



greenko



**World's Leading Energy Transition &
Decarbonisation Solutions Company**



**World's first & lowest cost provider of
Carbon Free Energy & Carbon Free Molecules**

Greenko's operational
generating capacities:

7.5 GW - Now

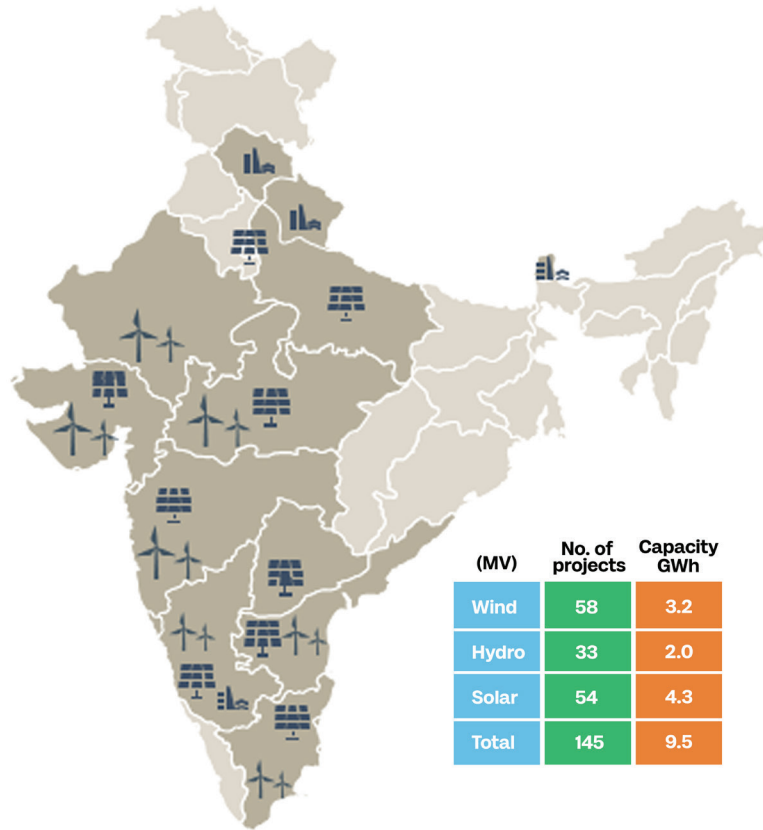
11.0 GW - by 2025

25.0 GW - by 2028

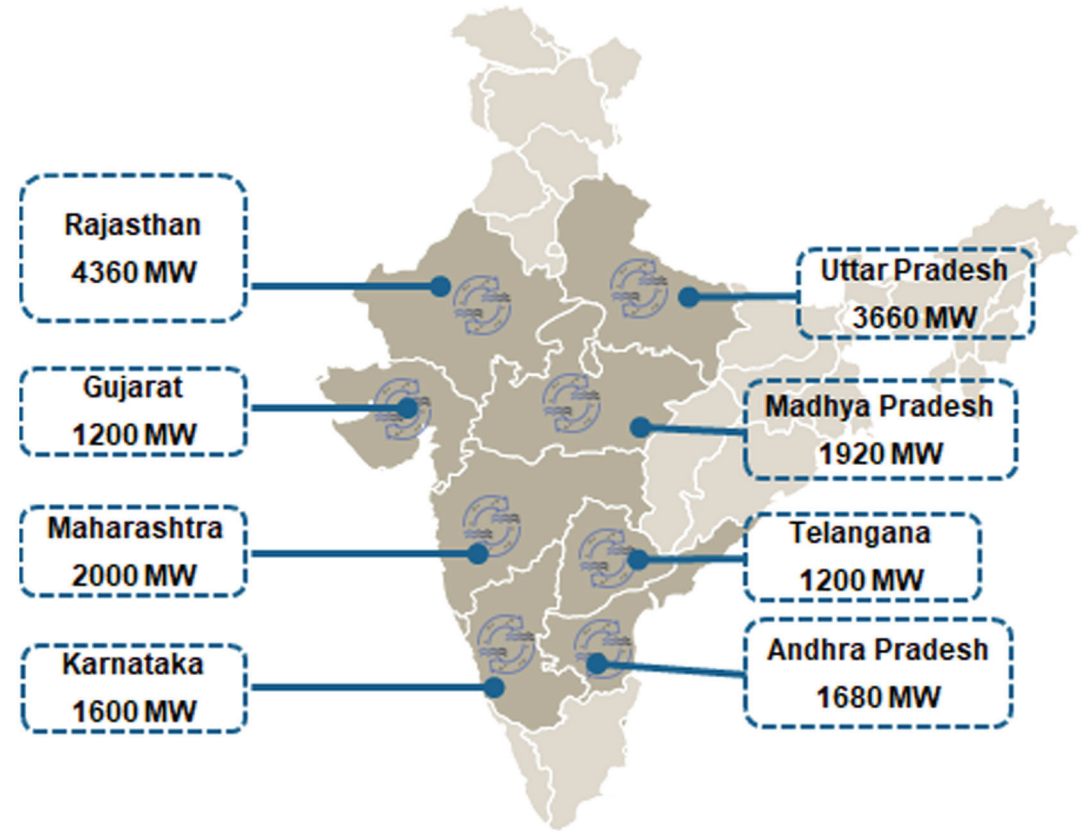
Greenko Group: Asset base geographical diversification

