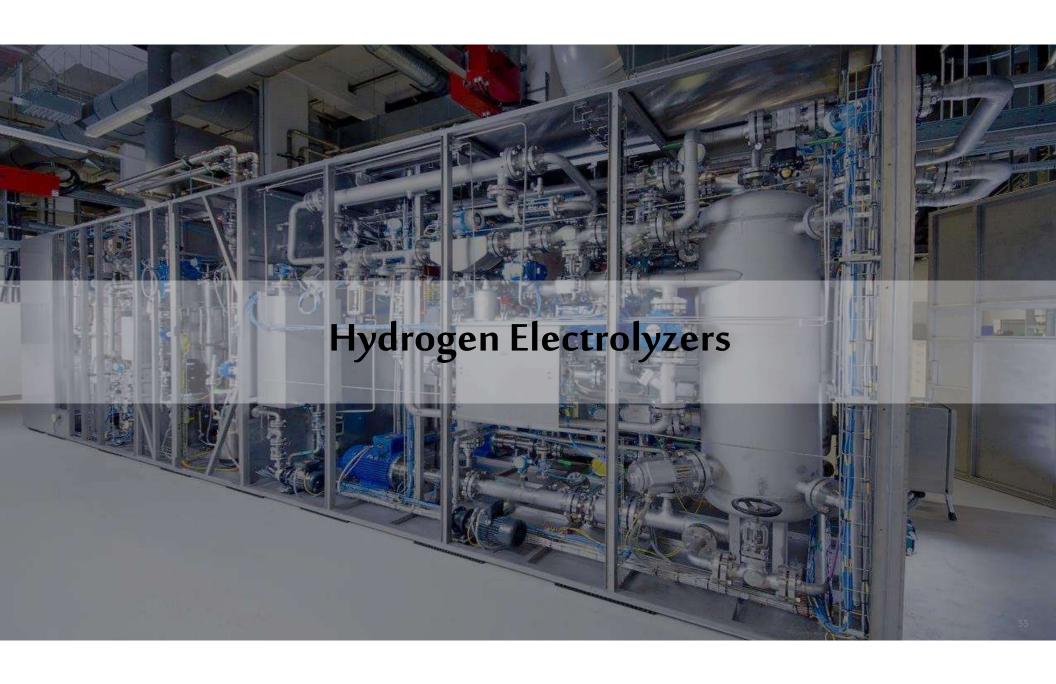


Industrial Investment Opportunities





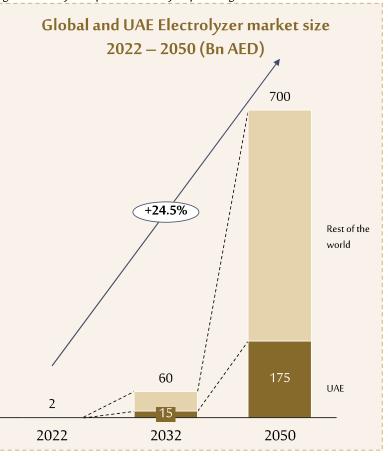


# Hydrogen Electrolyzers

Hydrogen electrolyzers produce H2 by separating water into H2 and O2 through an electrical current

#### Investment case

- Build UAE-based Hydrogen electrolyzer manufacturing plant
- Investment size = AED 2.5 3.0
- Plant capacity = 2 GW per year
- IRR = 15 25%
- NPV = AED 500 700 Mn



### Global trends & demand drivers

- Global demand for hydrogen electrolyzers expected to multiply 15x times in the next 10 years
- Carbon Neutrality targets have been recently announced by multiple countries for 2050-2060 strengthening the need for decarbonized solutions
- Hydrogen will play an important role in reducing GHG emissions as a fuel substitute in sectors responsible for >65% of global emissions
- UAE Ambition of becoming global hydrogen hub and capturing 25% global market share will drive demand for electrolyzers
- Countries keen to localize electrolyzer manufacturing to be in control of future cost reductions and own IP





## **Hydrogen Electrolyzers**

### Value chain analysis

R&D and engineering	Stack components manufacturing	Electrolyzer modules assembly	Set-up and testing	Installation & commissioning	After sale & maintenance
<ul> <li>Design of technical specifications (cells and stacks material, dimension components, etc.)</li> <li>Design require Balance of Plant necessary for the optimal operatio Electrolysers</li> </ul>	<ul> <li>Manufacture of components</li> <li>s, (electrodes, membranes, cells, stacks, etc.)</li> </ul>	<ul> <li>Assembly and integration of Electrolysers with their BoP equipment (transformers, de-ionizer gas separators, pumps, chillers, etc.)</li> </ul>	, ,	<ul> <li>Installation of Electrolysers within Green Hydrogen facilities</li> </ul>	<ul> <li>Performance monitoring</li> <li>Predictive maintenance</li> <li>Bundled services (factory / stock)</li> </ul>
	High localization in UAI	E Mid locali	zation in UAE	Limited localization in UAE	

### Value proposition

- Potential electrolzyer offtakers from Masdar, ADNOC, and ADQ
- Highly competitive costs of Renewable energy (Solar: USD 13.5 per MWh2 LCOE3 55% below global average of USD 30 per MWh)
- Availability of raw material in steel, mechanical, and electrical equipment
- UAE ranked 16<sup>th</sup> globally in Ease of Doing Business (WB)
- UAE ranked #10 globally for world class infrastructure in (LPI)
- High quality of life attractive for skilled talent
- 100% foreign business ownership and low VAT (5%)

#### **Enablers**

- Up to 80% project financing by Emirates Development Bank
- 2-year grace periods and low interest-rate loans for CAPEX, working capital, and supply chain financing
- Export credit and insurance via Etihad Credit Insurance and Abu Dhabi Exports
- Access to Free Trade Agreements with high-growth markets such as GCC, Arab countries, India, Israel, Indonesia, and others
- Customs exemptions for raw materials