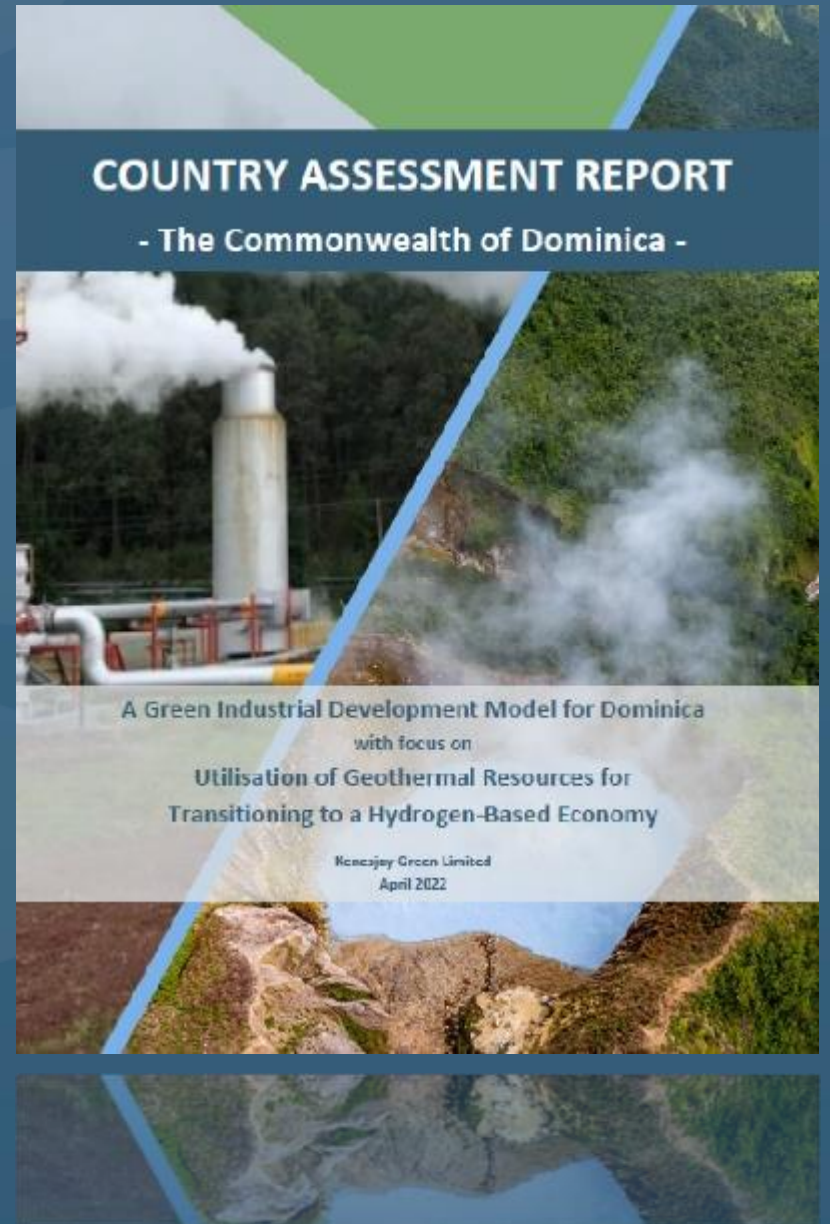


Country Assessment Report Overview

Presentation to the CREAD & Stakeholder Community in
Dominica

April 2022



Electrical Engineer by training

Experience in:

- Education/Training
- Oil Refining
- Renewables / Agro Solar
- Carbon Capture

Project Principals

- Metals (Al / Si) - Pr



Philip Julien

Chairman, KGL
Project Sponsor

Chemical Engineer
by training

Experience in:

- Oil/Gas
- Aluminum
- Power/Renwables
- Petrochemicals
- Project Development

Previously held
positions:

- Worley
- National Energy
- Alutrint
- Hatch



Navin Boodhai

Director, KGL
Project Lead

KGL comprise a team of some 20 Professionals/Engineers with experience in Industrial Development, Project Financing, Front-End-Engineering & Design (FEED), Project Execution & Plant Operations

Development

Previously held positions:

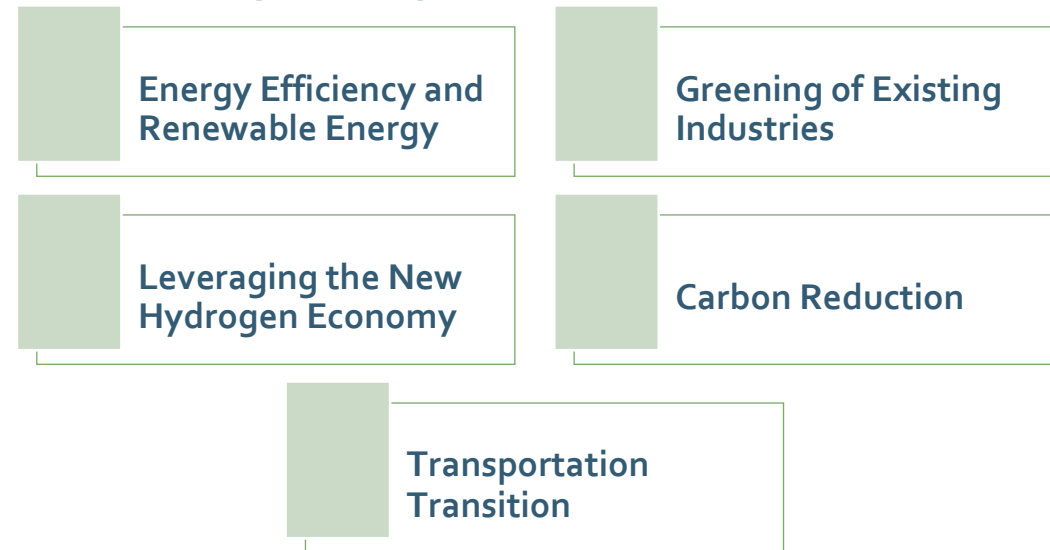
- UWI/UTT
- National Training Agency
- Ministry of Science, Technology & Tertiary Education
- Alutrint

Introducing Kenesjay Green

- An **energy revolution company**

actively supporting initiatives that can achieve regional goals for reduced carbon emissions, a greener energy sector and sustainable environmental resources

- KGL delivers research capability, **advisory services and investment opportunities** for transforming and decarbonizing existing brownfield energy-based industries, and new green initiatives throughout the **energy value chain**



Our Values (the four Ps)



People

We are focused on investing and improving the lives of our people by creating skills and new job opportunities



Planet

We are guided by values of preservation and sustainability of our environment while promoting development



Progress

We are taking action as a business leader by enabling growth and driving innovation in the global energy space



Partnership

We are building a network where ideas and opportunities improve the value of doing business both locally and regionally



The KGL Value-add

An indigenous, Caribbean-based entity

130+ years cumulative leadership experience in the energy sector

project development, engineering management, business development, plant operations, power and energy, and renewables

Established to champion the Caribbean's energy transition in a manner that creates first-mover advantages for the respective territories



Report Overview



Basis for Country Assessment

Memorandum of Understanding signed between KGL and CREAD at COP26

Phase I – Country Assessment

- Determine actions and roadmap to rapidly **monetise hydrogen opportunities** in the Commonwealth of Dominica
- Provide **market insights** related to the identified opportunities
- **Assess the economic impact of potential key priority investments** towards accelerating the transition

to a low carbon economy and the capture of additional green investments

Phase II (Potential)

- Formal agreement with the GOCD and other partners and stakeholders to pursue bankable investment opportunities:
 - Industrial Development Mapping
 - Location Analysis

- Capital, Investments and Facilitation
- Environmental, Social & Governance (ESG) Planning
- Workforce Planning

Key Inputs – Meetings & Discussions

- Ministry of Planning, Economic Development, Climate Resilience, Sustainable Development and Renewable Energy
- Ministry of Public Works and The Digital Economy
- Dominica Air and Sea Ports Authority
- Dominica Geothermal Development Company
- Department of Land and Surveys
- CREAD
- Green Climate Fund
- DOMLEC
- Independent Regulatory Commission

- Dominica Association of Industry and Commerce
- Private Sector and Consultant and Representatives

Key Inputs – Documentation

- Draft National Energy Policy of the Commonwealth of Dominica (2014)
- Readiness Proposal with the Ministry of Planning and Economic
- National Resilience Development Development for Commonwealth of Dominica for the Green Climate Fund Strategy 2030
- Climate Resilience and Recovery Plan • Geothermal Resources Development Act 2016, ACT 12 of 2016

- Portsmouth Citizens Planning Commission
- Physical Planning Act, 2002 (Act No. 5 of 1992)
- Dominica Sustainable Land Management Project Community Vulnerability Maps and Adaptation Plans
- Electricity Supply Act, 2006 (No. 10 of 2006)
- Academic and International Agency Research Papers Contributions
- Intended Nationally Determined Contributions

Report Focus

- Dominica's geothermal resource has long attracted interest.
 - But, its use as a driver for wide-ranging, green-oriented economic diversification has not been extensively considered.
- Implementation of the resilience strategy has focused attention on possible utilisation of the resource
 - Report considers geothermal resources around Portsmouth
 - It integrates findings from sector-specific studies with bestpractice for realising green industrial development opportunities
 - Considers the development of a green hydrogen pathway, and possible trade in green electrons, catalysing green energy integration in the Region

