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Leveraging Caribbean Oil and Gas Resources for Energy Efficiency

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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

Economy	Electricity Generation capacity (MW)	Liquid Fuel Dependence (%)	Fuel as a % of All-in Generation costs
Antigua & Barbuda	17.2	75.3	59
Bahamas	318	100	58
Barbados	157.4	100	59
Dominica	17.2	75.3	68
Dominican Republic	2353	52.6	56
Grenada	29.2	100	63
Guyana	100	100	59

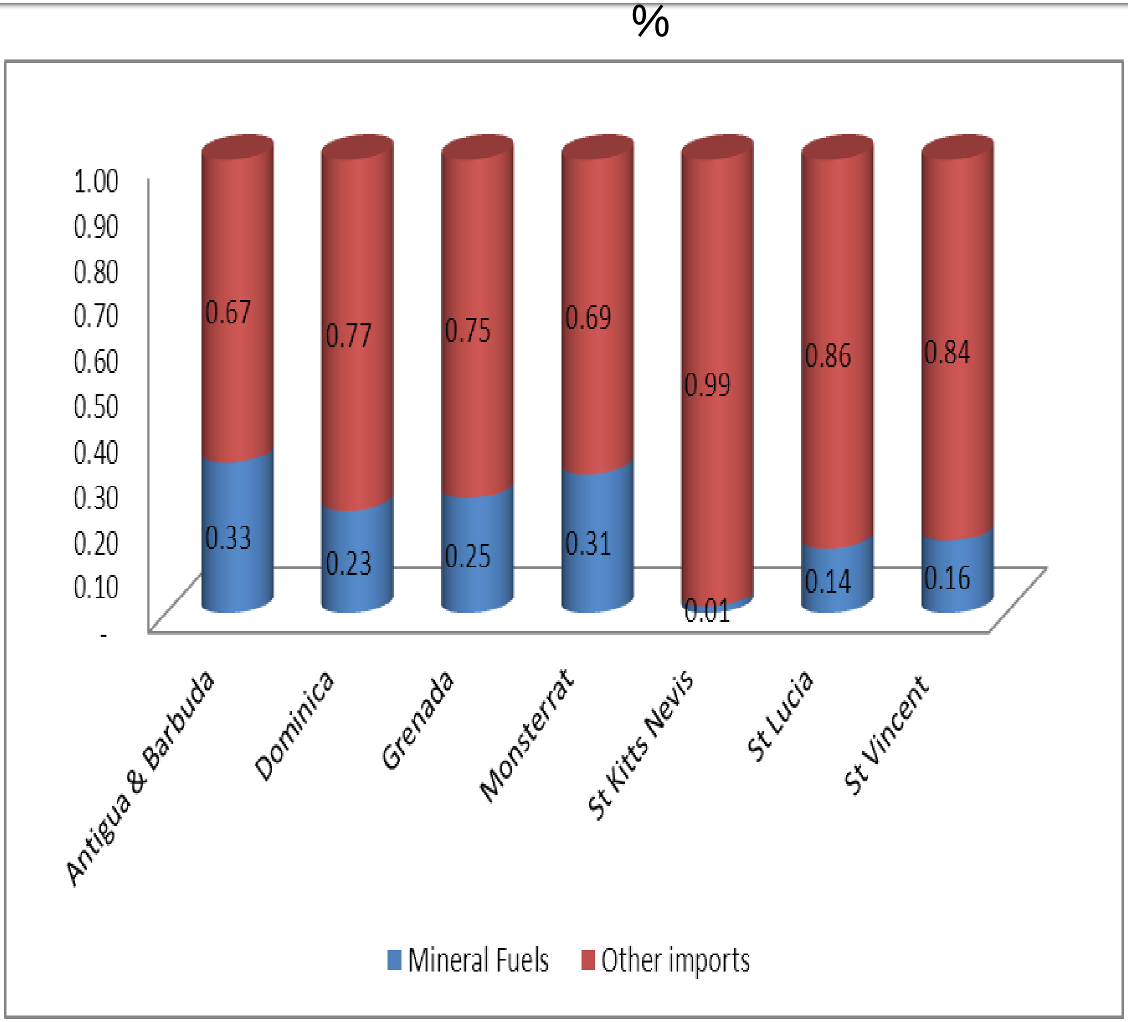
Source : Compiled from Bailey, Jansen & Espinasa (2013)

Caribbean Fuel Dependency & Vulnerability

Economy	Electricity Generation capacity (MW)	Liquid Fuel Dependence (%)	Fuel as a % of all-in Generation costs
Haiti	226	79.5	60
Jamaica	680	94.7	57
St Kitts	33	96.2	62
St Lucia	59.8	100	60
St Vincent & The Grenadines	25.7	88.1	63
Surinam	264	49.3	61
Trinidad & Tobago	1121	0.9	-

Source : Compiled from Bailey, Jansen & Espinasa (2013)

