WORLD BANK GROUP

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WB-UN HIGH LEVEL DIALOGUE ON ADVANCING SUSTAINABLE DEVELOPMENT IN SMALL ISLAND DEVELOPING STATES

SIDS – Towards a Sustainable Energy Future

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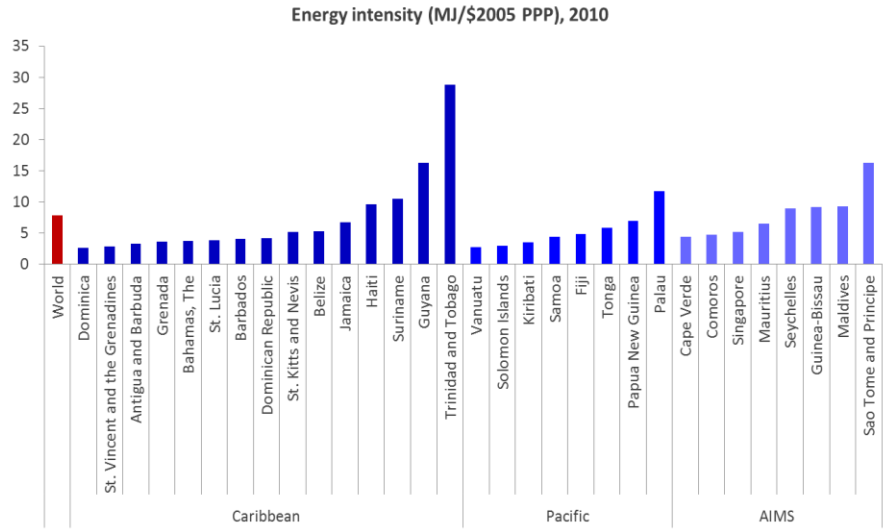
Agenda

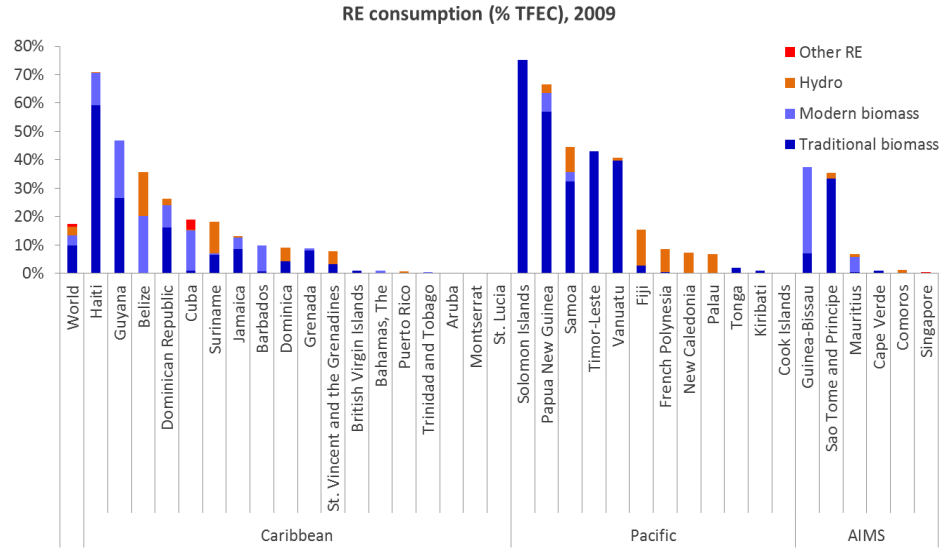
- Energy Sector Context in SIDS
  - Energy Sector Challenges
  - Climate Change Linkages
- Towards A Sustainable Energy Future in SIDS
- World Bank Engagement: SIDS Energy Sector Support
  - Pacific Island Countries (PICs)
  - Africa, Indian Ocean, Mediterranean and South China Sea (AIMS)
  - Caribbean Island Countries
  - SIDS DOCK Support Program

ENERGY SECTOR CONTEXT IN THE SIDS

ENERGY SECTOR CHALLENGES – AN IMPEDIMENT TO SUSTAINABLE DEVELOPMENT

- Access rates are high in most countries, but mostly based on imported fossil fuels
- Renewable energy share is low, discounting for traditional biomass





- Energy intensity is relatively high and growing – scope for energy efficiency measures