Diversified portfolio of Assets: Total 145 operational projects across 15 states

Renewable Energy Operating Assets



RE Storage Assets Portfolio

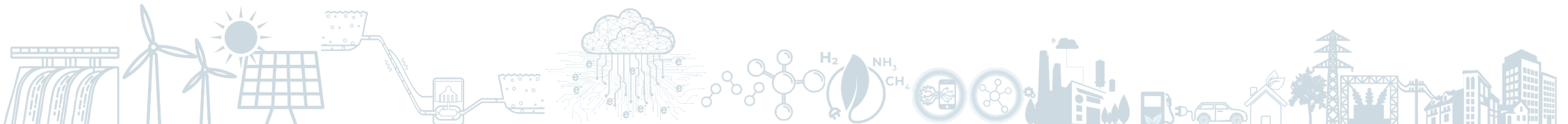


Renewable Energy Operating Assets Strengths

- Advanced **Predictive Analytics** resulting in highest asset availability integrated with **AI & Drone** based technologies
- Multi-model **Forecasting** of Wind & Solar resources to map the **Energy Discharge**
- **Over 98%** of machine availability at the respective generating seasons

Energy Storage Assets Strengths

- Enables the **Firming** and **Dispatchability** of ~**100 GW** of renewable energy capacity
- Enables the democratization of **Energy Transfer** between RE producers and RE consumers
- Total digital Cloud platform to serve energy as service
- **24/7** Carbon Free Energy
- Peak Renewable Energy
- **Ancillary services** such as Frequency Regulation, Voltage Regulation, Black Start and Inertial Response



Greenko Evolution and Decarbonisation Strategy:



“Large scale Clean-Tech IPP”