Mineral Fuel Imports to Total Imports - Selected Countries



Source: Compiled from ECCB Trade Data

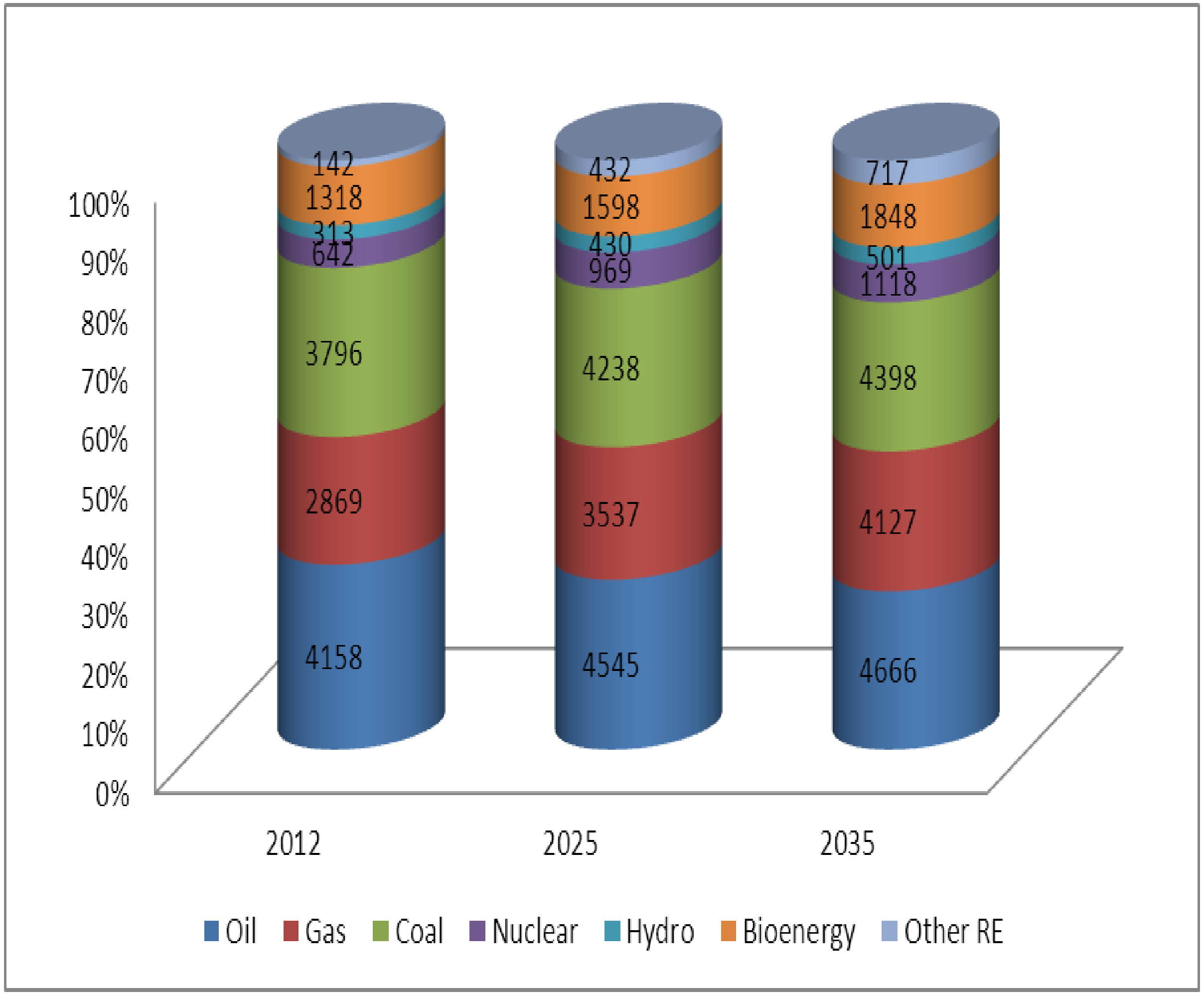
- For most OECS countries mineral fuels represent a significant share of imports

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

Million Tonnes of Oil Equivalent (Mtoe)



Source: IEA ,World Energy Investment Outlook 2014

- Oil will be around for a while yet at least 2035 BP, 2014)
- Oil & Gas 75% of the Energy Mix (IEA)

