



Innovative financial instruments to support adaptation and resilience in Caribbean islands

Caribbean Basin Sustainable Islands Initiative

Cutting edge thinking, methods and instruments to foster sustainable growth and resilience

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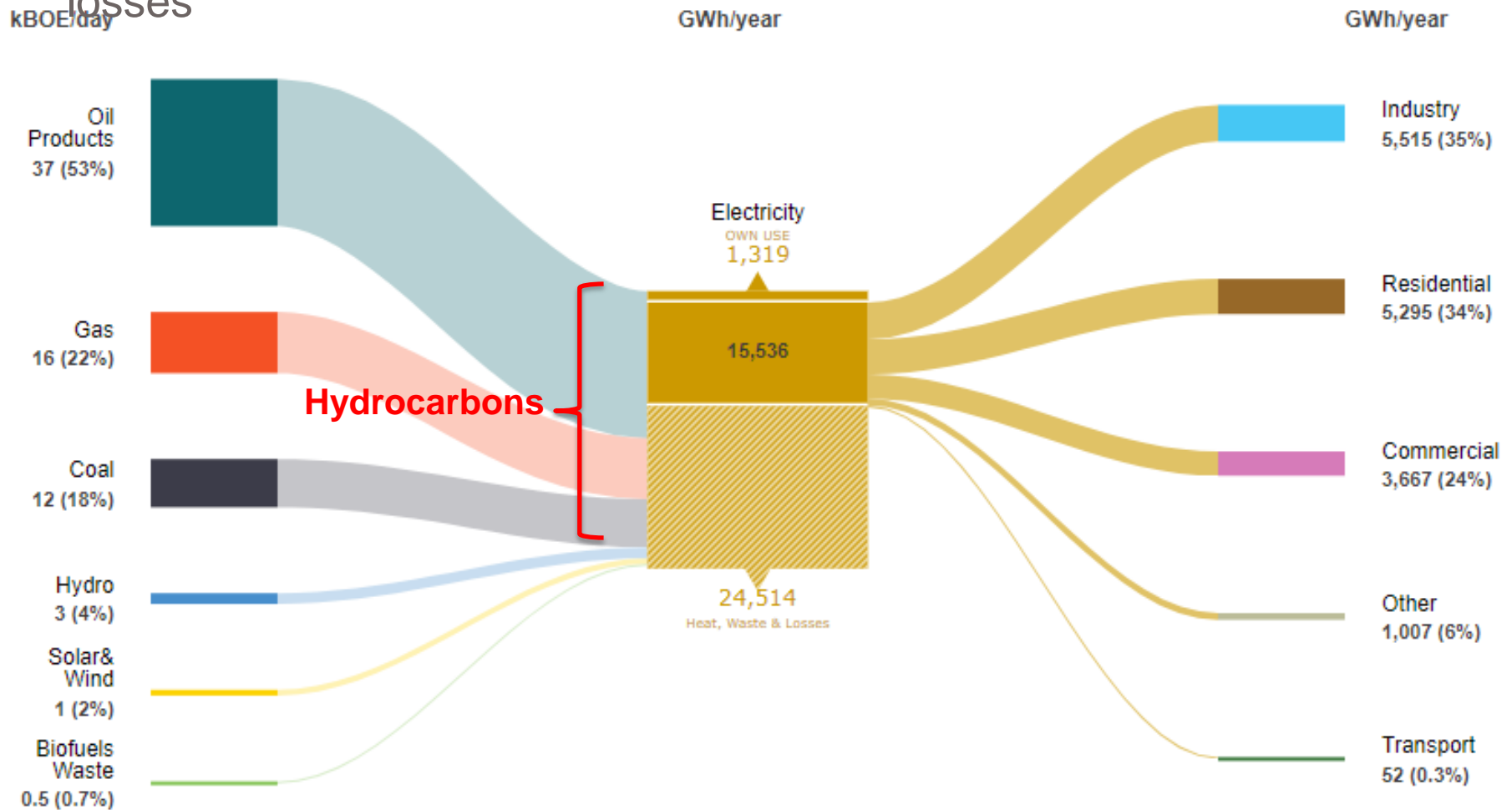
Basic Facts: The Caribbean vulnerability to climate change

- The Caribbean region is prone to a range of natural hazards, including hurricanes and sea level rise caused by climate change.
- Most Caribbean countries have critical infrastructure assets such as hotels, hospitals and power generation plants on their coastal or low-lying areas.
- On average, 90% of electricity in the Caribbean islands comes from non-renewable sources (bunker, diesel, coal and gas).
- Only three Caribbean islands have oil and natural gas reserves: Barbados, Cuba, and Trinidad and Tobago. TT is the only significant exporter.
- Only DR has some hydroelectric potential, but only represents 4% of its electricity matrix.