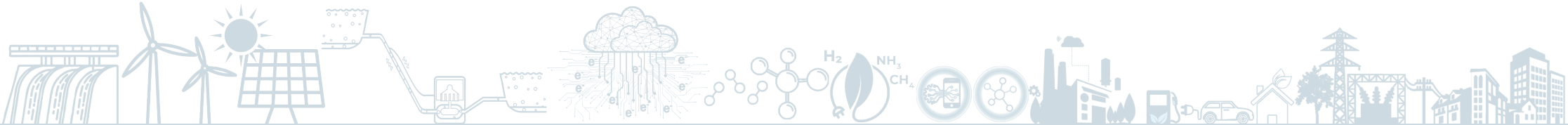
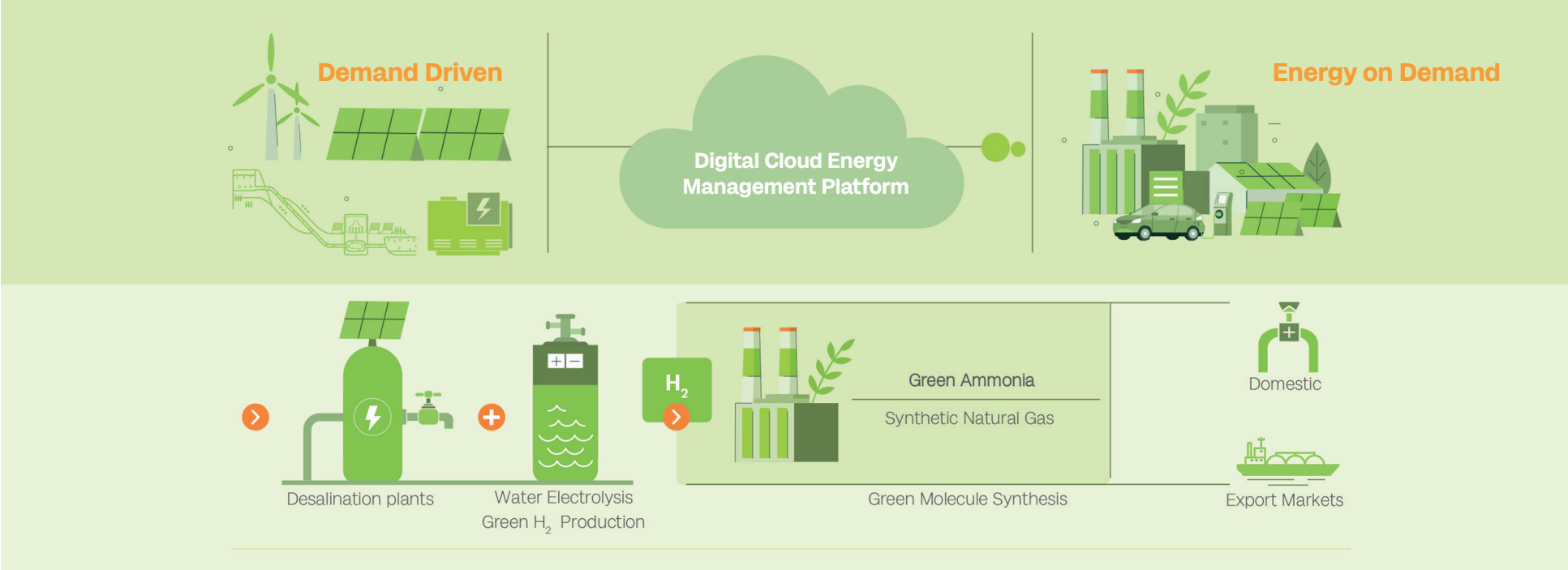
Electricity
Commercialization and Execution of Renewable Energy Projects at Scale

“Cloud Storage Services Specialist”

Electricity and Industrial
Globally Competitive Long Duration Energy Storage

“Decarbonisation Solution Provider”

Industrial and Global Energy Markets
Engineered Green Molecules



Globally Largest Storage & Green Molecule Platform:

