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Growth With Goodness

Adani New Industries Limited

Green Hydrogen Ecosystem

Feb 2025

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Renewables

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01

Adani Portfolio

Adani Portfolio: A World class infrastructure & utility portfolio

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Flagship	Infrastructure & Utility Core Portfolio		Primary Industry	Emerging B2C
Incubator	Energy & Utility	Transport & Logistics	Materials, Metal & Mining	Direct to consumer

(73.97%) **AEL**

(100%) **ANIL** New Industries

(50.00%) **AdaniConneX**[3] Data Centre

(100%) **AAHL** Airports

(100%) **ARTL** Roads

(60.94%) **AGEL** Renewables

(74.96%) **APL** IPP

(69.94%) **AESL** T&D

(37.40%) **ATGL**[2] Gas Discom

(65.89%) **APSEZ** Ports & Logistics

(100%) **NQXT**[1]

(100%) Copper, Aluminum

(100%) PVC

(100%) Specialist Manufacturing[5]

(100%) Mining Services & Commercial Mining

(67.53%) **Cement**[4]

(100%) **ADL** Digital

(64.71%) **NDTV**

(43.94%) **AWL**[6] Food FMCG

(%): Adani Family equity stake in Adani Portfolio companies (%): AEL equity stake in its subsidiaries **Listed cos** **Direct Consumer**

A multi-decade story of high growth centered around infrastructure & utility core

1. NQXT: North Queensland Export Terminal | 2. ATGL: Adani Total Gas Ltd, JV with Total Energies | 3. Data center, JV with EdgeConnex, | 4. Cement includes 67.53% (67.57% on Voting Rights basis) stake in Ambuja Cements as on 31st December,2024 which in turn owns 50.05% in ACC Limited. Adani directly owns 6.64% stake in ACC Limited. Ambuja Cements Ltd. holds 58.08% stake in Sanghi Industries Ltd.| 5. Includes the manufacturing of Defense and Aerospace Equipment | 6. AEL to exit Adani Wilmar JV, diluted 13.50% through Offer For Sale (13thJan'24), residual stake dilution is pursuant to agreement between Adani & Wilmar Group. | AEL: Adani Enterprises Limited; APSEZ: Adani Ports and Special Economic Zone Limited; AESL: Adani Energy Solutions Limited; T&D: Transmission & Distribution; APL: Adani Power Limited; AGEL: Adani Green Energy Limited; AAHL: Adani Airport Holdings Limited; ARTL: Adani Roads Transport Limited; ANIL: Adani New Industries Limited; AWL: Adani Wilmar Limited; ADL: Adani Digital Labs Pvt. Limited; IPP: Independent Power Producer | NDTV: New Delhi Television Ltd | PVC: Polyvinyl Chloride I Promoter's holdings are as on 31st December, 2024.

Adani Portfolio: Decades long track record of industry best growth with national footprint

Secular growth with world leading efficiency

adani Ports and Logistics

Growth **3x** [6]

EBITDA **71%** [1,2,3]

adani Renewables

Growth **4x** [6]

EBITDA **92%** [1,3,4]

adani Energy Solutions

Growth **3x** [6]

