

Are there Prospects for Geothermal Development in the SIDS ?

Migara Jayawardena

Senior Energy Specialist

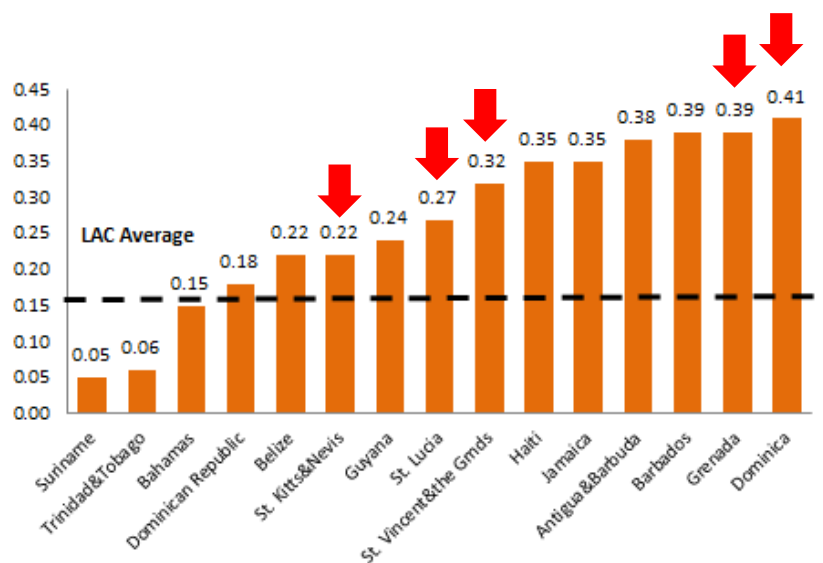
ESMAP Knowledge Exchange Event

June 17, 2015

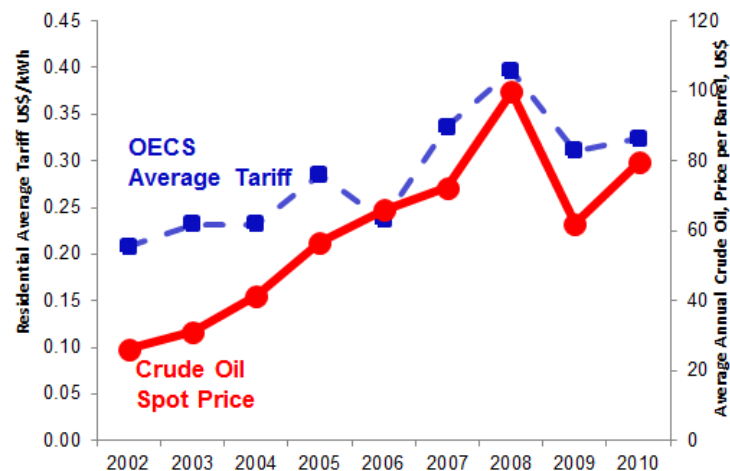
Vienna, Austria

High and Volatile Electricity Costs....

Average Electricity Tariffs in Select Caribbean Islands (in 2011)



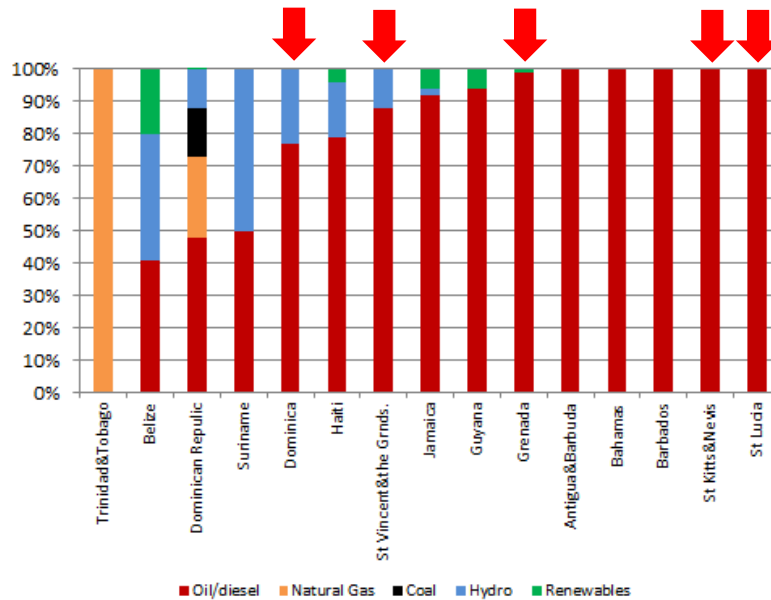
Average Residential Tariff in OECS and Oil Prices (2002-2010)