Diversified Energy Generation

Largest RE & Storage Company



25 GW Capacity

Wind: 3.2 GW
Solar: 4.3 GW
Hydro: 2.0 GW
PSP: 20 GW

~Platform to reduce upto 60 million tonnes of CO2 annually avoided annually

Digital Energy Platform & Strategic Manufacturing

Largest Digital Platform

5 GW Manufacturing ~ 100TWh Managed Energy

Supply de-risking of solar modules
3 GW per annum

Electrolyser Manufacturing capacity of 2
GW per annum

~100 TWh Digital Energy
Management Services



~100 GWh Storage Potential



~60 million tonnes of CO2 avoided
annually

~25 TWh under management by 2025

Key products include peak power,
flexible energy and storage services

Globally Largest Energy Storage Cloud

Cloud Storage Solutions

10 GW Molecule Platform

~8 million tonnes of CO2 avoided
annually

ZeroC business to have 10 GW
installations by 2030

Electrolyzer installations of ~3.5 GW by
2026-27

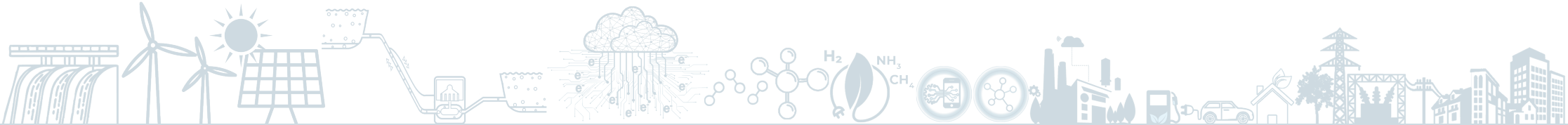
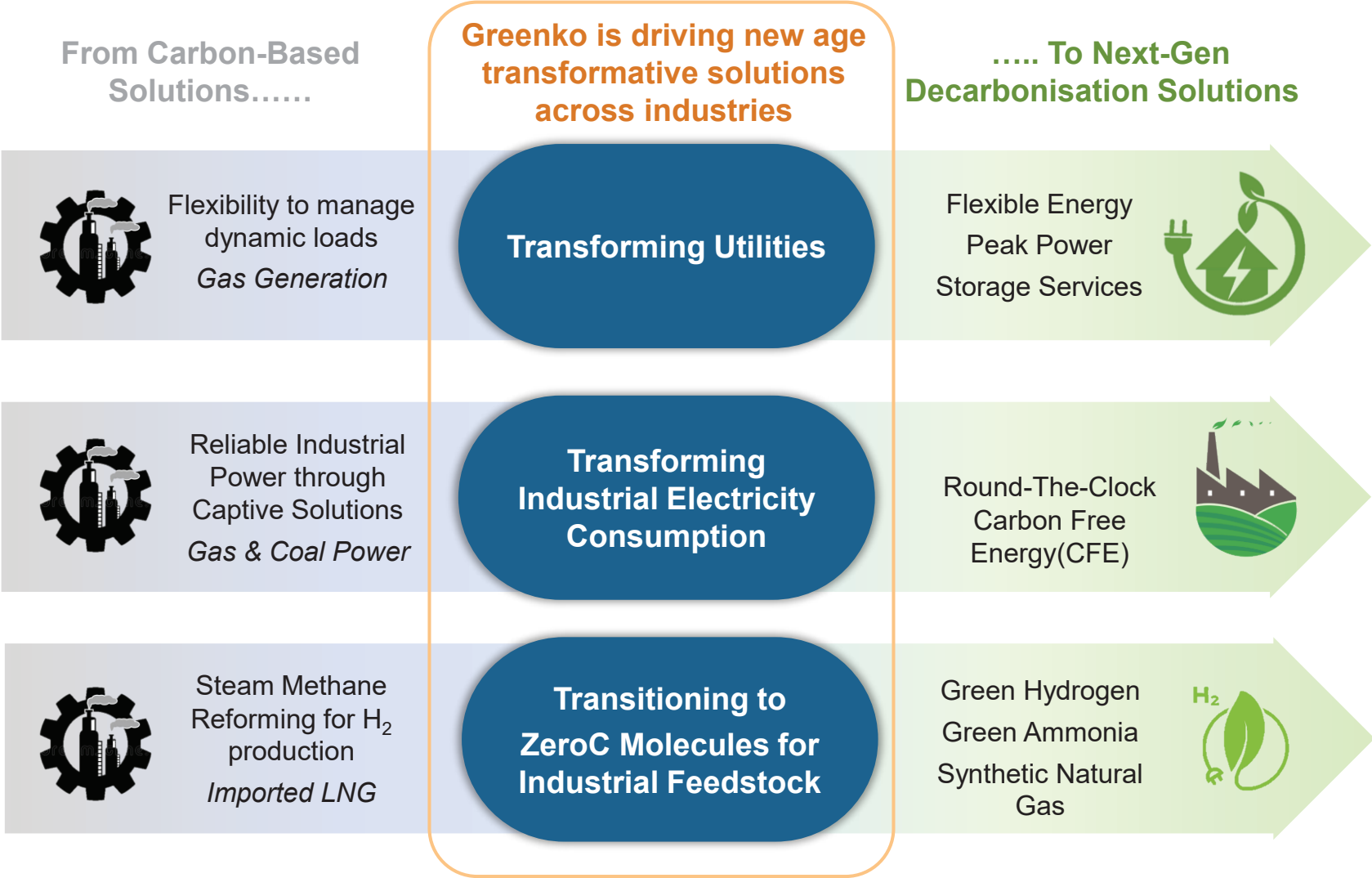


Largest Green Molecule Delivery by 2025

Green Molecules

Greenko Disruptive Solutions Enabling Shift from Conventional Energy:

Replacing Conventional Energy Solutions across Utilities & Industries



RE and Zero Carbon Fuels present a tremendous opportunity for India to be both Energy independent and become an exporter of Lowest Cost carbon free Fuels and Molecules

Intelligent RE Cloud Storage Platform





- 10 GWh^{*} by 2024
- 50 GWh^{*} by 2026
- 100+ GWh^{*} by 2028

* can be used more than one cycle per day

Case Study 1 - AP 01 IREP



The IRESP is a fulcrum of both Carbon Free Energy and Zero Carbon Molecules which are critical in Deep Decarbonisation.