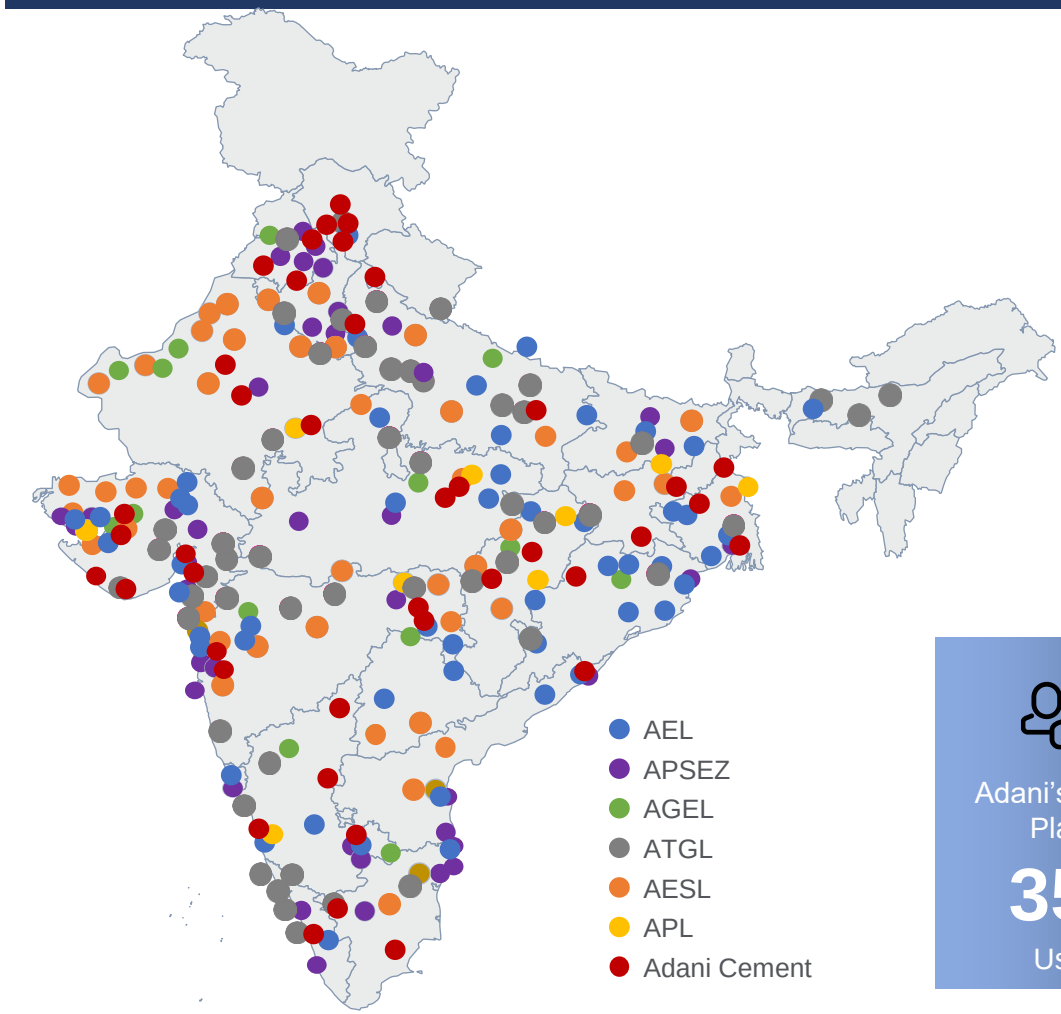
EBITDA **91%** [1,2,3,5]

adani Gas

Growth **1.4x** [6]

EBITDA **24%** [1,3]

National footprint with deep coverage



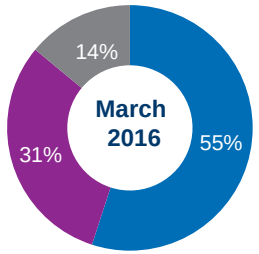
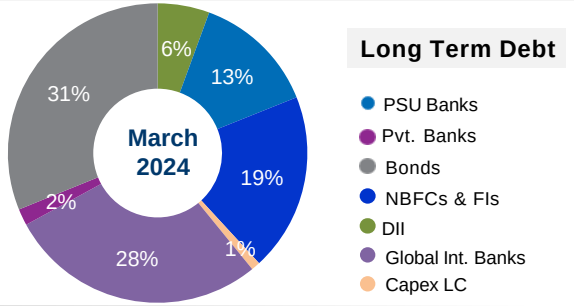
Adani's Core Infra. Platform –