ENERGY SECTOR CONTEXT IN THE SIDS

ENERGY SECTOR CHALLENGES – AN IMPEDIMENT TO SUSTAINABLE DEVELOPMENT

High Energy Costs

- Cost of energy services among the highest in the world primarily due to high fuels transportation costs
- Island states spend over USD 67 million per day for oil
- A number of SIDS have a poverty rate of over 20% -> low affordability for expensive energy services

Energy Vulnerability

- 13 of 24 Asia-Pacific countries are classified as 'most vulnerable' to oil price shock
- Cost of fuel imports = 12 to 37 % of total imports
- Many countries face supply interruptions

ENERGY SECTOR CONTEXT IN THE SIDS

ENERGY SECTOR CHALLENGES – AN IMPEDIMENT TO SUSTAINABLE DEVELOPMENT

Fiscal Imbalances

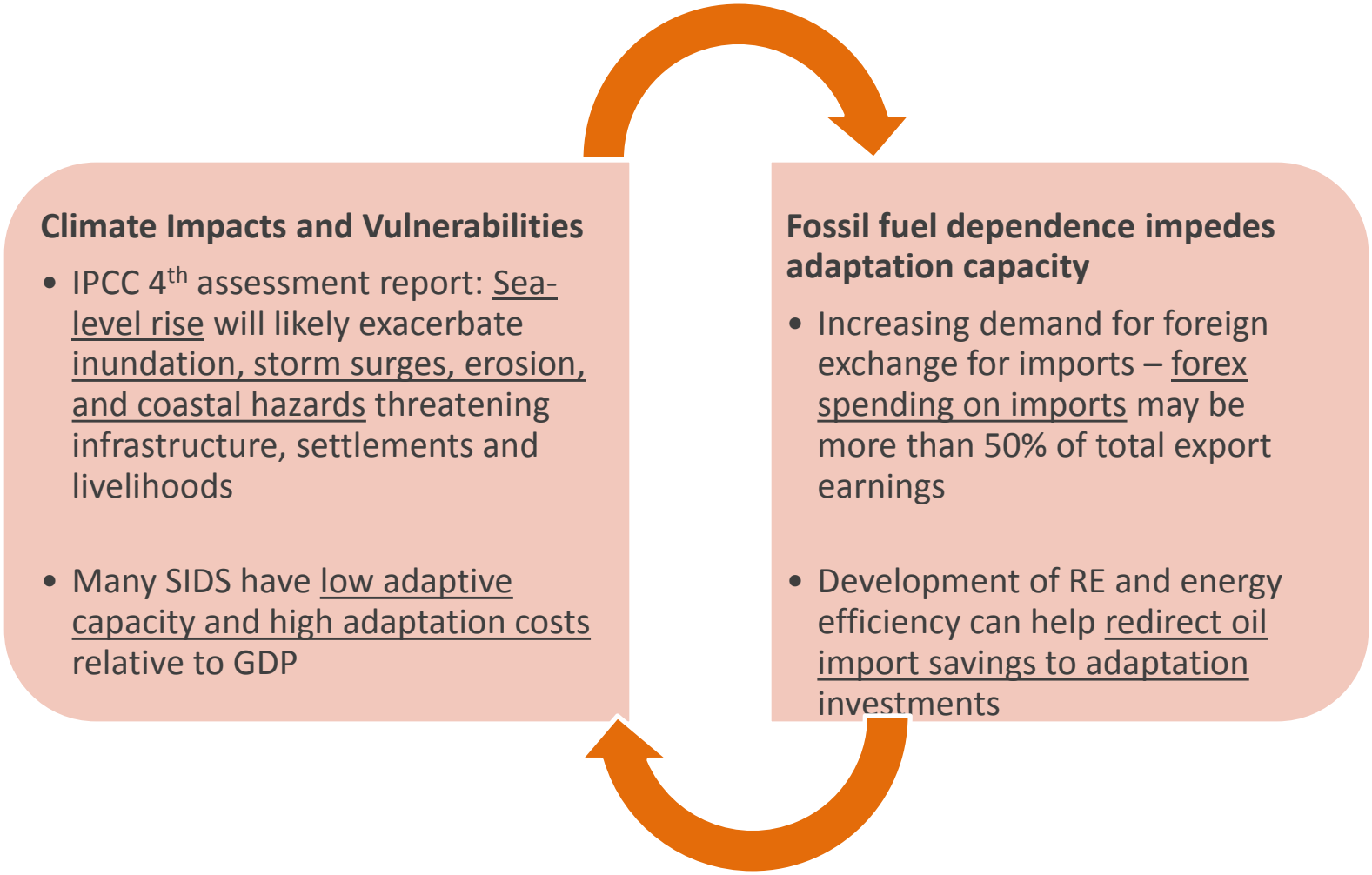
- SIDS among the most indebted countries in the world with energy price rises (1980s, 2008) a big part of the cause
- Oil imports and debt servicing = 60-70% of GDP and most SIDS don't have access to concessionary international financing