IRESP makes RE as Firm, Flexible, and Dispatchable and hence truly Carbon Free Energy

Long duration energy storage is critical for synergistic and congruent development of RE capacity to enable transition towards Decarbonisation free of economic friction

AatmaNirbhar Bharat 100% Made in India

Project Overview	
Capacity	1680 MW
Storage Capacity	6 Hours / cycle / day 1680 X 6 = 10,080 MWh / cycle / day
Connectivity	400+ kV CTU National Grid
Location	Andhra Pradesh, India
Type	Integrated Renewable Energy Storage Project - Off Stream Closed Loop Pumped Storage
Asset life	75+ Years
RE Integration Capacities	Solar : 4000 MW Wind : 1000 MW
AP01 Services / Products:	Carbon Free Energy Round The Clock Renewables CFE for Green Molecules Ancillary Grid Services Renewable Firming and Energy Shifting

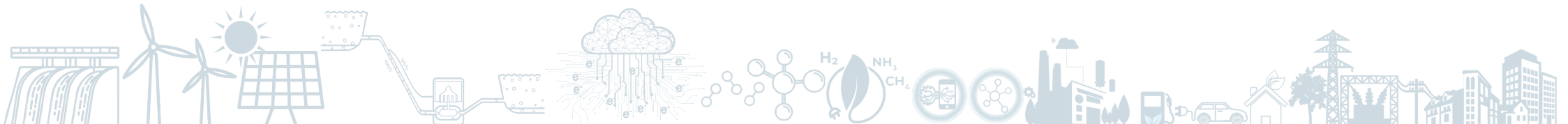


GREENKO'S INTELLIGENT ENERGY CLOUD PLATFORM

(Digital Energy Management, Artificial Intelligence/Machine Learning based Energy Forecasting & Scheduling, Portfolio Dispatch, VPP, IoT Platform)

Products & Services from IRESP

SECI MW Peak Power Peak power supply to Rajasthan, DVC & Bihar	Arcelor Mittal Green steel production in Arcelor Mittal's Gujarat steel plant	RE IPPs Third party services for their storage and energy firming needs.	Greenko ZeroC (Green H2/ Ammonia) Production of Green Hydrogen, Green Ammonia and Green Methanol to export across the World	Ancillary Service <ul style="list-style-type: none"> • Frequency regulation • Voltage Regulation • Black start service • Inertial response
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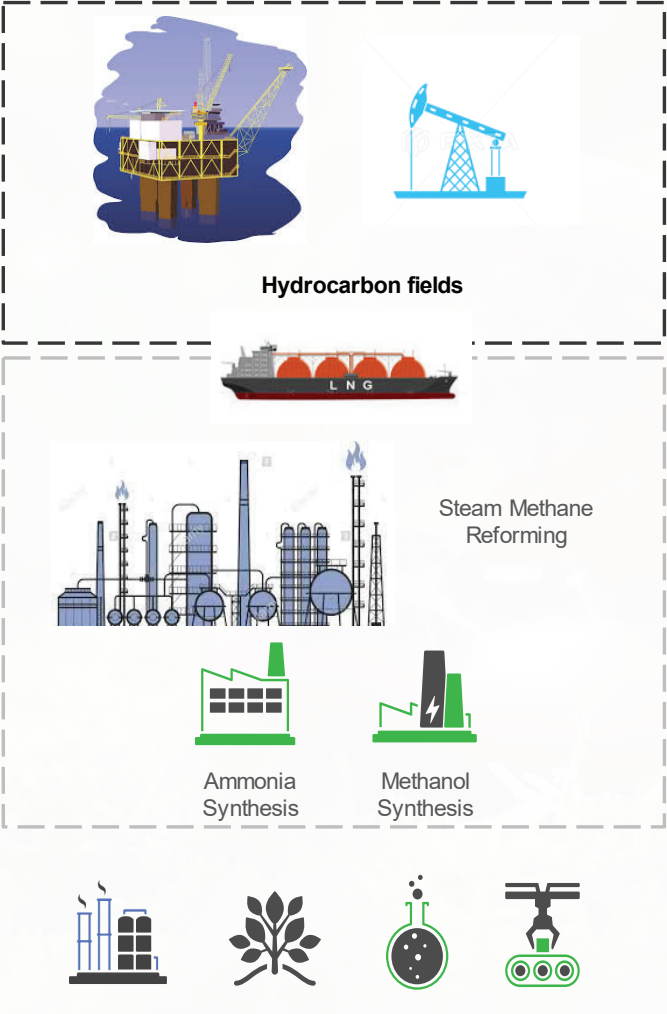
ENABLING ENERGY TRANSITION