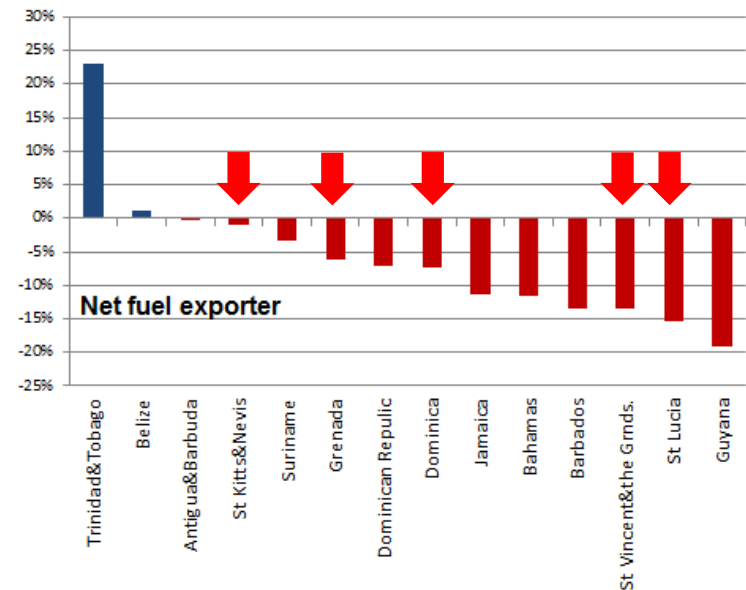
Creates hardships, erodes competitiveness, and stymies economic growth

...are Primarily Driven by Imported Fuel Oil in Power Generation Mix

Fossil Fuel Share (%) in Electricity Generation Mix in Select Caribbean Countries



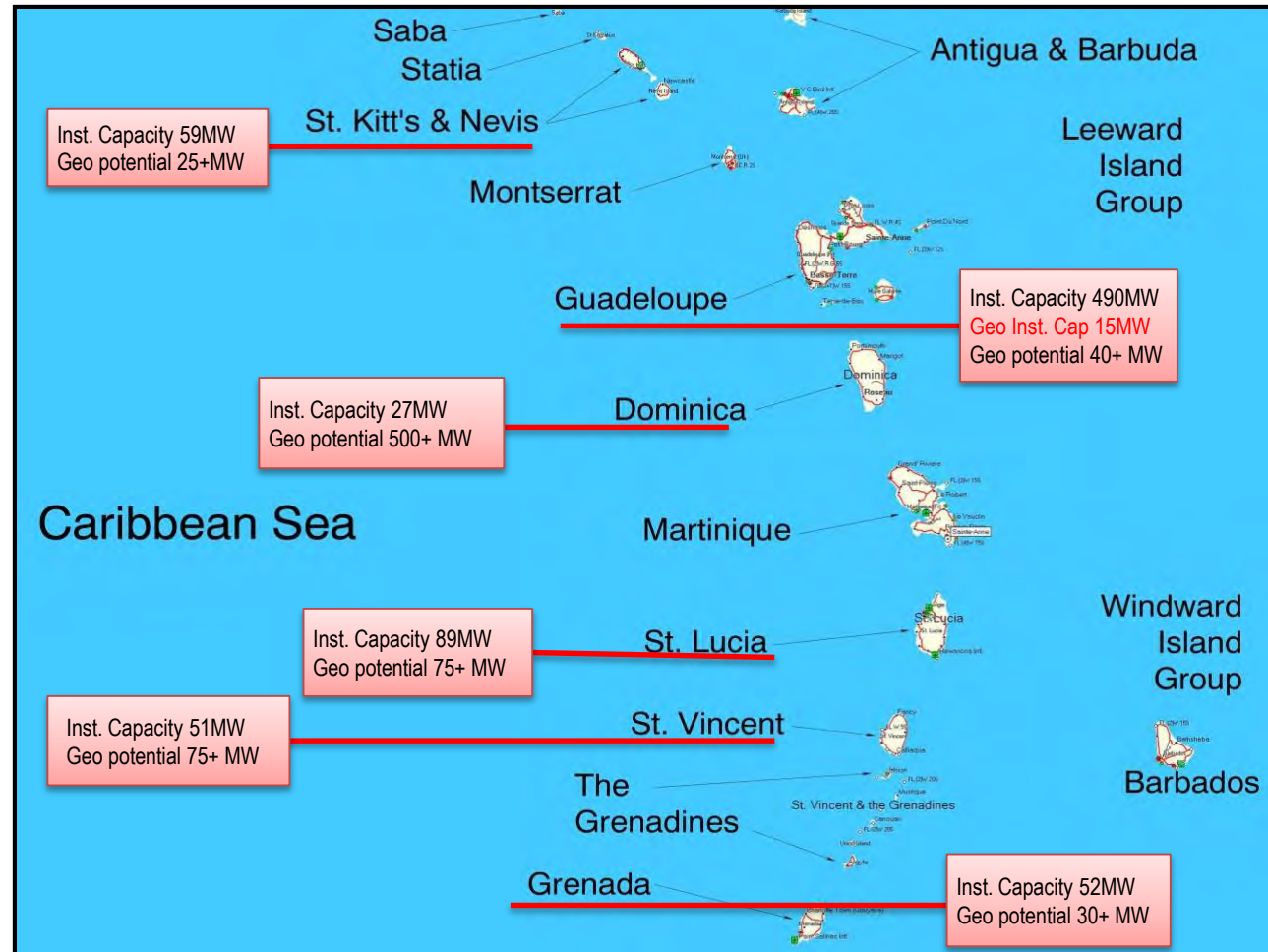
Net Fuel Imports Relative to GDP in Select Caribbean countries