Snapshot

60+ Pages

9 Chapters

32 Figures

6 Tables

8 Appendices

50+ Sources

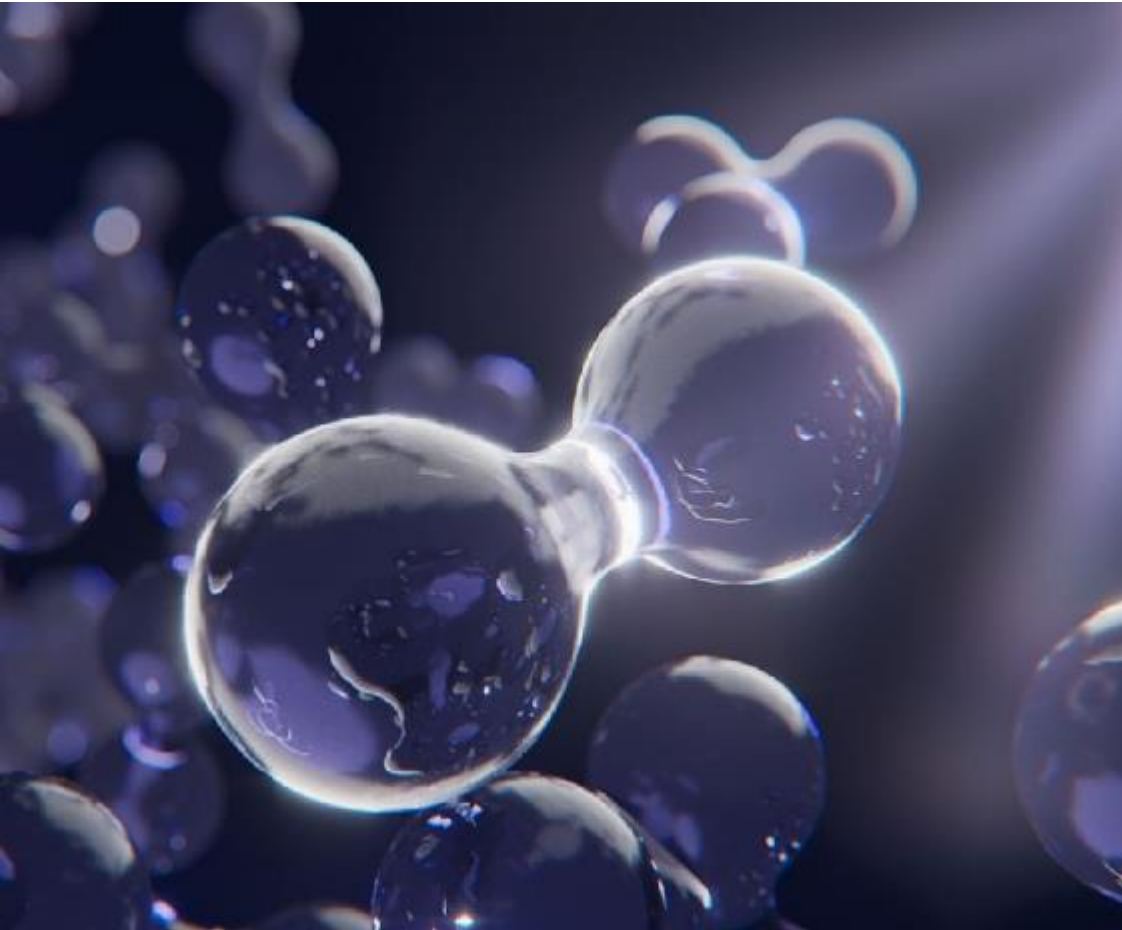


Context and Framework



Why Hydrogen?

– Hydrogen is key to achieving NET ZERO



- It is a clean fuel, producing only water when consumed
- Can be produced from RE (solar, wind, geothermal, hydro), with a range of applications – domestic, commercial,
- Is an energy carrier that can store, move, and deliver energy produced from other sources and locations
 - H₂ could supply up to 25% of the world's energy needs by 2050
 - Predicted to become a 10 trillion USD addressable market by 2050
- Several countries have published national strategies, including Australia, Chile, Germany, the EU, Japan, New Zealand, Portugal, Spain and South Korea
- Green Hydrogen Catapult Initiative launched to increase production of green hydrogen 50-fold over next six years
 - Founding Partners: ACWA Power (Saudi Arabia), CWP Renewables (Australia), Envision (China), Iberdrola (Spain), Ørsted (Denmark), Snam

