

Renewable Energy Nexus in the Caribbean Context



Presented by

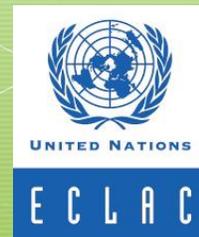
Willard Phillips

UNECLAC

at the

**Caribbean Workshop on Renewable Energy In Small Island
Developing States: How to Strengthen Resilience and Accelerate
Renewable Energy**

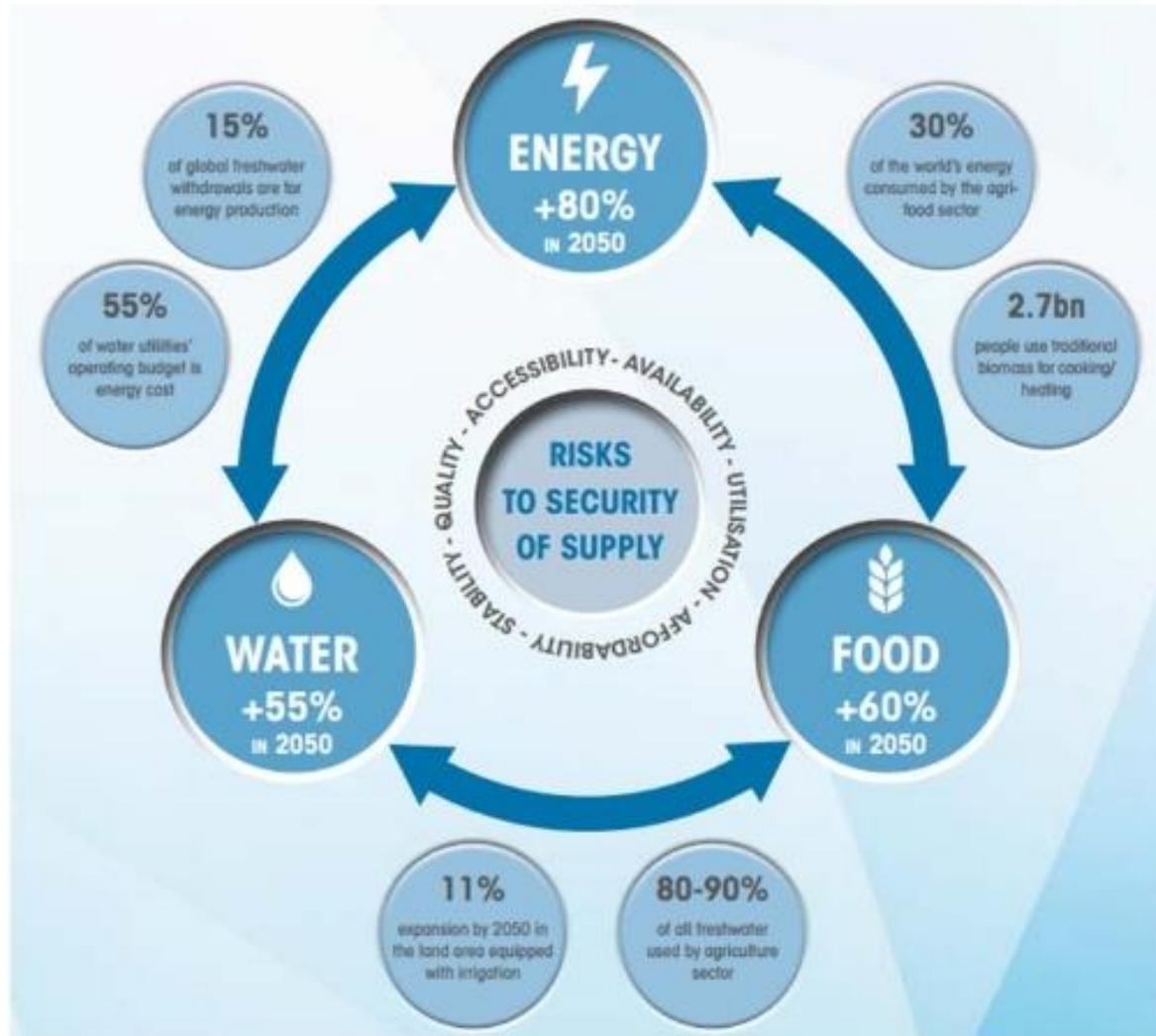
Aruba, 28 – 30 November, 2018



► Organization

- ❑ Nexus of Energy, Food and Water
- ❑ Caribbean Economic Challenges
- ❑ Caribbean Peculiarities
- ❑ Caribbean Opportunities
- ❑ Special Issue – Vulnerability, Resilience and RE
- ❑ Caribbean Success
- ❑ Conclusion