350 Mn

Userbase

Note: 1. Data for FY24 ; 2. Margin for Indian ports business only l Excludes forex gains/losses; 3. EBITDA: Earning before Interest Tax Depreciation & Amortization l EBITDA: PAT + Share of profit from JV + Tax + Deferred Tax + Depreciation + Finance Cost + Forex Loss / (Gain) + Exceptional Items 4. EBITDA Margin represents EBITDA earned from power supply 5. Operating EBITDA margin of transmission business only, does not include distribution business l 6. Growth pertains to expansion and development aligned with market growth. Growth of respective Adani portfolio company vs. Industry growth is as follows: **APSEZ**'s cargo volume surged from 113 MMT to 408 MMT (14%) between 2014 and 2024, outpacing the industry's growth from 972 MMT to 1539 MMT (5%). **AGEL**'s operational capacity expanded from 0.3 GW to 10.9 GW (57%) between 2016 and 2024, surpassing the industry's growth from 46 GW to 143.6 GW (15%). **AESL's** transmission length increased from 6,950 ckm to 20,509 ckm (14%) between 2016 and 2024, surpassing the industry's growth from 3,41,551 ckm to 4,85,544 ckm (4%). **ATGL** expanded its geographical areas from 6 to 52 (27%) between 2015 and 2024, outperforming the industry's growth from 62 to 307 (19%). PBT: Profit before tax l ATGL: Adani Total Gas Limited l AEL: Adani Enterprises Limited l APSEZ: Adani Ports and Special Economic Zone Limited l AESL: Adani Energy Solutions Limited l APL: Adani Power Limited l AGEL: Adani Green Energy Limited l Growth represents the comparison with respective industry segment. Industry source: APSEZ (domestic cargo volume): https://shipmin.gov.in/division/transport-research l Renewable (operational capacity): Installed Capacity Report - Central Electricity Authority (cea.nic.in) l AESL (ckms): National Power Portal (npp.gov.in) l ATGL (GAs): Brochure petroleum.cdr (pngrb.gov.in) | ckms: circuit kilometers | GA: Geographical Areas

Adani Portfolio: Repeatable, robust & proven transformative model of investment

	DEVELOPMENT			OPERATIONS	CONSUMERS
	Adani Infra (India) Limited (AIIL)			Operations (AIMSL)[1]	New C.E.O. Consumer I Employees I Other Stakeholders
ACTIVITY	**Origination** • Analysis & market intelligence • Viability analysis	**Site Development** • Site acquisition • Concessions & regulatory agreements	**Construction** • Engineering & design • Sourcing & quality	**Operation** • **Life cycle O&M planning** • Asset Management plan	**Inspired Purpose & Value Creation** • Delivering exceptional products & services for elevated engagement • Differentiated and many P&Ls
PERFORMANCE	 **India's Largest Commercial Port** (at Mundra)	 **Longest Private HVDC Line in Asia** (Mundra - Mohindergarh)	 **World's largest Renewable Cluster** (at Khavda)	 **Energy Network Operation Center** (ENOC)	Adani's Core Infra. Platform – **350 Mn** Userbase
CAPITAL MANAGEMENT	Strategic value Mapping	Investment Case Development	Growth Capital – Platform Infrastructure Financing Framework		
	Policy, Strategy & Risk Framework → **Duration** Risk Matching **Risk Management –** Rate & Currency **Governance & Assurance** **Diversified Source of Capital**				
ENABLER	**Continued Focus & Investment** → **Human Capital Development**	• Leadership Development Initiatives • Investment in Human Capital		**AI enabled Digital Transformation**	• Power Utility Business - ENOC • City Gas Distribution - SOUL • Transportation Business - AOCC

Note 1 Adani Environmental Resource Management Services Ltd. (additional company is being proposed)

O&M: Operations & Maintenance I HVDC: High voltage direct current I PSU: Public Sector Undertaking (Public Banks in India) I GMTN: Global Medium-Term Notes I SLB: Sustainability Linked Bonds I AEML: Adani Electricity Mumbai Ltd. I AIMSL : Adani Infra Mgt Services Pvt Ltd I IG: Investment Grade I LC: Letter of Credit I DII: Domestic Institutional Investors I COP26: 2021 United Nations Climate Change Conference I AGEL: Adani Green Energy Ltd. I NBFC: Non-Banking Financial Company I AIIL: Adani Infra (India) Ltd.

