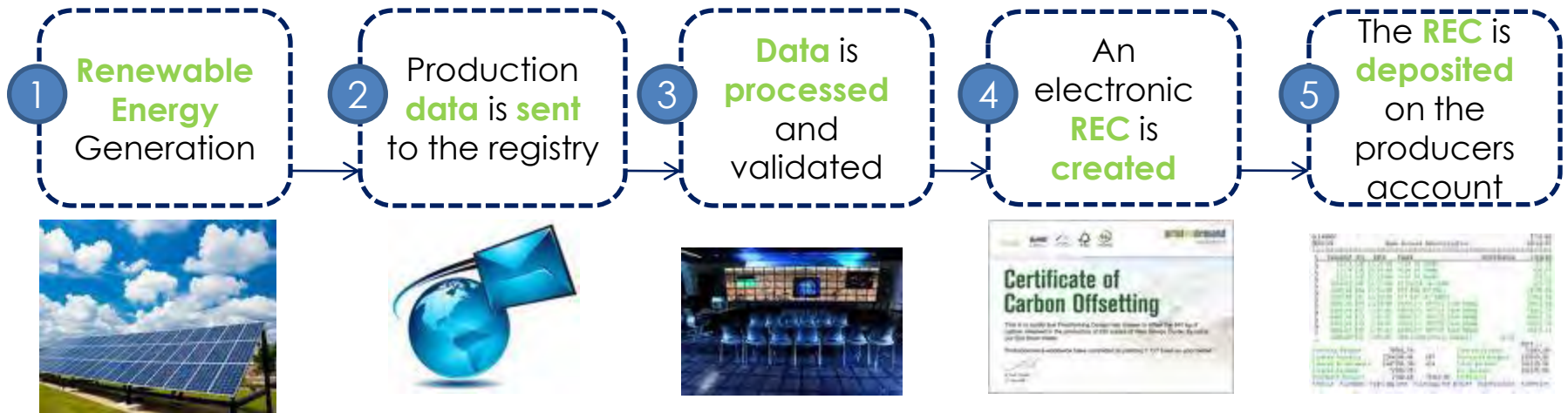
2 Products



# Renewable Energy Certificates

- **Production Incentives based on RECs**

- **RECs** will be registered in the North American Renewable Registry. This will facilitate the marketability of RECs in the US.
- **RECs** have their own **economic value** and they are **marketable** in the United States. Entities required to comply with an RPS from the other 29+ states or companies with corporate social responsibility could buy PR's RECs.





# Renewable Energy Certificates

- **Creation of a Renewable Energy Commission**
  - A Renewable Energy Commission will be created comprised of 5 members to oversee the transparency of the RPS compliance
  - The Renewable Energy Commission will be responsible for the compliance and fiscalization of the RPS
  - The Commission will have additional faculties related to renewable energy

## RENEWABLE ENERGY COMMISSION



**EAA**



**DEDC**



**PB**



**GDB**



**Treasury**





# Green Energy Fund

## Tier 1

### **Small Scale**

- Allow individuals and small companies have more control over energy prices thus reducing expenses and increasing available incomes
- Project size: 0—100 kW
- Market: Residential & Small Businesses
- Incentive: Up to 60% in reimbursements

## Tier 2

### **Medium Scale**

- Establishes a dynamic market that will attract new investments in the manufacturing of renewable energy equipments
- Project size: 100 kW + —1 MW
- Market: Industrial and Commercial
- Incentive: Up to 50% in reimbursements

## Tier 3

### **Utility Scale**

- Considerably reduces oil dependency, creates an economic stimulus and green jobs are created
- Project size: 1 MW+
- Market: Independent Power Producer
- Incentive: Access to the RECs market

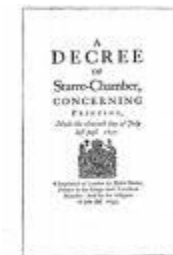


- **Tax Exemption**

- Furthermore, the Energy Bill creates a **special tax exemption** for companies whose primary purpose is the generation of **renewable energy**.
- These companies will have the advantage similar to those in Act 73 of 2008:
  1. A **fixed tax of 4%**
  2. A reduction on the property and municipal tax
- In addition, the lifespan of the decrees will be of 25 years which is consistent with the expected life of a renewable energy equipment and their commercial agreements (e.g. PPAs)



Life of equipment:  
25 years



Tax Decree: 25  
years



# Information Resources

- We invite you to visit the following website for more info:
  - <http://www.aae.gobierno.pr/>