Institutional Capacities

- None or nascent energy policy and planning, especially for alternative energy sources
- Energy efficiency not prioritized in policies and planning
- Limited institutional and private sector capacity (small scale/high cost environment) resulting in low use of the vast RE resources
- Low financially viability in many utilities

ENERGY SECTOR CONTEXT IN THE SIDS – CLIMATE CHANGE LINKAGES

LOW CONTRIBUTION TO GLOBAL EMISSIONS, BUT HIGH VULNERABILITY TO CLIMATE IMPACTS



TOWARDS A SUSTAINABLE ENERGY FUTURE

TRANSITION TO LOW CARBON ECONOMY AND CLIMATE RESILIENT DEVELOPMENT

Promote sustainable energy sector and generate resources for climate change adaptation

- Increase provision of energy from **renewable energy** resources and improve **energy efficiency** through supporting policy and regulations
- Mobilize **financial and technical resources** for clean economic growth
- **Redirect savings** and generate resources for investment in **climate resilience** and **sustainable development**

WORLD BANK ENGAGEMENT: SIDS ENERGY SECTOR SUPPORT

PACIFIC ISLAND COUNTRIES

Key Issues and Challenges

- Extreme vulnerability to oil prices/shocks; Electricity tariffs among world's
- Lack of adequate capacity and reliable data for energy planning
- Weak legal, regulatory and institutional arrangements, sensitive social/land issues
- Low electricity access rates in some PICs (PNG~13%, Solomon Island~20%, Vanuatu~27%); low access to modern cooking fuels

WBG Priorities in PICs

- Strengthening energy planning: Integrate natural hazards and gender, and improve policy, institutional and regulatory frameworks
- Improving utilities' performance and sustainability
- Facilitating least-cost power supply, including through smart PPPs
- Increasing access to affordable, reliable and sustainable electricity services

WORLD BANK ENGAGEMENT: SIDS ENERGY SECTOR SUPPORT

PACIFIC ISLAND COUNTRIES - ACTIVITIES

- *Hydro: Naoro Brown Hydro as PPP (PNG)*
- *Solar: distributed solar PV generation (Cabo Verde), ASPIRE project (PRGs) – 20 MW PV gen. (Maldives)*
- *RE for rural electrification (PNG)*
- *RE resource mapping (PNG)*
- *RE resource mapping (Sao Tome, Mauritius)*
- *Assessment of NG and LPF as energy options (Regional)*
- *EE in Resorts (Vanuatu)*

Clean Energy & EE

- *Third Party Access Code for RE (PNG)*
- *Capacity Building for PPP policy (Samoa)*

Regulatory Instruments for RE

- *Energy Sector Development, Energy Roadmap (FSM, Tuvalu, Vanuatu, Tonga)*
- *Workshop for National Electrification Plan (NEP), Development of NEP (PNG)*
- *Sustainable Energy Program (Solomon Islands)*
- *Utility Service Reform (Kiribati)*
- *Energy Sector Development – energy master plans and sustainability reform (FSM)*
- *Grid Connection, Rural Electrification (Vanuatu)*

Electricity Sector Reforms & Development

WORLD BANK ENGAGEMENT: SIDS ENERGY SECTOR SUPPORT

AIMS COUNTRIES

Key Issues and Challenges

- High dependency on imported petroleum products - vulnerability to oil price shocks
- High energy costs and energy vulnerability (fragmented generation - high O&M)
- Electricity tariffs are high, but often insufficient to cover costs
- Power utilities face high technical and commercial losses
- Structural barriers to reduce supply costs compounded by very weak management in some countries
- Raising private financing for investment more difficult in small countries

WBG Priorities in AIMS

- Strengthening investment planning
- Improving utilities' performance and sector sustainability
- Linkage with macroeconomic and fiscal issues
- Increasing focus on the development of RE generation:
  - *RE can be competitive relative to thermal generation*
  - *Source of long term funding needs to be mobilized for capital-intensive RE projects*
  - *Issues of grid management and reliability with increased RE penetration attention*

WORLD BANK ENGAGEMENT: SIDS ENERGY SECTOR SUPPORT

AIMS COUNTRIES - ACTIVITIES

- *Solar: distributed solar PV generation (Cabo Verde), ASPIRE project (PRGs) – 20 MW PV (Maldives)*
- *Development of RE generation, Financing for RE project (Maldives, Cabo Verde)*
- *RE resource mapping (Sao Tome, Mauritius)*