Dependence on expensive fuel oil drives-up electricity costs, reliance on imports creates vulnerabilities

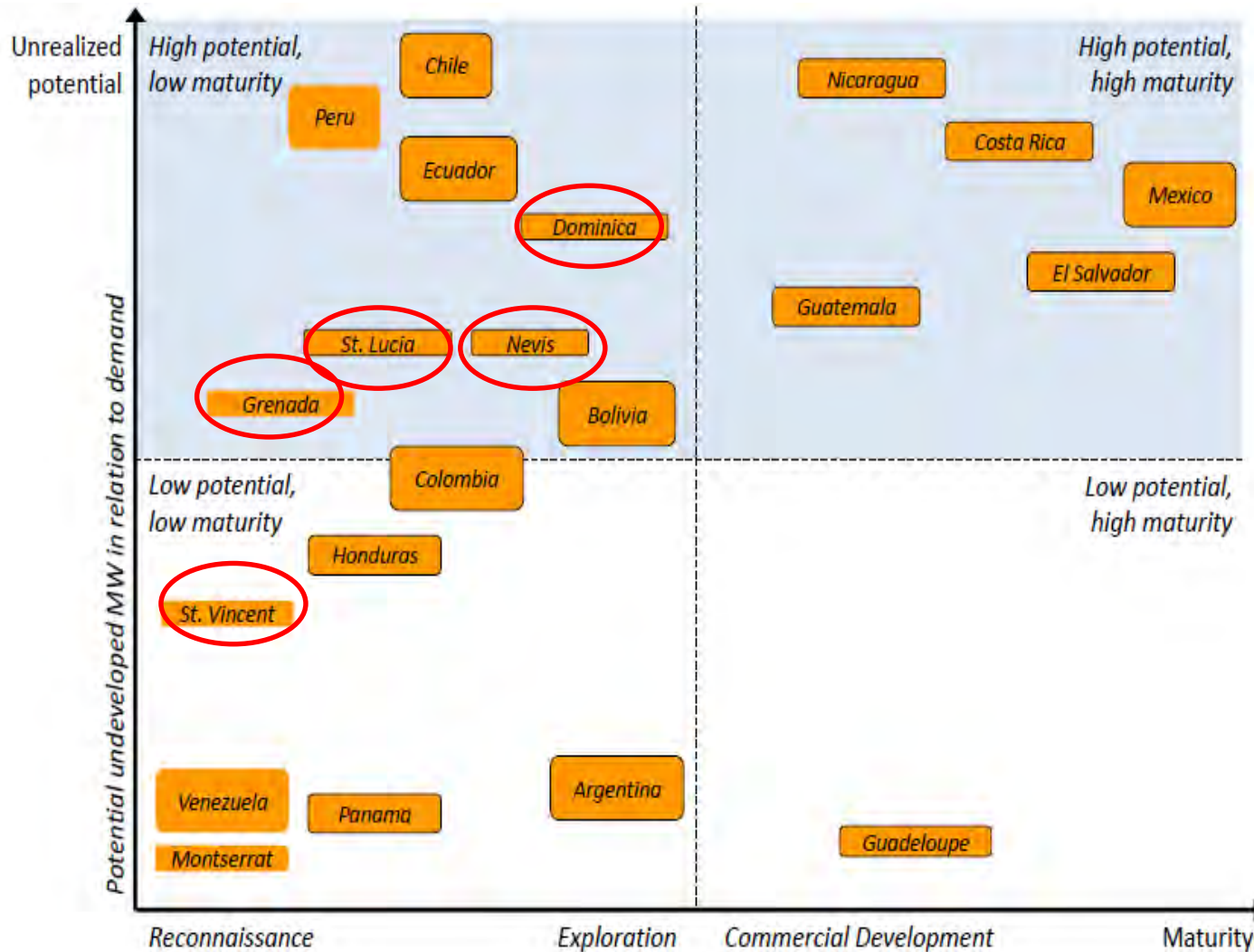
In OECS, there is Opportunity to Diversify and Shift from Fuel Oil/Diesel