industrial

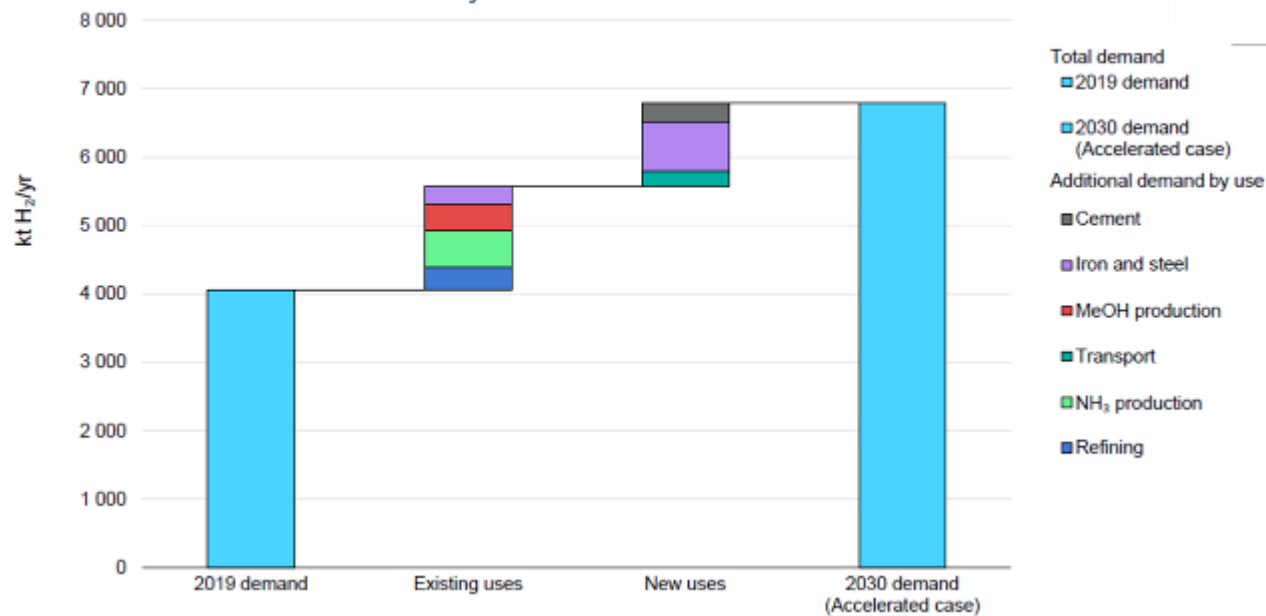
(Italy), Yara (Norway)

Source: Goldman Sachs; US Department of Energy

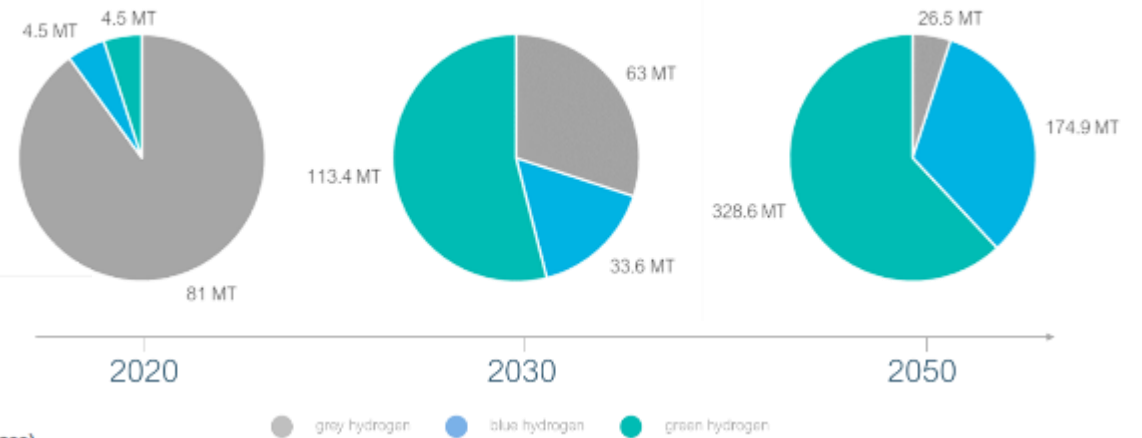
The Green Hydrogen Pathway

Current H₂ production is primarily from natural gas reforming (producing GHGs)

Demand Projections for Latin America



green hydrogen predicted to supply majority by 2030



Future H₂ production will primarily be from electrolysis driven by renewable energy



