Leveraging Caribbean Oil and Gas Resources for Energy Efficiency
Outline

- Introduction- Caribbean Energy Profile
- Why the focus on oil and gas?
- Leveraging Oil
- The Case for gas
- The Challenges
- Resource Diplomacy
- Conclusions
Introduction - Caribbean Energy Profile

- **Majority of energy markets – Small size**
- **Unequal energy endowments –**
  - One surplus fossil fuel producer - Trinidad and Tobago,
  - Three partially supplying energy needs (Belize, Suriname, Barbados)
- **Energy Security challenge - Importers of energy**
  - **Dependency - Petroleum Fuels**
    - Transport & Electricity generation
  - **Vulnerability**
    - Price volatility,
    - Energy driven debt
## Caribbean Fuel Dependency & Vulnerability

<table>
<thead>
<tr>
<th>Economy</th>
<th>Electricity Generation capacity (MW)</th>
<th>Liquid Fuel Dependence (%)</th>
<th>Fuel as a % of All-in Generation costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antigua &amp; Barbuda</td>
<td>17.2</td>
<td>75.3</td>
<td>59</td>
</tr>
<tr>
<td>Bahamas</td>
<td>318</td>
<td>100</td>
<td>58</td>
</tr>
<tr>
<td>Barbados</td>
<td>157.4</td>
<td>100</td>
<td>59</td>
</tr>
<tr>
<td>Dominica</td>
<td>17.2</td>
<td>75.3</td>
<td>68</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>2353</td>
<td>52.6</td>
<td>56</td>
</tr>
<tr>
<td>Grenada</td>
<td>29.2</td>
<td>100</td>
<td>63</td>
</tr>
<tr>
<td>Guyana</td>
<td>100</td>
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Source: Compiled from Bailey, Jansen & Espinasa (2013)
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<td>Haiti</td>
<td>226</td>
<td>79.5</td>
<td>60</td>
</tr>
<tr>
<td>Jamaica</td>
<td>680</td>
<td>94.7</td>
<td>57</td>
</tr>
<tr>
<td>St Kitts</td>
<td>33</td>
<td>96.2</td>
<td>62</td>
</tr>
<tr>
<td>St Lucia</td>
<td>59.8</td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td>St Vincent &amp; The Grenadines</td>
<td>25.7</td>
<td>88.1</td>
<td>63</td>
</tr>
<tr>
<td>Surinam</td>
<td>264</td>
<td>49.3</td>
<td>61</td>
</tr>
<tr>
<td>Trinidad &amp; Tobago</td>
<td>1121</td>
<td>0.9</td>
<td>-</td>
</tr>
</tbody>
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Source: Compiled from Bailey, Jansen & Espinasa (2013)
For most OECS countries mineral fuels represent a significant share of imports.

Source: Compiled from ECCB Trade Data
Why Oil & Gas

- Represents the current state of energy use
- Concerns about vulnerability and dependency not translated into major policy shifts
- Imperative for climate change mitigation and CO$_2$ reduction
- Oil will be around for a while yet - at least 2035
World Primary Energy Demand to 2035

- Oil will be around for a while yet at least 2035 BP, 2014

- Oil & Gas 75% of the Energy Mix (IEA)

Source: IEA, World Energy Investment Outlook 2014
Approaches to the Energy Security Challenge

- Energy Security management approach - Concessional arrangements (Pricing or Payment terms)
  - Or
- Energy Supply Projects
- Power Sector the prime target for displacing liquid fuels – represent fewer corporate entities – facilitates implementation
- Transport sector fuels – gasoline, some diesel and CNG – substitution more difficult.
Challenges - Impediments to change
Energy Financing Arrangements

- Fossil fuel financing facilitates consumption
- Perpetuates petroleum fuels dependence
Fuel Subsidies- Case Trinidad and Tobago

- Fuel Subsidy level estimate TT$4 billion - 5% Real GDP 2013
- Administration- Petroleum Levy & Subsidy Act 1974 Ch. 62:02.
  - Retail price fixed by state
  - Producing companies contribute
  - State makes up the difference via budget provision
- Budget provision shortfall, Arrears
  - Petrotrin Receivable (NPMC) Sept 30, 2013 - TT$5,334,532
- Demand Implications - Excessive consumption, Fuel dependence
- Impact - Traffic congestion, Productivity losses,
Petroleum Subsidy Claims - 2009-2014 August

TT$ Millions

- 2,000.00  4,000.00  6,000.00

2014 Aug
2013
2012
2011
2010
2009

Premium
Super
Regular
Diesel
Kerosine
LPG
Impact of Attempts at Subsidy Reform

- **Initiative:**
  - Reduce the subsidy by increasing the price of premium gasoline $5.75 per litre effective from October 2, 2012.

- **Response:**
  - Substitution of Super gasoline for Premium
  - Switch to diesel powered vehicles
  - Growth in the illegal diesel export trade

- **Conclusion**
  - Subsidies militate against fuel substitution
  - Encourages illegal exports of subsidized diesel
The Way Forward
Market reality –
- Venezuelan push for market share
- Increased US Product exports

Increased oil consumption means:
- Greater debt,
- Price vulnerability
- Dependence reinforced by agreements facilitating oil purchases
Leveraging Oil

Way forward –
- Energy efficiency and conservation
- Electricity - Demand side and Supply side management
More cost effective option given:
- Shale oil and gas revolution
- Possibility of US LNG exports
- Increased gas trading
- Hemispheric delinking of oil and gas prices
Natural gas is one of the Region’s best alternatives (both economically and environmentally) for new power generating capacity, and under the baseline, gas-fired capacity would grow from 60 GW to more than 144 GW in 2030.

Rigoberto Ariel Yepez-García, Todd M. Johnson, and Luis Alberto Andrés, Meeting the Electricity Supply/Demand Balance in Latin America & the Caribbean, World Bank (2010)
Barriers to Gas Substitution

- High capital cost and debt levels
  - Caribbean estimates new capacity, Finance costs excluded (US $1,100-1,600/kW) i.e. US$1.1-1.6 million/MW
- Conflicting “best option” at country level (CNG, LNG Grid connection)
- Sovereignty vs regional cooperation
- Supply side constraints
- Market structure disparities
- Regulatory framework

Ref: Bailey, Jansen & Espinasa (2013) Pre-feasibility study of the potential market for natural gas as a fuel for power generation in the Caribbean
New Approach to Resource Diplomacy

- Leveraging Gas resources requires leadership from Trinidad and Tobago – Time of the essence –
  - US Lobby for US/Caribbean gas and product exports strategy

- Historically- An Insular approach to natural resources e.g. Still born Bauxite & Alumina projects of the 70s & 80s

- T & T’s focus - larger gas markets - US, Europe, South America, Dominican Republic and Puerto Rico
  - Caribbean Markets small

- State led or state enterprise led vs Small to medium enterprise investment – Large players may not consider them feasible.
Caribbean energy security of interest to extra regional players
The region may leverage its resources as a regional group or on an individualistic basis
Trinidad runs the risk of being marginalized in the Caribbean products market
There is still a role for Trinidad and Tobago in leading the transition to gas for electricity generation
This window will not be always open.
Thank You