- Reliable, 24/7 non-intermittent source of power
- Hedge against volatility of fossil-based fuels
- Indigenous, providing enhanced energy security
- Clean energy option with local and global environmental benefits

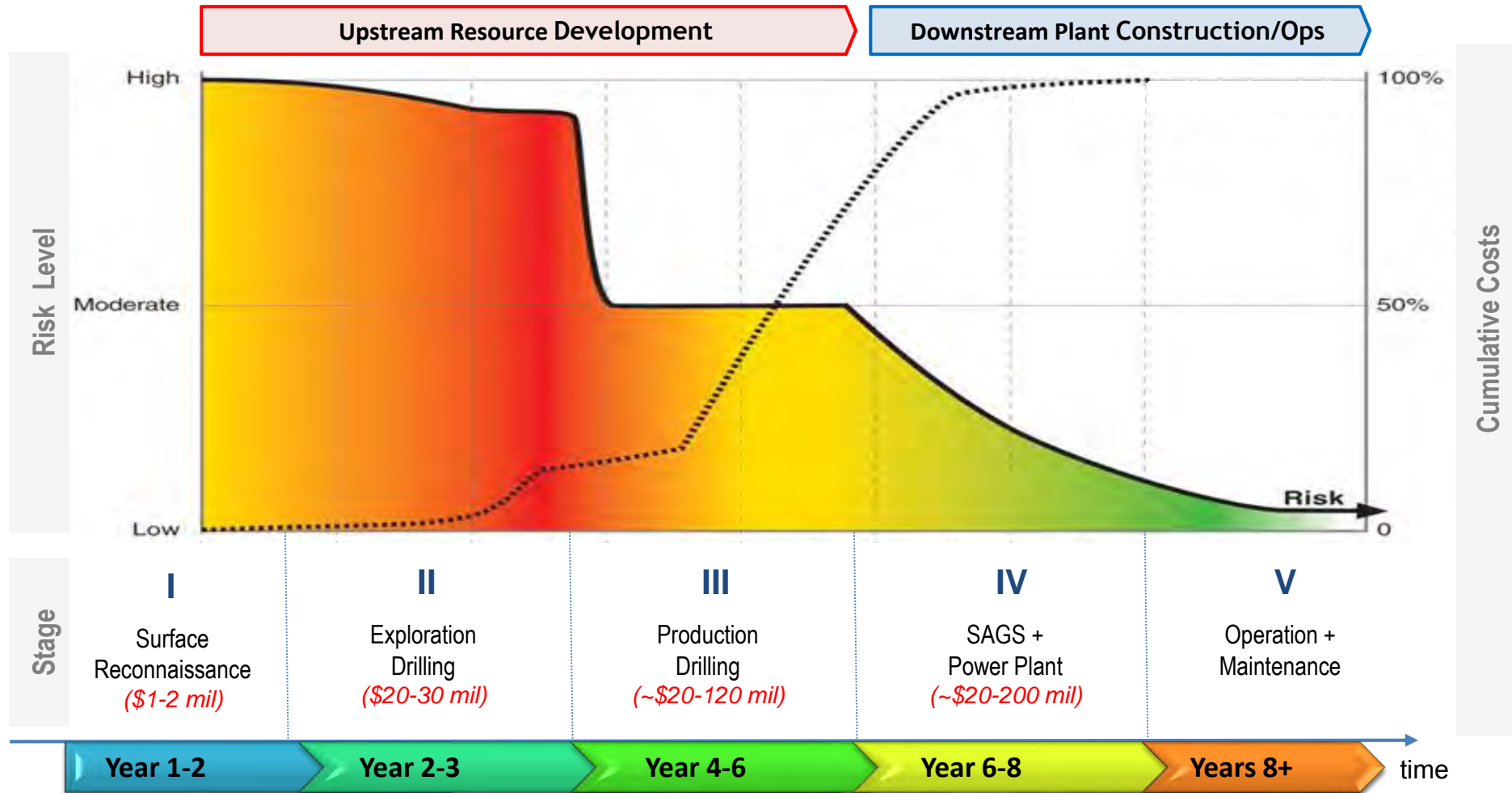


Total geothermal potential for the Caribbean is **745 + MW** which could potentially save approximately **1.3 million tCO2** per year of GHG emissions if it becomes operational