IRENA's Water, Energy, Food Nexus

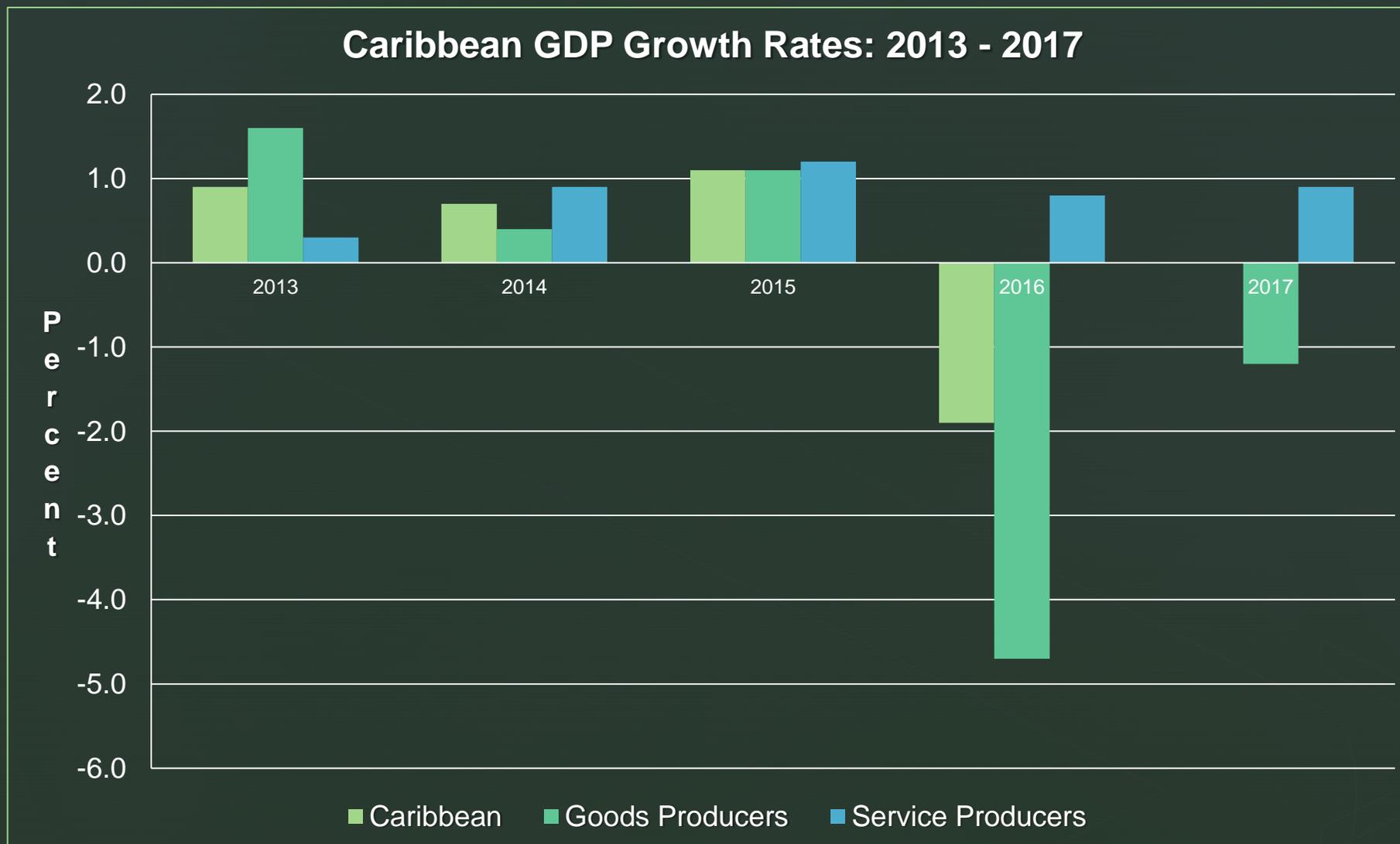


(from IRENA's *Renewable energy in the water, energy & food nexus*)