A Regional Benchmark for Industrial Green Hydrogen Production

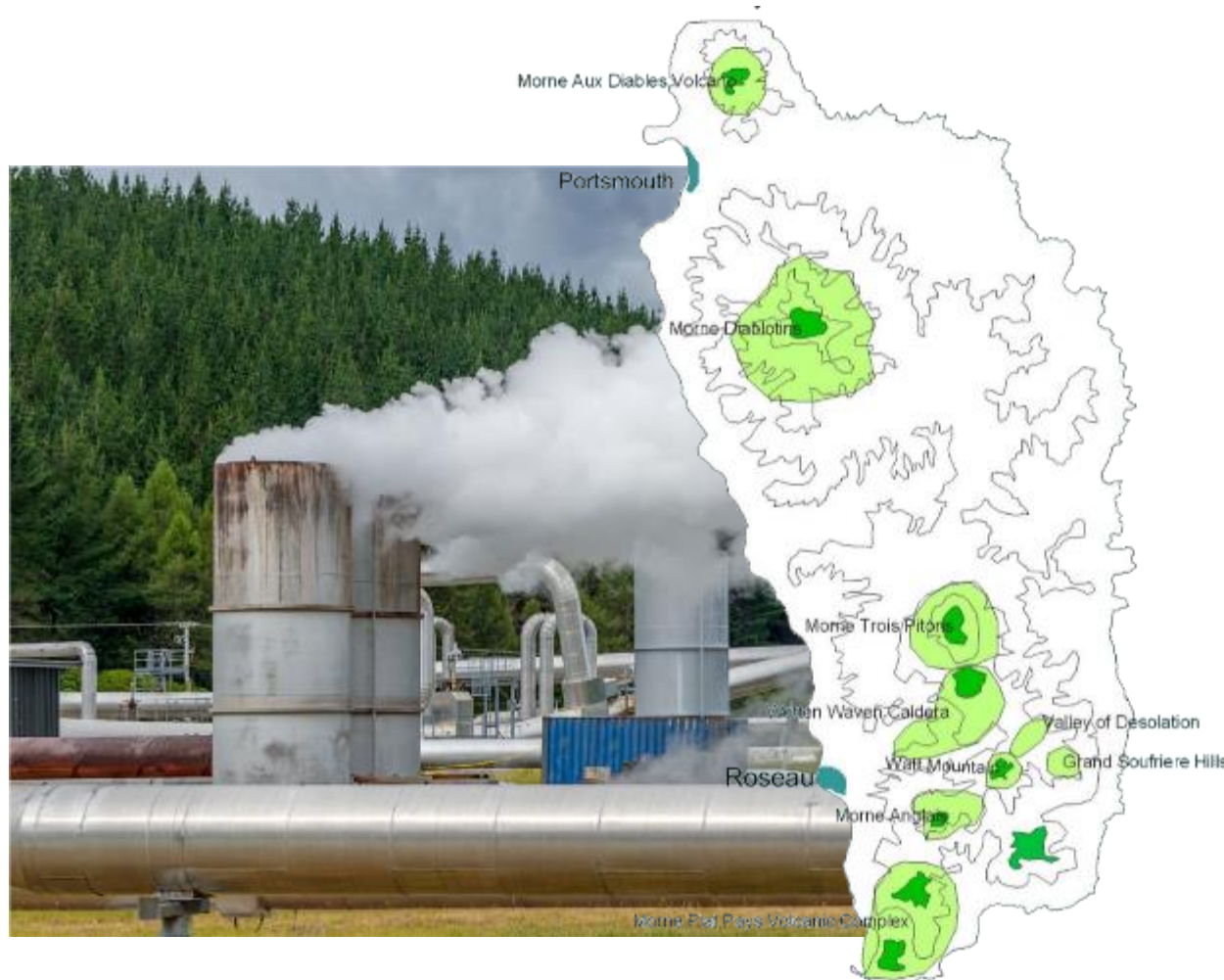
Supply of Carbon Neutral and Green Hydrogen produced via the electrolysis of water to the TrinGen ammonia facilities, utilising power generated from a solar facility and 'waste heat' via combined cycle power plants



A PROJECT OF

Kenesjay
GREEN

Renewable Energy Potential



- 1390MW Geothermal (estimated)
 - Highest Geothermal potential in the OECS and CARICOM
- Highest total RE potential among the Windward Islands

