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
Climate Impacts and Vulnerabilities

- IPCC 4th assessment report: Sea-level rise will likely exacerbate inundation, storm surges, erosion, and coastal hazards threatening infrastructure, settlements and livelihoods

- Many SIDS have low adaptive capacity and high adaptation costs relative to GDP

Fossil fuel dependence impedes adaptation capacity

- Increasing demand for foreign exchange for imports – forex spending on imports may be more than 50% of total export earnings

- Development of RE and energy efficiency can help redirect oil import savings to adaptation investments

LOW CONTRIBUTION TO GLOBAL EMISSIONS, BUT HIGH VULNERABILITY TO CLIMATE IMPACTS
TOWARDS A SUSTAINABLE ENERGY FUTURE

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)

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

- 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)

COLOR LEGEND

Under Preparation/Consideration

Under Implementation
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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)

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

- 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)
**WORLD BANK ENGAGEMENT: SIDS ENERGY SECTOR SUPPORT**

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

- **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**

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**Caribbean Islands Power Generation Fuel Mix (%)**

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

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**Average Residential Electricity Tariffs in Caribbean Islands in 2011**

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

### Table: Energy Policy Goals Alignment

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<tr>
<th>COUNTRY</th>
<th>CLEAN ENERGY</th>
<th>ENERGY EFFICIENCY</th>
<th>CLIMATE/ENERGY RESILIENCE</th>
<th>REGULATIONS/INSTITUTIONS</th>
<th>INTEGRATION &amp; EXPANSION</th>
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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 Eólicos 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
**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

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

- Develop business plan for SIDS DOCK institution
Thank You

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