Clean Energy

- *SIDS DOCK Grant - Estimation of renewable energy capacity absorption, RE grid code update, Model PPAs - incentives to scale-up renewables (Seychelles, Mauritius)*

Regulatory Instruments for RE

- *Recovery and Reform of the Electricity Sector (Cabo Verde, Comoros)*
- *SIDS DOCK Grant - Power sector efficiency improvement; engineering studies to reduce technical and commercial loses, Follow up IDA energy operation (Sao Tome)*

Electricity Sector Reforms & Development

COLOR LEGEND

Under Preparation/Consideration Under Implementation

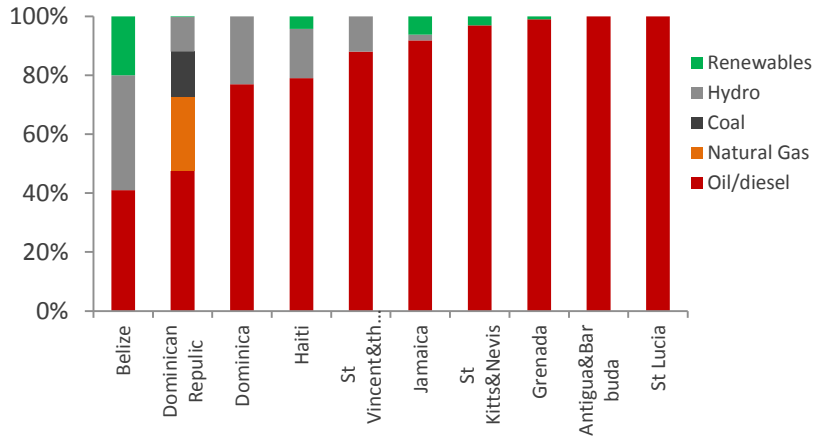
WORLD BANK ENGAGEMENT: SIDS ENERGY SECTOR SUPPORT

CARIBBEAN ISLANDS - ENERGY SECTOR ISSUES VARY ACROSS THE REGION DEPENDING ON COUNTRY SIZE & CONTEXT

Key Issues and Challenges

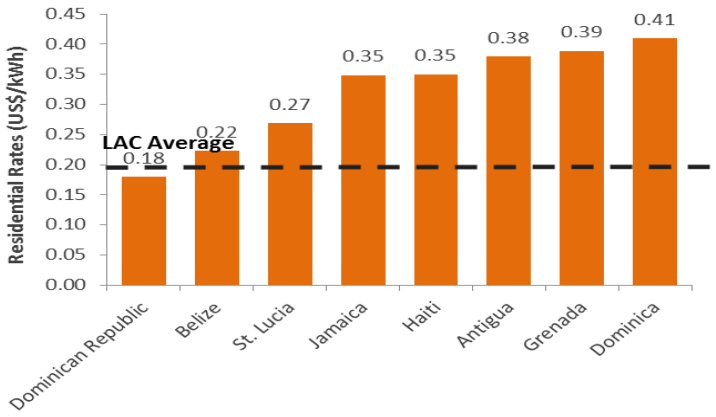
- **Large Islands** *(DR, Haiti, Jamaica)* have sizable populations, but high electricity costs due to large oil use and poor utility performance.
- **OECS Islands'** small market size, limited integration, and near total dependency on oil -> highest electricity costs in the LAC region.
- **Belize** also a relatively small, but has lower electricity costs than other Caribbean countries given its diversified generation mix.
- **High oil dependency** across the region -> high & volatile electricity prices

Caribbean Islands Power Generation Fuel Mix (%)



Source: The World Bank, World Development Indicators, 2011 and Bloomberg New Energy Finance Climatescope 2012 Report.

Average Residential Electricity Tariffs in Caribbean Islands in 2011



Source: Annual Report, Caribbean Electric Utility Service Corporation (CARILEC), 2011, SIEE-OLADE, 2013 (2011), DOMLEC Annual Report (for Dominica).Note: Electricity rates in Dominican Republic are subsidized.