Basic Facts: Living on hydrocarbons on a normal day

In the **Dominican Republic**, hydrocarbons represented 93% of the electricity matrix (2014), and 61% was lost in heat, waste and other losses

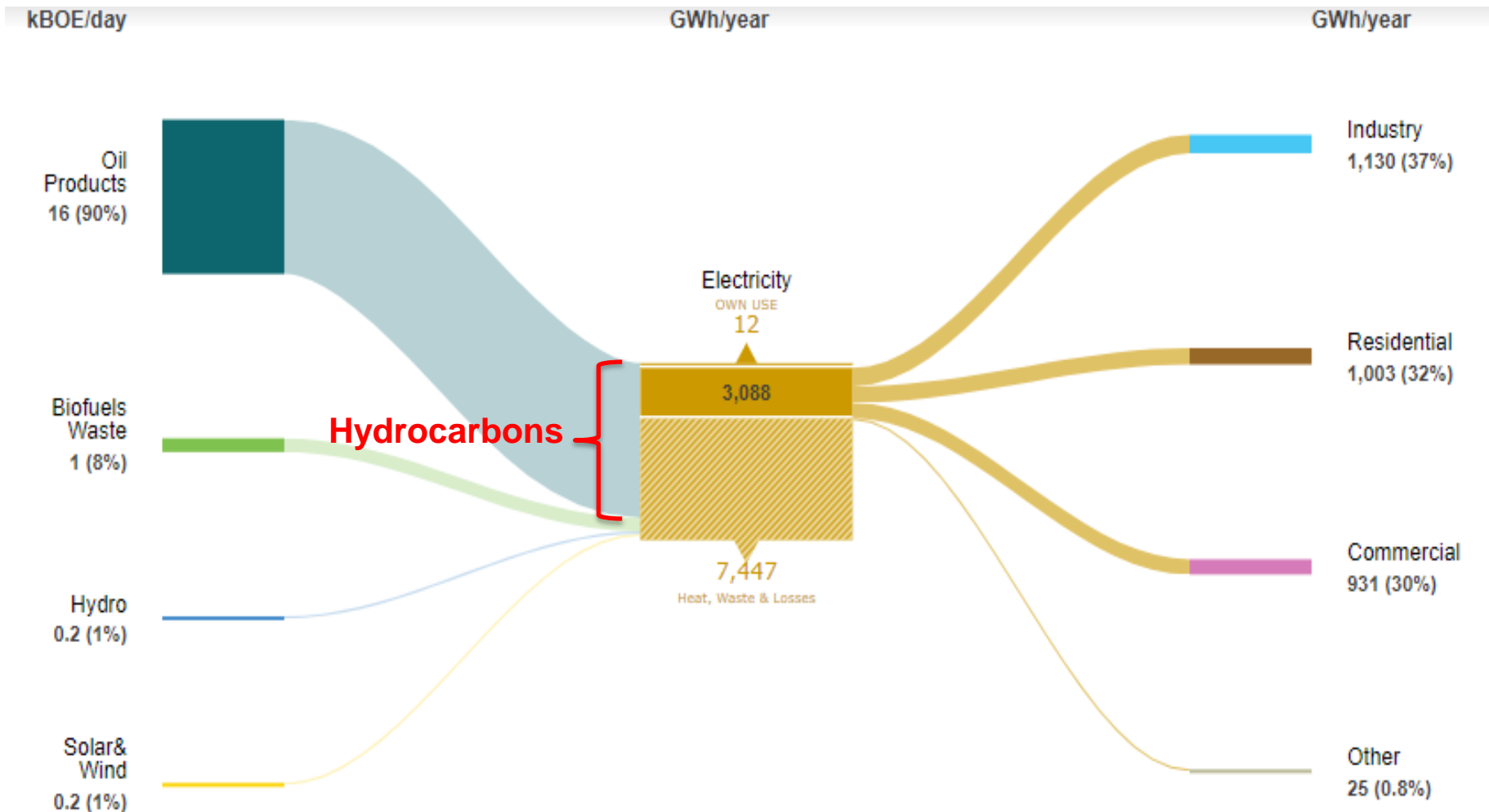


Source: IDB's Data Set- Energy Database.