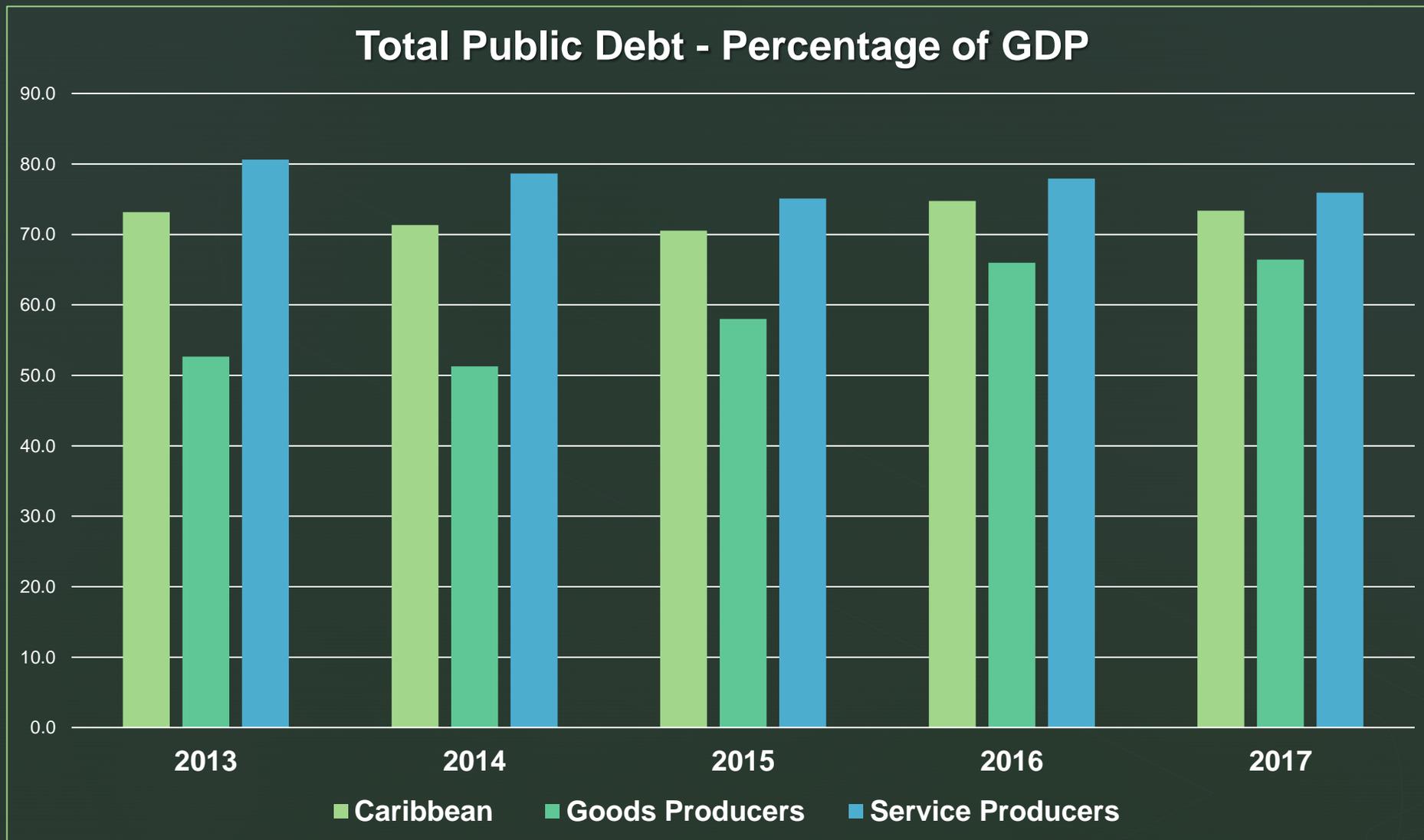
Caribbean Context: Economic Challenges

- ❑ Small Non-integrated Markets
- ❑ Growth
- ❑ Fiscal Circumstances
- ❑ Debt
- ❑ Foreign Direct Investment
- ❑ Trade and Balance of Payments