A Model for Sustainability and Climate Resilience



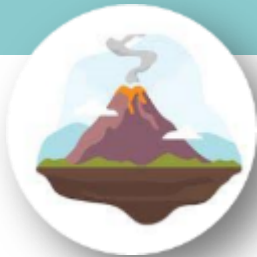
Strong Communities



Sustainable Economy



Well-planned & Durable Infrastructure



Geological Resources



Fresh Water



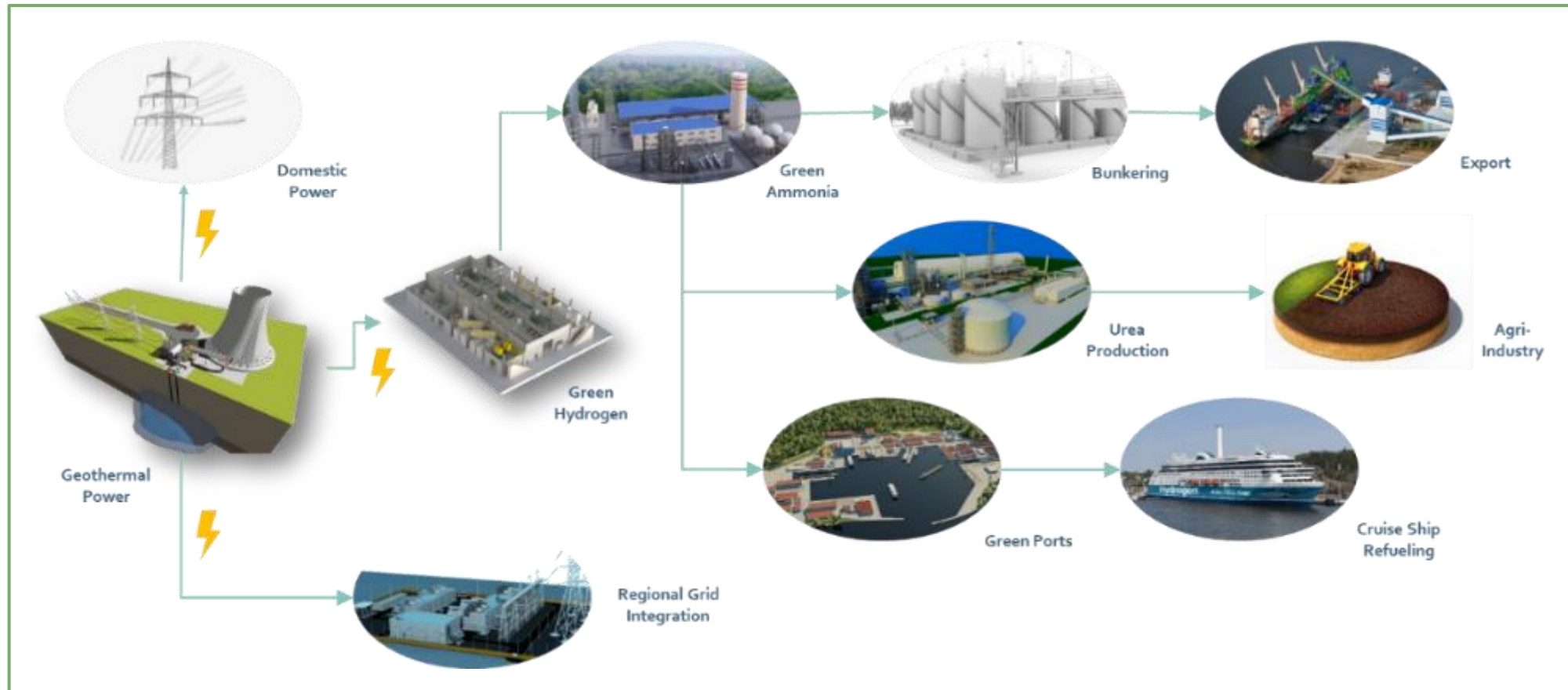
Blue Economy



Green Economy

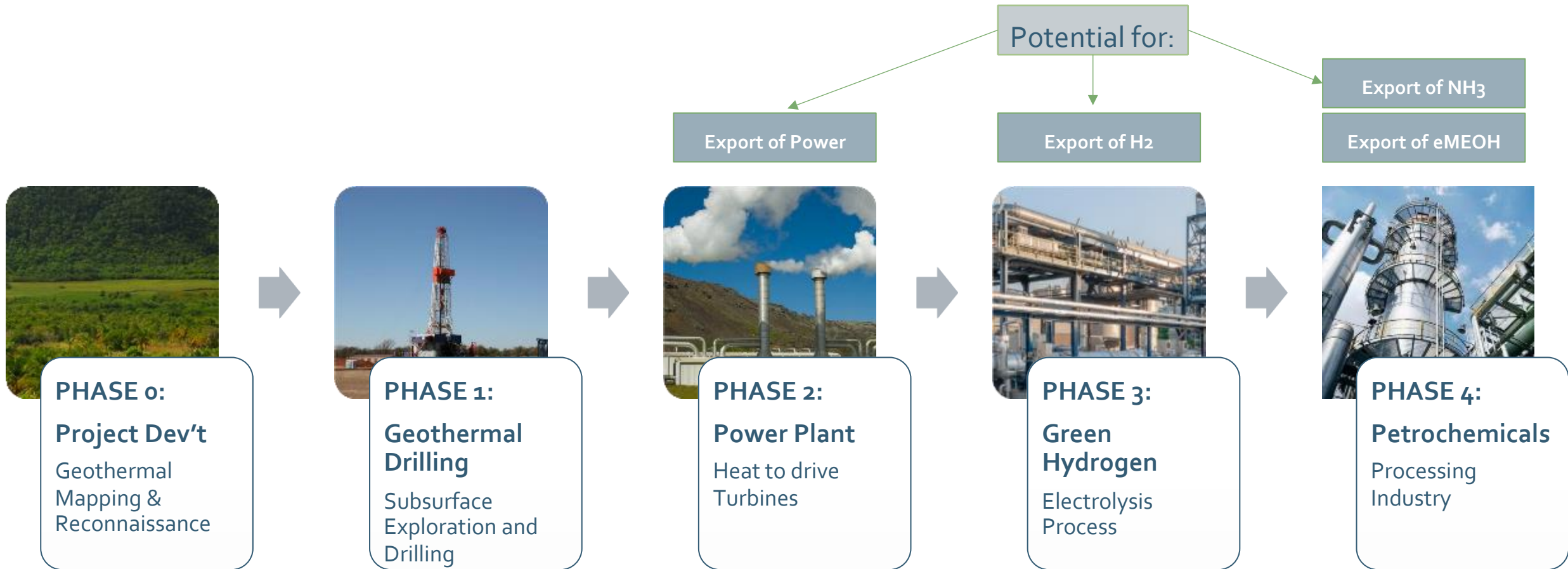


The Geothermal/Hydrogen Opportunity



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The Dominica Integrated G2H2 Value Chain Investment



The Opportunities for Dominica

Green Industrial Eco Parks (GIEP)

SECTORS	DESCRIPTION
Green Port & Ship Refuelling Hubs	Investing in green ports will ensure environmentally sound and sustainable operations, including low emission renewable fuels for ocean going vessels like green ammonia/methanol, cargo-handling equipment, green power, and e-mobility as part of the business model. Producing long-term agricultural crops and livestock while preserving the natural
Sustainable Agriculture	environment, reducing erosion, preserving water and using bio-fertilizer and pesticides such as those derived from carbon-free ammonia thus decarbonising the food value chain.
Data Processing	The largest purchaser of renewable energy today are high power consumption data centres.
High-Tech Facilities	Geothermal power, as baseload renewable power can support the tech industry to improve its energy efficiency.
	Ammonia is used primarily for fertilizer with the future generation of “green” ammonia from green hydrogen as a carbon free clean fuel source can be and Derivatives of ammonia include production of plastics, textiles, pharmaceuticals, pesticides, dyes and other chemicals.

SECTORS	DESCRIPTION
 E-Methanol and Synthetic Renewable Fuels	Methanol is used to manufacture products such as plastics, paints, automotive parts, construction materials, and as a clean energy to fuel vehicles, buses, ships, fuel cells, and open flame equipment.