<http://www.iadb.org/en/topics/energy/energy-database/>

Basic Facts: Living on hydrocarbons on a normal day

In **Jamaica**, hydrocarbons represented 90% of the electricity matrix (2014), and 70% was lost in heat, waste and other losses



Hurricane Maria and Puerto Rico

- Before the hurricane, Puerto Rico's electric utility debt represented US\$ 9 B. (12% of the country's debt burden), stemming from high-cost oil and old generation equipment.
- The generalized country's blackout was not caused by the destruction of its 5 thermal power plants, but because 80% of its transmission and distribution lines were down.
- For many days, airport was running on a generator, as well as the hospitals and key government facilities.
- The mayor of San Juan said it could take four to six months for the lights to turn back on the island.



Adaptation and resilience strategies for the Caribbean



Several studies have recommended Actions like:

- Tools for assessing climate-related risks and for defining a **Risk Management Strategy for Readiness and for Emergencies**, focused on energy sources
- **Distributed Energy** projects with utilities and municipalities, based on **Renewable Sources** (solar FV especially) and natural gas
- **Contingency Plans** involving the installation of modern diesel generators, RE systems and EE projects in key infrastructure
- **Increased Sturdiness** of vulnerable transmission and distribution lines (towers, poles, conductors, substations)
- **Increase the participation of RE** in the national energy matrix
- **Promotion of Energy Efficiency** in public and private sectors
- **Fiscal and other economic incentives** for RE and EE (demand and supply sides)
- **Decentralization of the energy supply** (micro grids) and smart grids
- **Solar-powered** cellular towers, semaphores and water pump stations



Potential investments in climate resilience investment projects

a. Renewable energy with potential in the Caribbean:

- Base load: geothermal, biomass (feedstocks from agriculture and urban waste, or dedicated plantations), ocean energy (tides, waves), micro-hydro.
- Intermittent sources: Solar and Wind.

b. Cleaner fossil fuels:

- Natural gas generation plants, CHP or CCHP.

c. Energy efficiency projects at demand and supply sides

- Distributed energy and smart grids.
- Efficient air conditioning and lighting for the tourism, institutional and residential sectors.
- Efficient water pumping and public lighting.
- Solar-powered cellular towers and semaphores.

d. Redundancy and sturdiness of the electric grid:

- Redundant transmission lines, sturdier distribution lines (stronger poles).

e. Electric transportation:

- Electric cars and city trams.





Innovative financial instruments that can be used (1/4)

1. Technical Assistance (TA) Facilities:

- Non- reimbursable grants
- To support final technical feasibility plans and financial structuring of RE and EE projects
- Both for the private and public sectors

2. Competitive Funds:

- Used for co-finance green energy pilot projects
- To cover final feasibility studies and pilot implementation
- Periodically announced. Funds allocated according to selected project types and merits



Innovative financial instruments that can be used (2/4)

3. Conditioned Loans for TA:

- Soft loans (zero interest, no real guarantees) used to finance Technical Assistance
- If the project is implemented, the loan is refinanced for 3 years or so, or even forgiven
- If the project is not implemented within a year, the loan is repaid

4. Weather Parametric (index) Insurance Products:

- Can be used to cover physical losses, or income losses related or not with physical losses (for instance, income losses caused by drought for irrigation hydroelectric plants)
- Losses are calculated based on a pre-agreed climate index (rainfall, solar radiation, wind speed, etc) measured with weather stations, correlated with remote (satellite) data
- Low administrative costs and quickness of payment





Innovative financial instruments that can be used (3/4)

5. Climate Debt Funds:

- Second tier. To be provided to regional development banks, on-lend to local financial institutions
- Regular long-term credit lines for readiness
- Can include term loans and leasing instruments

6. Equity and Mezzanine Funds:

- Used to finance private sector's Clean Energy projects
- Allows RE investors to comply with the minimum equity or quasi-equity participation requirements set out by the local banks
- Flexible and tailored-suit instruments: subordinated debt, convertible loans, loans with equity kickers, preferred equity, etc



Innovative financial instruments that can be used (4/4)

7. Long-term Loans with Extended Grace Period:

- For co-financing RE facilities that require longer terms than the ones offered by the local banks
- Terms ranging from 8 to 15 years
- Grace period on principal payment up to 8 year (similar to the total term offered by the local bank)
- All principal payment is assigned to the local bank in the first years, and then the long term debt is started to be repaid
- Interests are paid since the beginning both to the local bank and to the long-term facility.

8. Guarantee Funds:

- Partial guarantee funds for back-up of green loans provided by local banks (IFIs)
- Can be provided to local IFIs in combination with a green credit line
- Example: The DCA/USAID, pays 50% of green portfolios loan losses



THANKS !



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