Caribbean Economic Challenges: Growth



Caribbean Economic Challenges: Debt

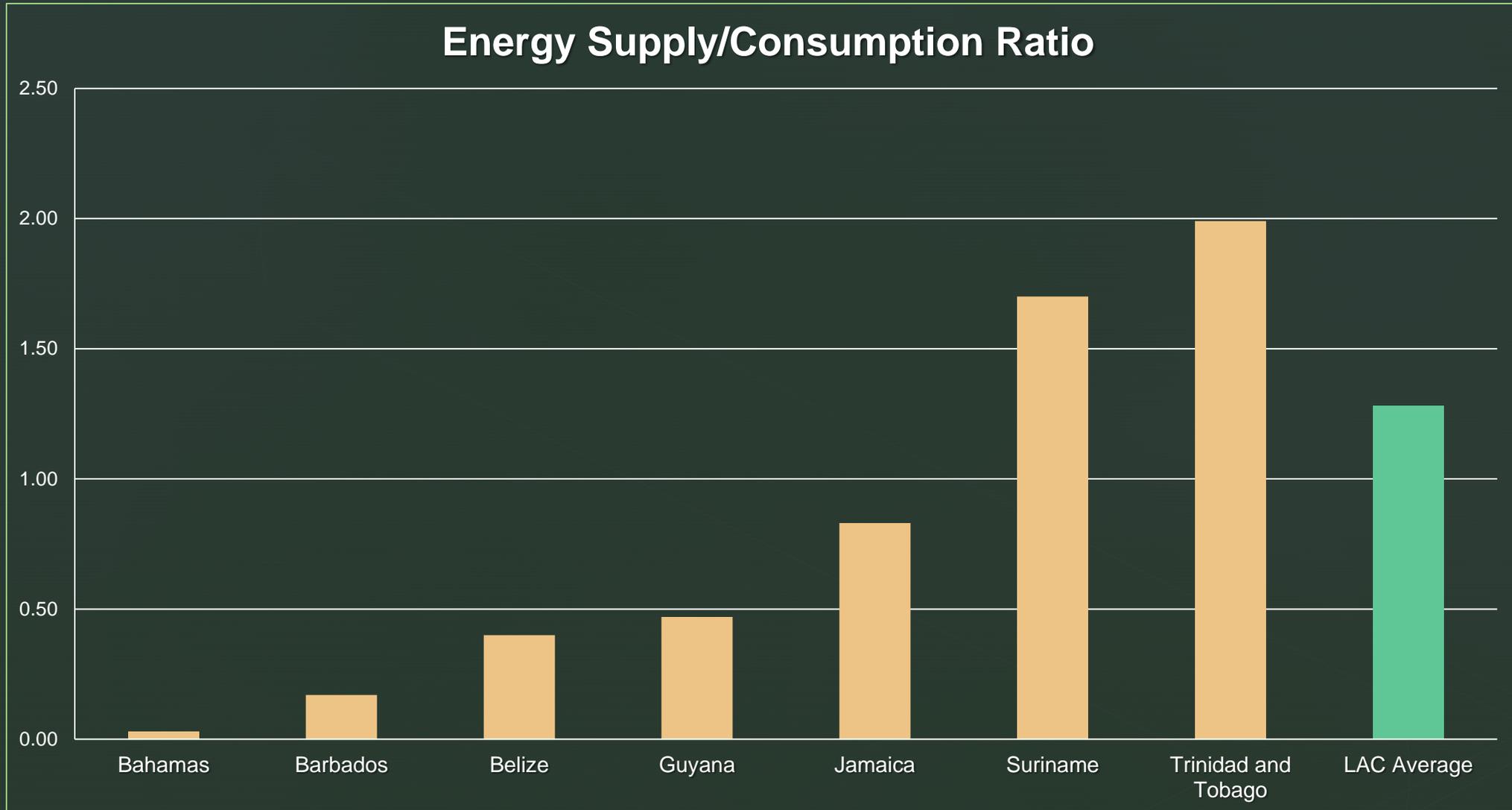


Caribbean Peculiarities: High Dependence on Energy and Food Imports

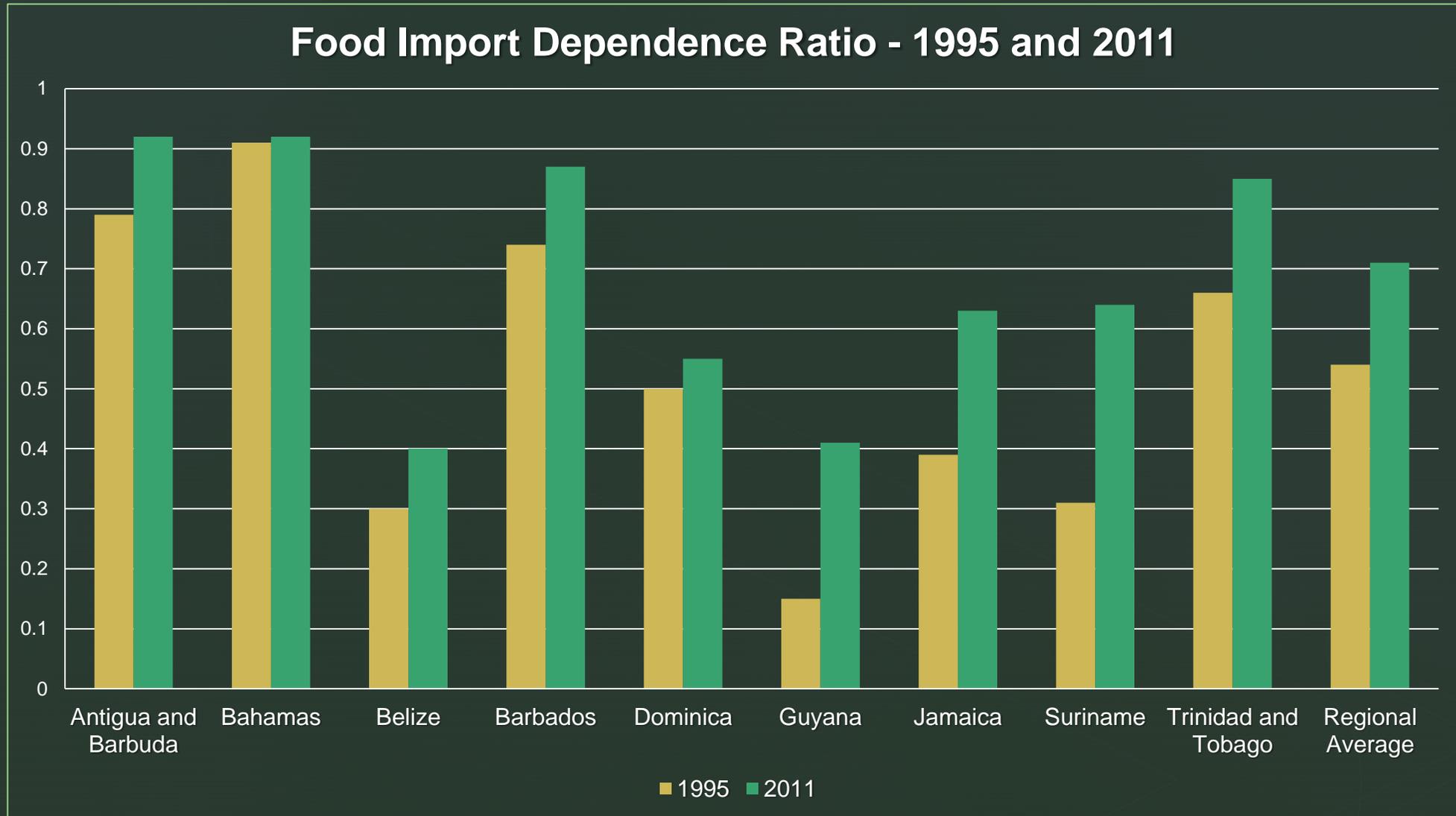
- ❑ Very little domestic agricultural production – except Jamaica, Guyana, Belize, Dominican Republic
- ❑ Limited energy resources – except Trinidad and Tobago, Guyana, Suriname, Belize?, Barbados?



