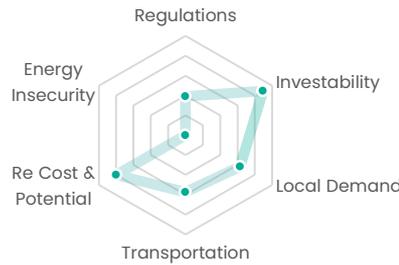
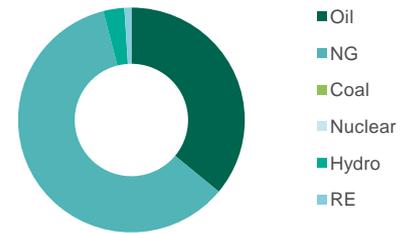


GDP - USD (bn):	<b>421</b>
GDP per capita - USD:	<b>43,103</b>
Land area ('000 km2):	<b>71</b>
Population density (per km <sup>2</sup> ):	<b>136</b>
Grid emissions factor (gCO <sub>2</sub> /kWh):	<b>433</b>

Hydrogen Drivers Matrix



Primary Energy Mix



## 2.0 Regulatory commitment

- Committed to net zero by 2050
- Govt establishing public-private & cross-border hydrogen alliances
- Hydrogen strategy expected in 2022

## 2.9 Transportation

- Ammonia most likely form of export for green hydrogen
- Port of Fujairah potentially a hub for hydrogen export

## 4.5 "Investability"

- Rated AA by S&P
- 16th in WB Ease of Doing Business

## 4.0 RE cost and potential

- World class solar resources at record low costs
- Wind resources not yet developed and below average

## 3.2 Local demand potential

- Global aviation hub with e-fuel leadership aspirations
- 8th busiest container port globally
- Some refinery and aluminium volumes

## 0.0 Energy security

- n/a – net energy exporter

## Several announced initiatives capitalize on existing hydrogen production, fuel infrastructure, and strong solar resource

The UAE intends to be one of the world's lowest-cost and largest producers of clean hydrogen and is in the process of updating its 2050 national strategy to reflect its hydrogen ambitions. Select GREs, including Abu Dhabi National Oil Company (ADNOC), have been mandated to explore hydrogen opportunities and establish the UAE's position in the new sector. In early 2021, the Abu Dhabi Hydrogen Alliance, comprising Mubadala Investment Company, Abu Dhabi Holding Company (ADQ) and the Ministry of Energy and Infrastructure, was formed to accelerate these plans. Existing world class fuel shipping infrastructure, such as the UAE's Port of Fujairah, the world's third largest bunkering hub, offers significant synergies in the development of hydrogen export facilities. The country's hydrogen ambitions are in line with its announcement in October 2021 of its commitment to net zero by 2050, the first country to declare it within the Gulf Cooperation Council countries. A detailed hydrogen roadmap and investment plan have yet to be announced, but high-level Government efforts to establish public-private and international alliances are underway.

### Waste-to-hydrogen

Bee'ah, a UAE-based waste company, is developing a USD 180m, 6,500 tons/year waste-to-hydrogen facility slated to be commissioned in 2023, that will fuel its own waste collection vehicle fleet.

### Aviation fuel and Siemens partnership

In early 2021, Siemens signed an MoU with Mubadala for partnership on green

hydrogen, manufacturing, and synthetic fuels, including a solar-powered demonstration plant in Masdar City. UAE's Etihad Airways is the first airline in the Middle East to announce net-zero carbon emissions by 2050, and is exploring, with Masdar and Marubeni, the potential production and use of synthetic aviation fuel.

### Blue hydrogen ambition

ADNOC, the country's NOC, currently producing 300ktpa of grey hydrogen, is keen to leverage existing infrastructure and commercial-scale CCUS to become a global clean hydrogen player. It already operates the world's first commercial CCS project on a steel plant and plans to add a second CCS plant to its portfolio. ADNOC will spend USD122bn over the next five years to ramp up its oil-production capacity to 5m b/d by 2030, from 4m b/d now. The funding includes unspecified volumes for developing hydrogen.

### Building alliances in Asia

ADNOC announced a joint study agreement with two Japanese companies – INPEX and JERA, and the Japanese government agency, the Japan Oil, Gas and Metals National Corporation (JOGMEC), to explore the commercial potential of blue ammonia production in the UAE. ADNOC is also in dialogue with India in relation to hydrogen collaboration, and in March, agreed to collaborate with Korea's GS on new value chain development for blue hydrogen and carrier fuels, such as blue ammonia, in Abu Dhabi.