LEADING GLOBAL DECARBONISATION

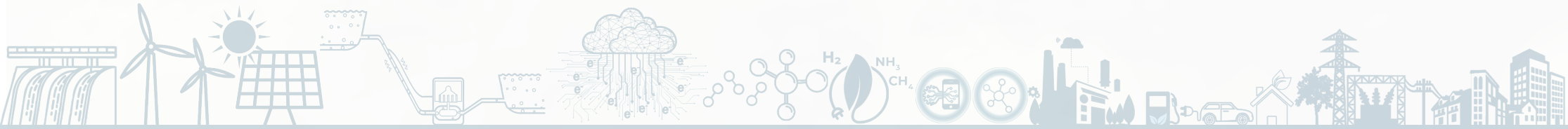
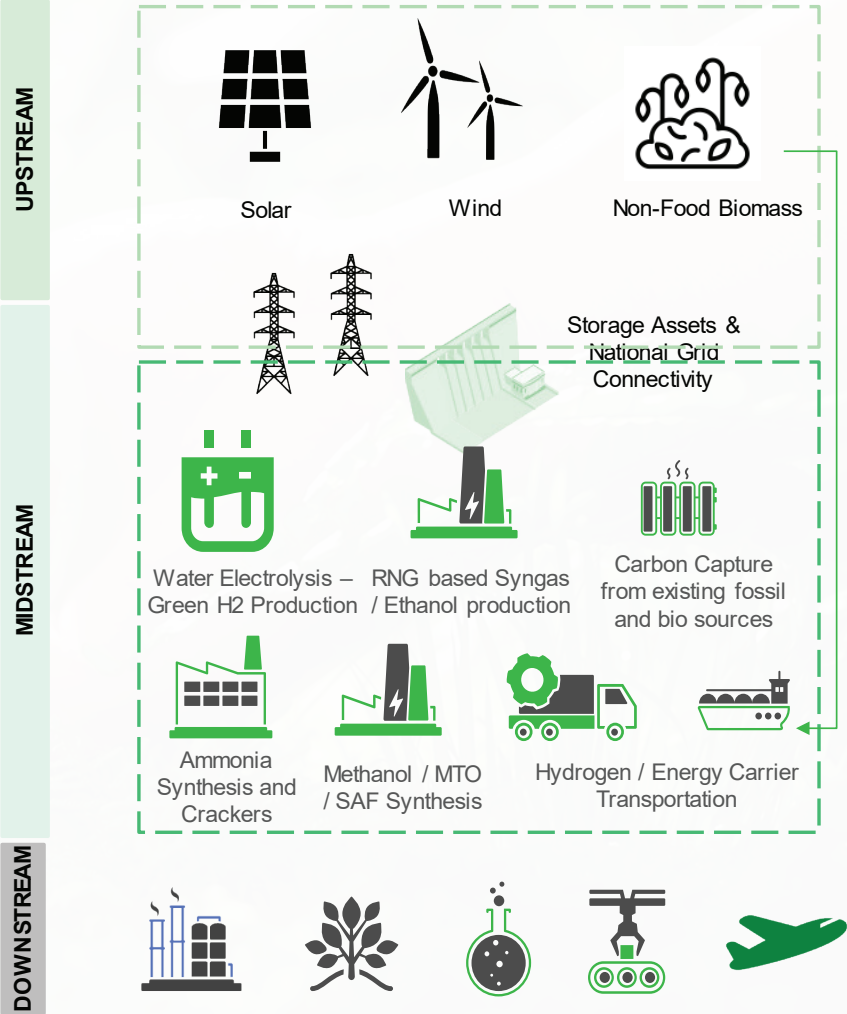