Several OECS Countries on Cusp of Commercializing Geothermal Developments



Stages and Risks of Geothermal Development



KEY CHALLENGE: Geothermal Development Risks



- *Geothermal resource risk*
- *Nascent sector in many SIDS countries*
- *Small scale markets*
- *Risks remain throughout development until power plant operation*

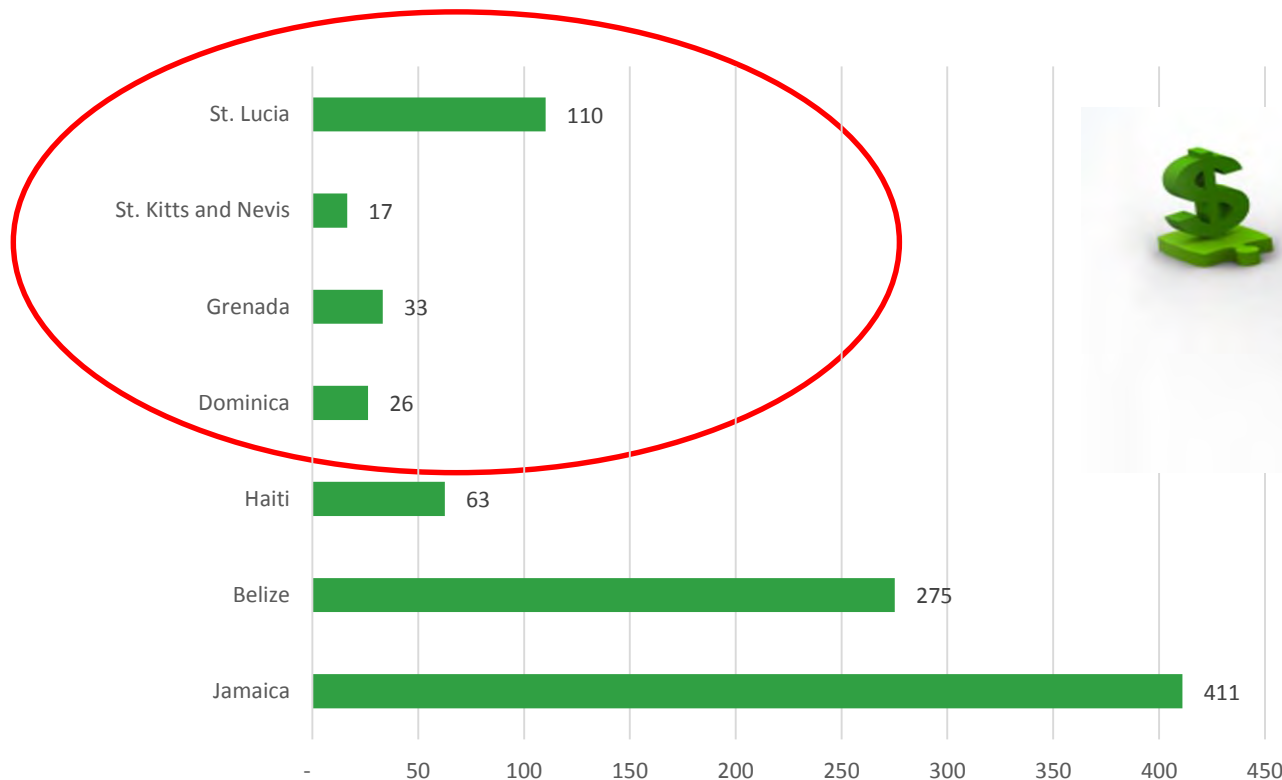
KEY CHALLENGE: Attracting Qualified Developers to Meet Technical and Financial Requirements

- *Limited domestic capacity*
 - *Lack of funding options*
-
- *Limited interest by qualified developers*
 - *Seek risk reduction and confidence to enter market*
 - *Power off-take uncertainty*
 - *Require high risk premiums*



KEY CHALLENGE: Limitations to Mobilizing Cost-Effective, Large-Scale Private Financing

Private Investment in Energy Sector for Select Caribbean Countries
1997- 2011 (US\$ million)



Sources: World Development Indicators, PPI Database, The World Bank, 2015

Under what conditions should SIDS develop geothermal?