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

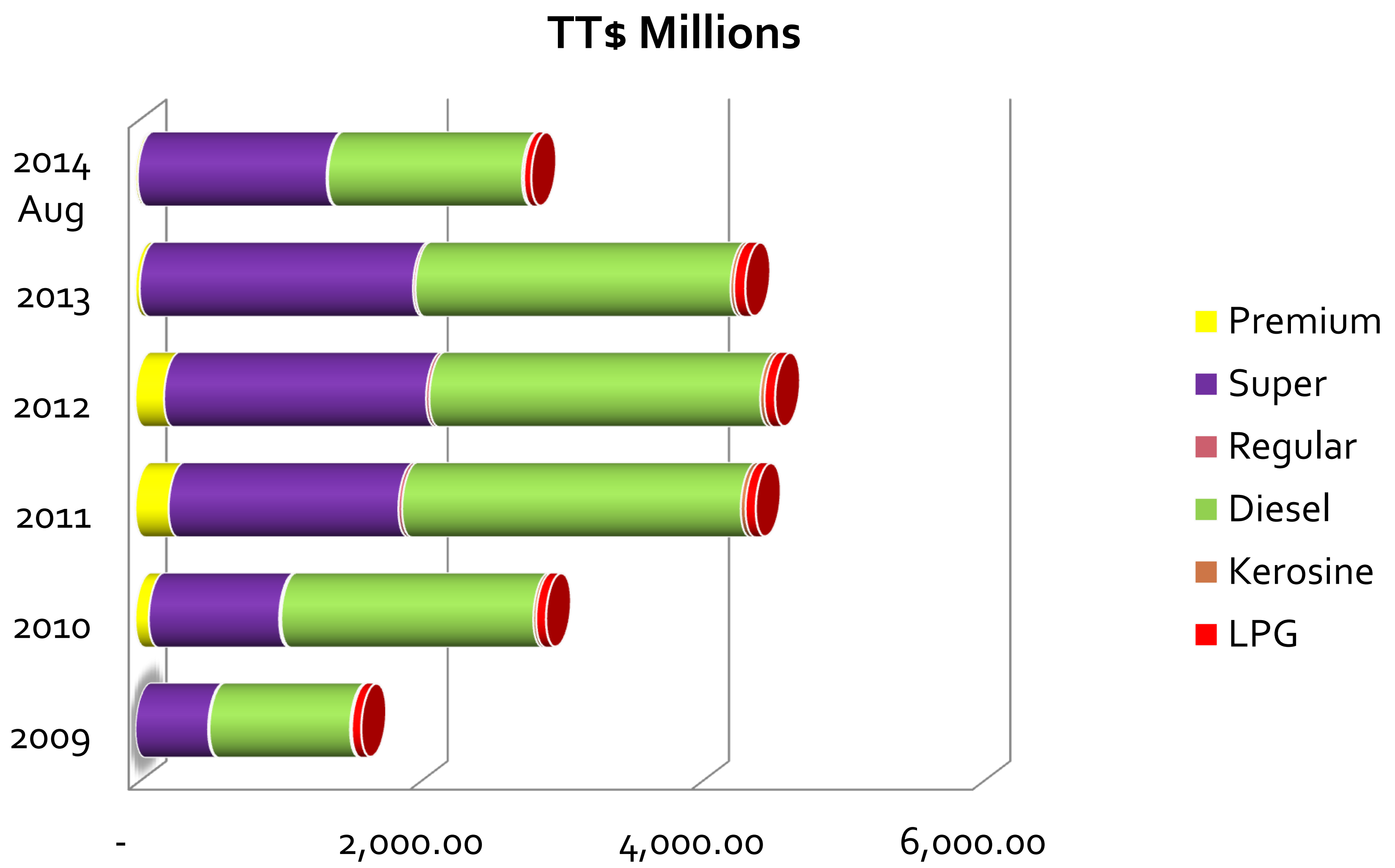
Energy Financing Arrangements

- 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



Impact of Attempts at Subsidy Reform

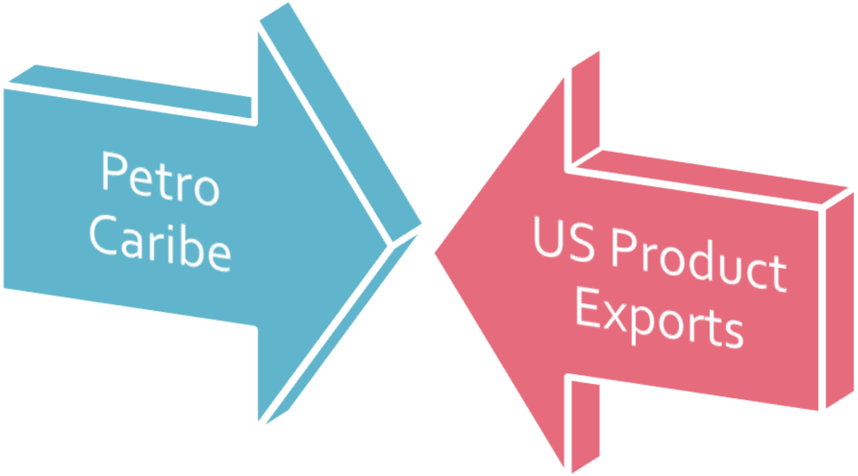
- **Initiative** :
  - Reduce the subsidy by increasing the price of premium gasoline $5.75 per litre effective from October 2, 2012.
- **Response**:
  - Substitution of Super gasoline for Premium
  - Switch to diesel powered vehicles
  - Growth in the illegal diesel export trade
- **Conclusion**
  Subsidies militate against fuel substitution
- Encourages illegal exports of subsidized diesel

The Way Forward

Leveraging Oil- The Reality

- 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

Leveraging Gas

- 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

The Case For Natural Gas

- 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$1.1-1.6million/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.

Conclusion

- 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