 Global Hub for Training	Dominica has the opportunity to develop a workforce with skills to develop low carbon and climate resilient industries. Training can be developed in areas such as renewable energy, green infrastructure, sustainable transport, utilities management and waste management.
 Green Eco-Tourism	With proper policies in place across the tourism value chain, Dominica can promote green tourism as a sustainable product. Initiatives can include recycling programs, bio cleaning supplies, use of more sustainable materials instead of plastic, green transport options, water-conservation programs and maintenance of natural environments.
	used to generate electricity,

Opportunities for New Business Generation

- Industrial Park Management and Maintenance Services
- Electricity distribution concept, substations, co-generation plant
- General Industrial Maintenance and Technology Supply and Installation

Engineering Services



- Land Surveying and Geomatics
- Housing, Planning and Urban Design Architecture and Maintenance
- Civil Works, Landscaping, Buffer Zones Management and Forestry Management

Spatial Planning



- Ports, warehouses, distribution centres
- Bunkering Facilities and Terminal Handling
- Transportation Services

Logistics Services



- Power Management, Operations & Maintenance
- Water Management, Operations & Maintenance
- Telecommunications
- Renewable Technology Infrastructure

Utilities Management



- Industrial and hazardous waste management
- Security and emergency response services
- Disaster management
- Occupational Health

OSH/Environment Management Services



- Workshops
- Technical Services
- Training
- Consulting
- Apprenticeships
- STEM Programmes
- PLAR Programmes
- HR Outsourcing

Human Development



- Public/Social Services
- Job and Training Centres
- Community Development
- CSR Initiatives
- Agriculture & Food
- Small Business Development