Caribbean Peculiarities: High Dependence on Imported Energy



Caribbean Peculiarities: High Dependence on Imported Food



Caribbean Peculiarities: Water - High Energy Use for Desalination

- ❑ Desalination plants widely used in the Caribbean
- ❑ First used in the region in the 1920's. Sixty-eight new plants commissioned since 2007
- ❑ Use to supplement natural water availability in drier islands, or to meet rapidly growing water demand on others
- ❑ Current installed capacity – 780,000 cubic meters per day
- ❑ Energy is the biggest cost factor in desalination – up to 75% of operational costs
- ❑ Energy costs also high for traditional municipal water production and distribution
- ❑ Per capita water use high especially in tourism dependent economies



Caribbean Opportunity: High Renewable Energy Potential

- ❑ The Caribbean has abundant resources of sun, wind, geothermal, and limited hydro
- ❑ Has also been exploring Ocean Thermal Conversion
- ❑ Solar averages 5.46 KWh/M². Higher than Hawaii, California, Texas, Spain
- ❑ Wind averages 7 m/s. Equals Texas and California
- ❑ Significant Geothermal potential in Volcanic islands – SLY, DOM MTQ, SVG



Source: Schmidt and Sangermano , 2017

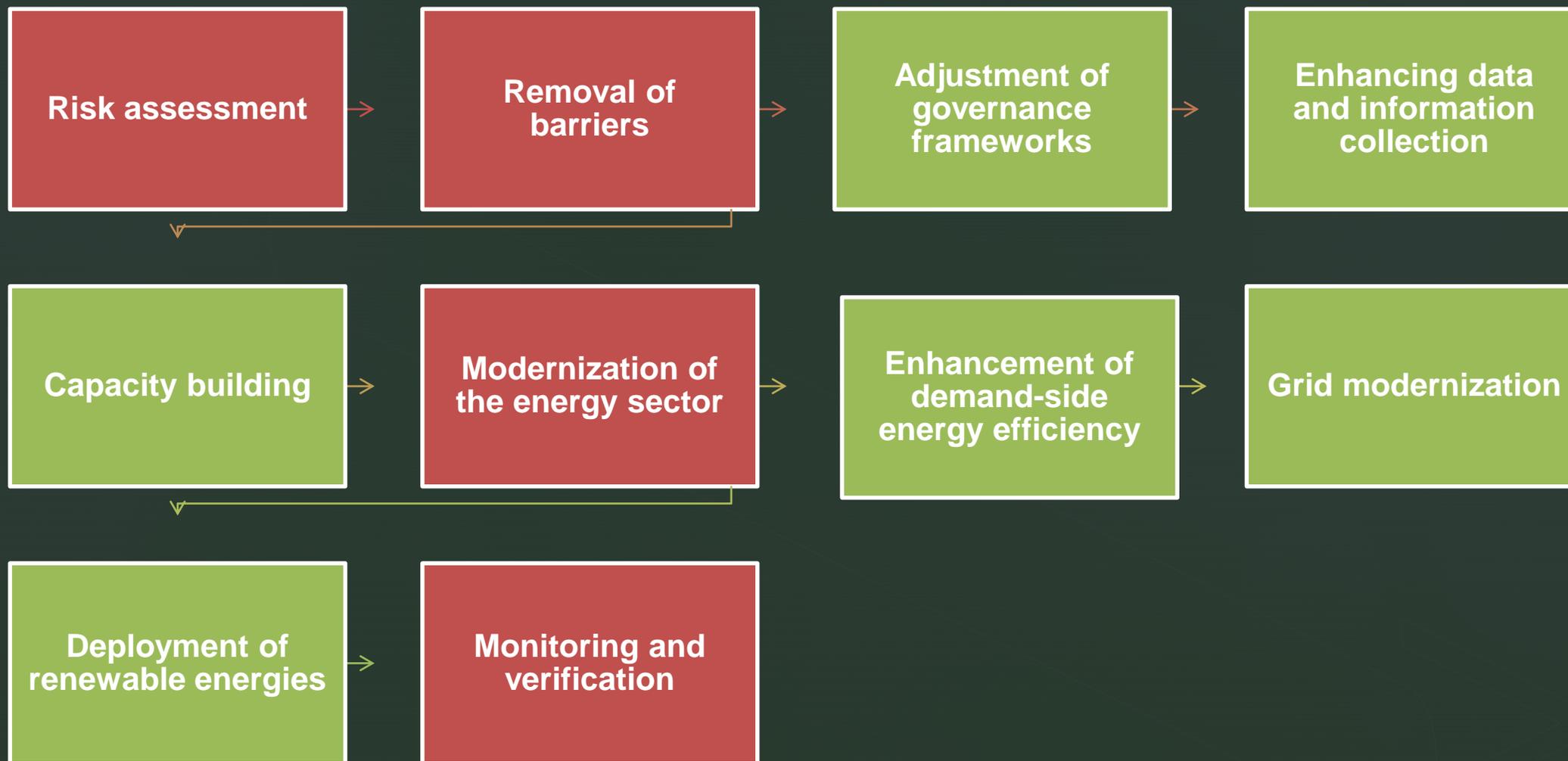
Caribbean Opportunity: Improving Strategic and Policy Framework for RE

Recently revised National Energy Policies now give priority to the development of RE in several Caribbean Countries:

- ❑ Antigua and Barbuda
- ❑ Barbados
- ❑ St. Lucia
- ❑ St. Kitts and Nevis
- ❑ Cayman Islands
- ❑ Jamaica
- ❑ Guyana
- ❑ Trinidad and Tobago

Special Issue: Vulnerability, Resilience and

RE



▶ **Caribbean Success**

- ❑ Solar Water Heating – Barbados
- ❑ Geothermal Energy – Guadeloupe
- ❑ Wind Energy – Jamaica, Aruba,
- ❑ Bio-fuels Jamaica
- ❑ Solar PV – Antigua and Barbuda, Aruba, Barbados, St. Lucia, St Kitts and Nevis

▶ Conclusion

The challenge of balancing the elements of the energy food and water nexus has been made more difficult by a number of structural and economic issues in the Caribbean. However renewable energy provides many prospects for overcoming these limitations.

THANK YOU!

