TRANSFORMATION HORIZONS FOR CARIBBEAN ENERGY SECURITY

JUNE 2025

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CARIBBEAN ENERGY CHAMBER

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CARICOM ENERGY SOURCES: OVERALL

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Secure, Affordable, Low-Carbon

	SHORT TERM (1-5 YEARS)	MEDIUM TERM (5-10 YEARS)	LONG TERM (>10 YEARS)
ENERGY EFFICIENCY	All countries: **develop & execute projects**		
SOLAR PV: DISTRIBUTED AND UTILITY SCALE	All countries: **develop & execute projects**		
WIND ONSHORE/OFFSHORE	All countries: assess resources then develop & execute **onshore** projects	ONSHORE & OFFSHORE	ONSHORE & OFFSHORE
GEOTHERMAL	Assess resources, develop & execute **optimal** project(s) for **OECS** country needs	**Connect all OECS islands** via submarine cable, if commercially feasible	Assess & develop **mega scale projects for export**
HYDROGEN	Develop & execute **niche** projects: Barbados (storage) and T&T (waste heat)	Develop & execute **niche** projects: Barbados (storage) and T&T (waste heat)	All countries: develop & execute projects if there is a source of low-cost power (< 3 USc/KWh) & offtake
LNG / FLARED GAS		Flared gas from Venezuela or gas from Guyana, Trinidad and Suriname	Flared gas from Venezuela or gas from Guyana, Trinidad and Suriname
GREEN / KHAKI AMMONIA			T&T if source of low-cost power (<3 USc/KWh) from geothermal or offshore wind or flared gas
SMR (NUCLEAR)			Larger electrical demand islands

CARICOM ENERGY SOURCES: Short Term

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Secure, Affordable, Low-Carbon

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SHORT TERM:

Key Energy Efficiency (EE) Takeaways: **"ENERGY EFFICIENCY IS THE FIRST FUEL"**

ENERGY EFFICIENCY AS IMPORTANT AS ROLLING OUT RENEWABLES GENERATION

USE ENERGY SERVICE COMPANY "ESCO" MODEL TO IMPLEMENT WHICH IS PROVEN INTERNATIONALLY

ALLOWS USE OF LOCAL CAPITAL WITH GUARANTEES FROM DEVELOPMENT BANKS

CARICOM ENERGY SOURCES: Medium and Long Term

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MEDIUM TERM:

T&T Wind Potential Scenarios

OPTION 1: "RESILIENCE"

APPROX USD 0.45 BILLION PROJECT

OPTION 2: "BIG BUT NOT AUDACIOUS"

APPROX USD 1 BILLION PROJECT

OPTION 3: "BLUE SKY"

APPROX USD 18 BILLION PROJECT

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MEDIUM TERM:

TT Wind Energy Generation/Potential for Green H2

OPTION 1: "RESILIENCE"

ON-SHORE WIND IS POSSIBLE FOR 3-6 USC/KWHR TO USE IN COMMUNITIES IN SHORT TERM

(APPROX USD 450 MILLION FOR 300 MW)

OPTION 2: "BIG BUT NOT AUDACIOUS"

ON-SHORE WIND FOR SOME GREEN HYDROGEN PRODUCTION (>USD 1 BILLION)

- 300 MW PROJECT WITH 75 4MW TURBINES NEEDS LAND OF 100 SQ KM
- ONLY SUPPLIES APPROX 10% GREEN HYDROGEN FOR AN AMMONIA PLANT
- PRODUCES EXPENSIVE HYDROGEN AT APPROX 4 USD/KG
- EQUIV NATURAL GAS COST 6.5 USD/ MMBTU AND CARBON TAXES AT 100 USD/MT
- CRITICAL ISSUE IS AVAILABILITY OF LAND (THAT ALSO HAS WIND)

OPTION 2: "BLUE SKY"

OFF-SHORE WIND IS MORE EXPENSIVE THAN ON-SHORE BUT HELPS WITH LAND SCARCITY ISSUE FOR GREEN H2 FOR FOUR 1,800 MT PER DAY NH3 PLANTS

(> USD 18 BILLION)

ISSUE IS HIGH COST HYDROGEN PRODUCED AND T&T DOWNSTREAM SECTOR CAN ONLY TAKE 20% GREEN H2 PER AMMONIA PLANT

MEDIUM - LONG TERM:

Potential Geothermal Scenarios

OPTION 1: "RESILIENCE"	OPTION 2: "BIG BUT NOT AUDACIOUS"	OPTION 3: "BLUE SKY"
APPROX USD 3 BILLION PROJECT	APPROX USD 10-15 BILLION PROJECT	APPROX USD 40 BILLION PROJECT

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MEDIUM - LONG TERM:

Geothermal Potential Pathways

OPTION 1: "RESILIENCE"