Energy Transition: New Global Energy Architecture

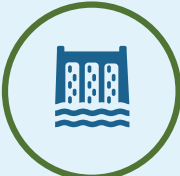






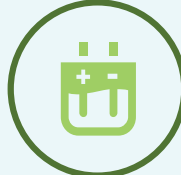
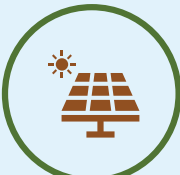


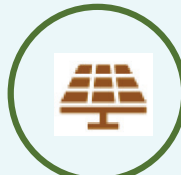

Traditional Energy Value Chain

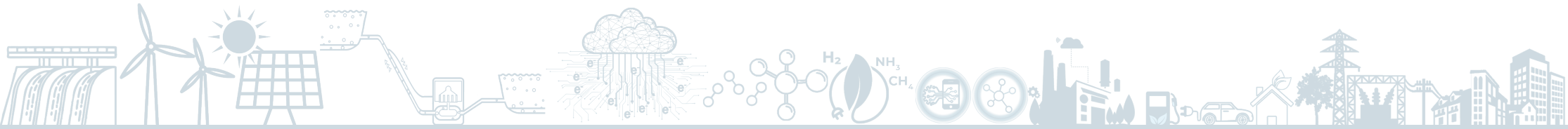


New Energy Value Chain

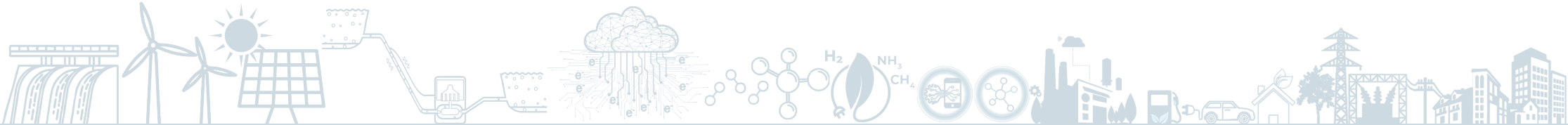
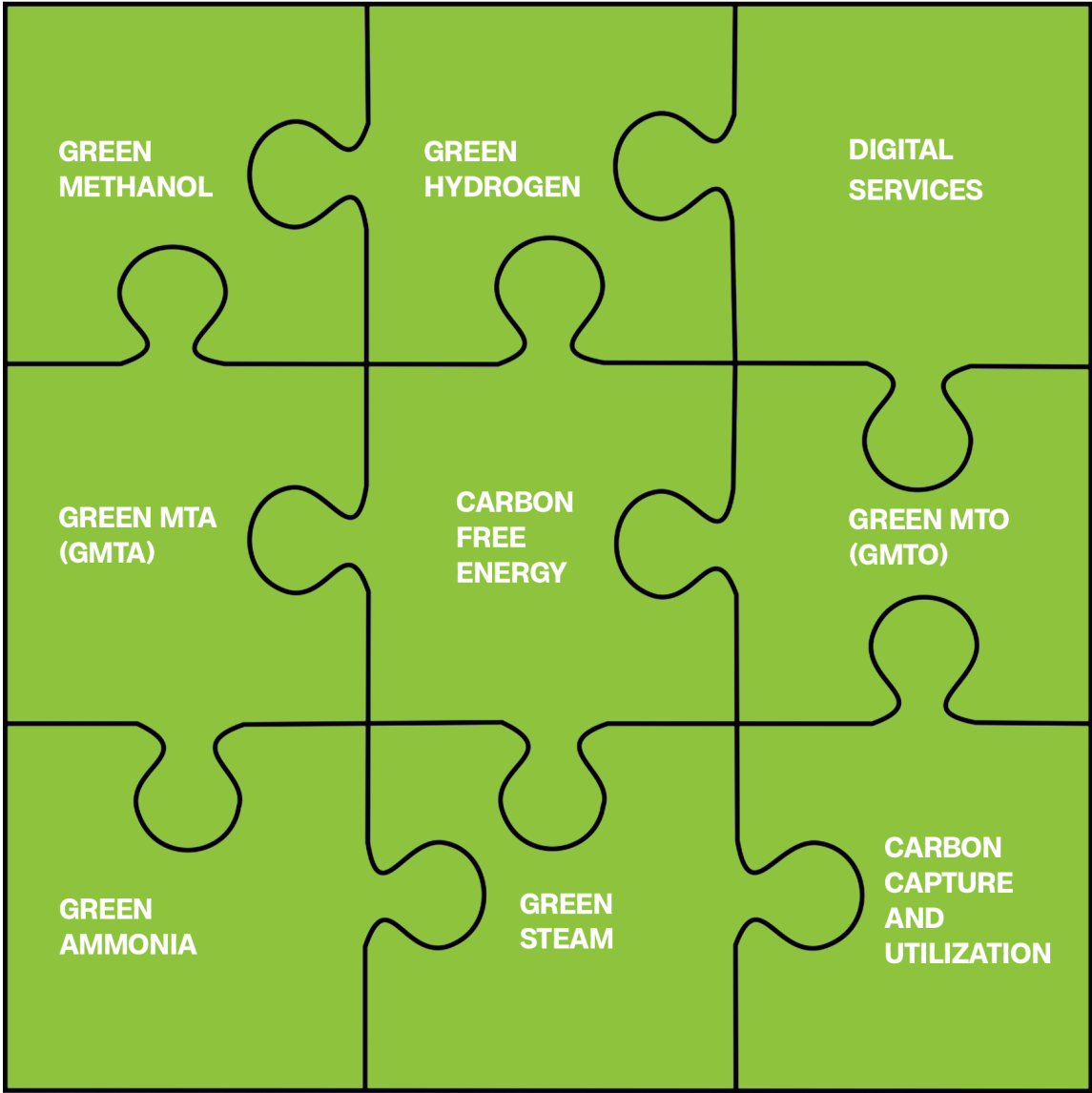