WORLD BANK ENGAGEMENT: SIDS ENERGY SECTOR SUPPORT

CARIBBEAN ISLANDS - CARIBBEAN ISLANDS' NATIONAL ENERGY POLICY GOALS AIM TO ADDRESS THESE ISSUES

Key Policies & Strategic Priorities

- Clean Energy: Exploiting RE resources and diversification of power generation mix
- Energy Efficiency: EE and Transmission/Distribution reliability
- Climate/Energy Resilience: Energy security/oil import reduction; lower GHG emissions and environmental sustainability
- Regulations/Institutions: Improve regulatory environment
- Integration & Expansion: Energy/Electricity cost reduction

COUNTRY	CLEAN ENERGY		ENERGY EFFICIENCY		CLIMATE/ ENERGY RESILIENCE		REGULATIONS/ INSTITUTIONS	INTEGRATION & EXPANSION
	exploiting renewable energy resources	*diversification of power generation mix*	*energy efficiency*	*transmission/ distribution reliability*	*energy security/oil import reduction*	*lower greenhouse gas emissions/ environmental sustainability*	*improve regulatory environment*	*energy/ electricity cost reduction*
Antigua & Barbuda		✔		✔		✔	✔	✔
Belize								
Dominica	✔		✔			✔		✔
Dominican Republic			✔	✔	✔			✔
Grenada	✔		✔	✔	✔	✔	✔	✔
Haiti*	✔			✔			✔	
Jamaica	✔		✔	✔		✔	✔	✔
St. Kitts & Nevis	✔	✔	✔		✔			
St. Lucia			✔		✔	✔	✔	✔
St. Vincent& the Grenadines	✔	✔	✔	✔	✔			✔

WORLD BANK ENGAGEMENT: SIDS ENERGY SECTOR SUPPORT

CARIBBEAN COUNTRIES – ACTIVITIES

Clean Energy

- *Geothermal: Regional TA & Investment (OECS)*
- *Solar: Emergency Solar Lighting Project (Haiti), Solar PV Pilot (St. Lucia)*
- *Natural Gas: Linea Clave, InterEnergy (DR)*
- *Renewable Energy Finance (DR, Jamaica)*
- *Wind: Parques Eolicos del Caribe S.A. (DR)*

Energy Efficiency

- *Energy Security & Efficiency Project (Jamaica)*
- *Enhanced Reliability: Energy Infrastructure & Access Project (Haiti)*
- *Distribution Rehabilitation Project (DR)*
- *Electricity Loss Reduction Projects (Haiti, DR)*
- *Energy Efficiency Finance (DR Banco BHD, CAR)*
- *System Loss Reduction Financing (Jamaica)*

Climate/Energy Resilience

- *Emergency Recovery (Hydro Rehab) Project (DR)*
- *Energy Commodity Risk Management TA (DR)*
- *Pilot Program for Climate Resilience (Caribbean)*
- *Energy Resilience for Climate Adaptation (Belize)*
- *Mitigating Oil Impacts (LAC AAA)*

Regulations & Institutions

- *Regional Power Sector Regulator (OECS),*
- *Extractive Industries Transparency Initiative (Trinidad & Tobago)*
- *Power Sector Reform DPL, Power Sector TA (DR)*

Integration & Expansion

- *Regional Power Sector Regulator (OECS),*
- *Electricity Grid Interconnection Study (DR-Haiti)*
- *Caribbean Power Supply & Interconnection Studies*

COLOR LEGEND

Under Preparation | Under Implementation | Recently Completed

WORLD BANK ENGAGEMENT: SIDS DOCK SUPPORT PROGRAM

LAUNCHED DECEMBER 2010 AT COP-16; MOU - AOSIS, UNDP, WB AND DENMARK

- Support SIDS to transition to low carbon economies
  - ✓ Create an enabling environment for RE and EE
  - ✓ Implement projects that develop, deploy, and demonstrate RE and EE initiatives
- Phases I and II (funded by Denmark and Japan, respectively)
  - ✓ Phase I jointly implemented by UNDP and WB/ESMAP; Phase II recipient-executed grants managed by WB/ESMAP; Country/Regional projects and global activities

Electricity Reforms	• Tuvalu: Energy sector development • Sao Tome and Principe: Power sector efficiency improvements
Promoting clean energy technologies	• Caribbean, Vanuatu: Geothermal development for base load power, upstream preparation, planning, and investment support • Maldives, Cabo Verde, Caribbean: Solar PV
Regulatory instruments for clean energy	• Seychelles: expand private sector participation in RE supply to grid • Mauritius: prepare grid codes, FITs, model PPAs for RE systems
Global Activities	• Financing mechanisms to catalyze RE/EE investments • Virtual knowledge exchange network • Showcase successful RE/EE initiatives • Develop business plan for SIDS DOCK institution

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Thank You

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