Community Development

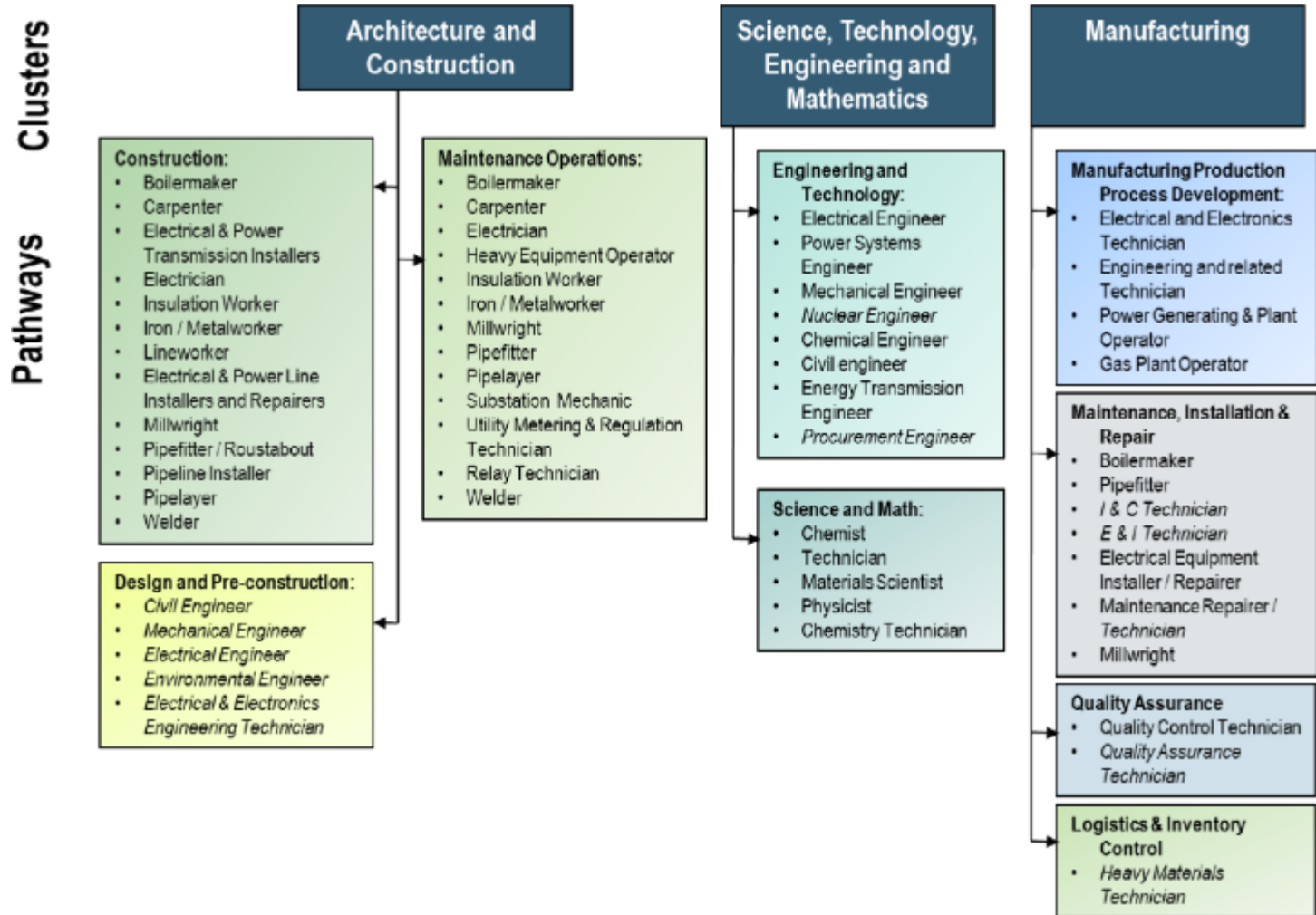


Dominica has an opportunity to develop an ecosystem for entrepreneurial action, promoting local business investments in technology, building capacity and export in both products and services

The private sector will be the primary agent of change with contributions to stimulate economic growth and innovation that are responsive to market needs

decades

Employment and Training Opportunities– Energy Cluster



- Green industries will drive employment in developed countries over the next two
- Green sustainable jobs will
 - more skilled employee,
 - safer work environment,
 - higher compensation than jobs
- Dominica’s training system must build, attract and lead to:

in similar sectors

retain talent

Next Steps:

- Geothermal Assessment / Resource Mapping (jointly)
- Interconnection Assessment (Local / Regional Grid)
- Green Eco-Industrial Park Infrastructure
 - Land Identification/acquisition
- Green Hydrogen (H₂) Facility
- Green Ammonia Facility
- Downstream Uses of Ammonia
 - Green Port

Geothermal Energy Can Catalyse Regional Energy Integration

- Framework established under the Eastern Caribbean Geothermal Development Project (Geo-Caraïbes)
 - supported by several multi-national partners
 - objective of catalysing multiple commercial geothermal projects and interisland electricity transmission
- Unmet demand exists in nearby Martinique and Guadeloupe
- T&T's significant and captive petrochemical industries are also a ready market for green electrons or feedstock to decarbonise their outputs





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