Greenko: Key Operational Numbers:

Energy Assets 30 GW / 24 TWh	Cloud Storage Solutions 100+ GWh	Carbon Free Molecules 10 GW	Digital Services and Manufacturing
 <p>Hydro 2.0 GW / 10 TWh</p>	 <p>RTC Power 60 GWh / 51 TWh</p>	 <p>Green H₂ 7.3 GW / 1.0 MTpa</p>	 <p>Digital Services 100+ GWh</p>
 <p>Wind 3.2 GW / 7.3 TWh</p>	 <p>Energy Storage & Peak Power 72 GWh / 19 TWh</p>	 <p>Green NH₃ 1.9 GW / 1.6 MTpa</p>	 <p>Electrolyzer Facility 2 GW</p>
 <p>Solar 4.3 GW / 6.7 TWh</p>	 <p>Market Operations and Grid Services 22 TWh</p>	 <p>HCNG 0.6 GW / 1.6 MTpa</p>	 <p>Solar Modules 3 GW</p>
		 <p>Other Molecules 0.3 GW / 0.08 MTpa</p>	



Enabling Complete & Integrated Decarbonisation Solutions :





Greenko is establishing electrolyser giga factories of 5 GW/ annum manufacturing capacities.

Greenko aims to facilitate the globally lowest-cost production of Green Hydrogen, Green Ammonia, and other green molecules by leveraging its RE generation and energy storage solutions.

Greenko's digital energy cloud storage platform democratises RE generation and storage by enabling energy transition.

Greenko aims to establish 5 Million Metric Tonne Per Annum (MMTPA) of Green Ammonia production capacity for export.



greenko

H₂

**HYDROGEN
ENERGY STORAGE**

Greenko commits to Climate Pledge:

Greenko has joined 114 businesses across the globe and accepted the challenge of Climate Pledge. This requires Greenko to Decarbonise, Report and Offset.

Circular Economy Initiative: E- Waste Recycling Technologies :

Greenko and C- MET entered into a joint venture to establish centre of excellence (CoE) on E-Waste recycling. The CoE is engaged in scaling up the recycling of End of Life Silicon Solar cells, Permanent Magnets, End of Life Li-ion batteries and PCBs.

Greenko School of Sustainability :

Greenko has partnered with the Indian Institute of Technology Hyderabad to establish the Greenko School of Sustainability. The school is established with the aim of conducting R&D in processes, products, and systems to achieve sustainable development goals.

The school offers a variety of programs in sustainable science and technology. The School will also act as a resource center for curriculum development and teacher's training to introduction of Sustainable Science and Technology.

The school will be structured as an interdisciplinary centre.

THE CLIMATE PLEDGE



greenko



www.greenkogroup.com