GIVES EASTERN CARIBBEAN ENERGY SECURITY, AFFORDABILITY AND LOW CARBON TRANSITION NEEDS

WITH EXPORT VIA A HVDC SUB-SEA CABLE TO ANTIGUA AND MONTSERRAT FROM NEVIS

SURPLUS ELECTRICITY CAN BE SOLD TO CRUISE SHIPS DURING BERTHING OR USED FOR DESALINATION (USD 3 BILLION)

OPTION 2: "BIG BUT NOT AUDACIOUS"

GIVES EASTERN CARIBBEAN AND BARBADOS ENERGY SECURITY, AFFORDABILITY AND LOW CARBON TRANSITION NEEDS

WITH A LIMITED SURPLUS FOR EXPORT TO OTHER ISLANDS (EG T&T)

SURPLUS ELECTRICITY CAN BE SOLD TO CRUISE SHIPS DURING BERTHING OR USED FOR DESALINATION

ELECTRICAL POWER SUPPLY RESILIENCE WILL BE ENHANCED WITH AN INTER-ISLAND INTERCONNECTING SUB-SEA HVDC GRID (USD 10-15 BILLION)

OPTION 2: "BLUE SKY"

DREAM BIG. GIVES EASTERN CARIBBEAN AND BARBADOS ENERGY SECURITY, AFFORDABILITY AND LOW CARBON TRANSITION NEEDS

EXPORT SURPLUS ENERGY TO PRODUCE GREEN HYDROGEN AND GREEN AMMONIA IN TRINIDAD AND TOBAGO

IN COUNTRY SURPLUS ELECTRICITY CAN BE SOLD TO CRUISE SHIPS DURING BERTHING OR USED FOR DESALINATION

ELECTRICAL POWER SUPPLY RESILIENCE WILL BE ENHANCED WITH AN INTER-ISLAND INTERCONNECTING SUB-SEA HVDC GRID (>USD 40 BILLION)

ISSUE IS HIGH COST HYDROGEN PRODUCED AND T&T DOWNSTREAM CAN ONLY TAKE 20% GREEN H2 PER AMMONIA PLANT

MEDIUM - LONG TERM:

Venezuelan Flare/Vented Natural Gas/Methane for Downstream

SIGNIFICANTLY REDUCES CO2 EQUIVALENT EMISSIONS IN COMPLETE COMBUSTION PROCESS

REASONABLE INVESTMENT SIZE

CAN BE IMPLEMENTED IN MEDIUM TERM (NO DOWNSTREAM IMPLEMENTATION BARRIERS LIKE GREEN HYDROGEN)

PROVIDES EXPORTS TO EU, ASIA AND OTHER COUNTRIES

POTENTIAL SOURCE OF “KHAKI” / GREEN AMMONIA IF GREEN CREDITS CAN BE STRUCTURED

LONG TERM:

Small Modular Nuclear Reactors (SMR)

ZERO CARBON EMMISIONS AND ENERGY INTENSIVE FOR DOWNSTREAM USE

SMR TECHNOLOGY NOT WIDELY AVAILABLE UNTIL AFTER 2030-2035

CURRENTLY TOO EXPENSIVE BUT WILL EVOLVE TO BE COST COMPETITIVE

COMPLEX TO DEPLOY TECHNOLOGY TO SIDS AND WILL REQUIRE SIGNIFICANT SAFETY ASSURANCES WHICH IS LENGTHY PROCESS

CRITICAL ENABLERS

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CO-ORDINATE PROJECTS TO CAPTURE ECONOMIES OF SCALE (EG OECS)

KNOWLEDGE SHARING

REGULATORY FRAMEWORKS (ADOPTION OF MIN REGULATORY FRAMEWORK)

GRID UPGRADES

CREDIT GUARANTEES

INNOVATIVE FINANCING ARRANGEMENTS (BLENDING) AND INSTRUMENTS

LOW-COST FINANCING

CRITICAL IMPLEMENTATION MECHANISMS

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CONCISE AND FOCUSED COUNTRY ENERGY STRATEGIES

CO-ORDINATED POLITICAL/ COMMERCIAL/ ACADEMIC LEADERSHIP ON IMPLEMENTATION

CREATE A CARIBBEAN ENERGY COMMISSIONER WITH A FULL TIME TEAM

FUND AND MANAGE PROCUREMENT PROCESSES TO IDENTIFY REALISTIC POTENTIAL PARTNERS

CREATE PUBLIC AND PRIVATE UTILITY PARTNERSHIPS

CO-ORDINATION OF ACCESS TO AND BLENDING OF FINANCE NATIONAL/ INTERNATIONAL

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APPENDICES

The presentation and appendices will be available on our website:
www.caribbeanenergychamber.org

APPENDICES:
SHORT TERM

APPENDICES:
MEDIUM TERM

APPENDICES:
LONG TERM

THANK YOU