ANIL: Emulating Adani's business philosophy

Development	**Large Integrated Platform**	**Technology Development**	**Strategic Location**
	Platform uniquely positioned to offer scale and high efficiencies **Integrated platform -> Lowest cost of energy -> Lowest cost for all products in value chain**	**In House R&D with Tech Experts** CRT and Hydep for Electrolysers	**Mundra: Integrated Green H_2 Hub** Land availability, supporting infrastructure, large existing industry cluster
Operations	**Energy Infrastructure Expertise**	**Adopting Global Standards**	**Technology Enabled Operations**
	Adani **expertise in building and operating energy infrastructure assets** across entire value chain	Adopting Global Green Hydrogen standard making it **ready to export Globally accepted Highest manufacturing quality standards**	**Analytics driven O&M with technology to maximize production and perform predictive maintenance**
Value Creation	**Synergies**	**Efficient Capital Management**	**Regulatory Framework**
	~80% of cost is internalized Large scale, existing availability of renewables , power transmission and ports and logistics within Adani contributing in ANIL's major cost cutting	**Capital management plan** in line with underlying business philosophy **Diversification of funding sources**	National Green Hydrogen Mission launched Several **production linked and capex linked incentives** for Green H_2 ecosystem

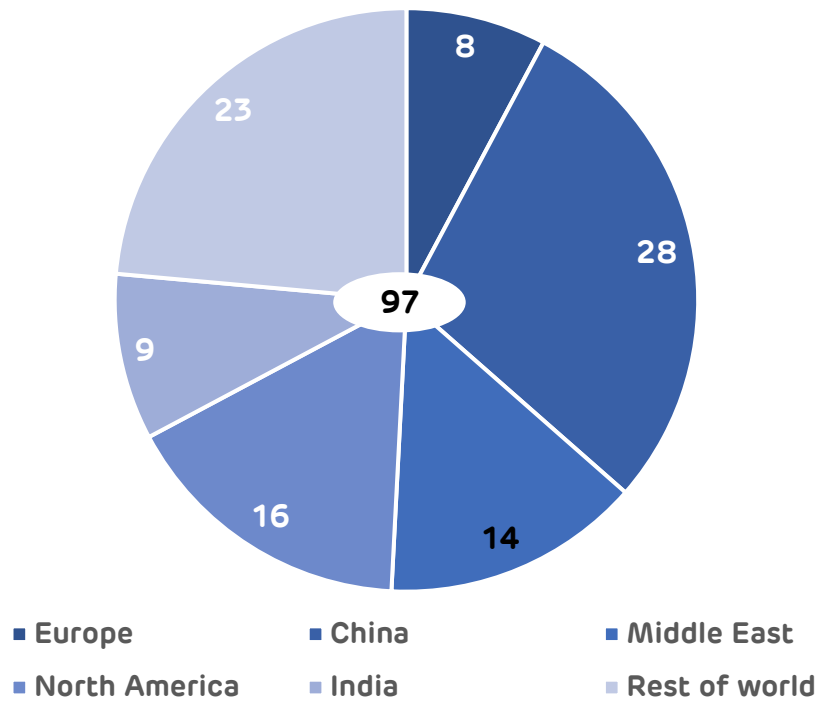
H_2: Hydrogen | RE: Renewable Energy | GW: Gigawatt; | AI: Artificial Intelligence | O&M: Operation & Maintenance

02

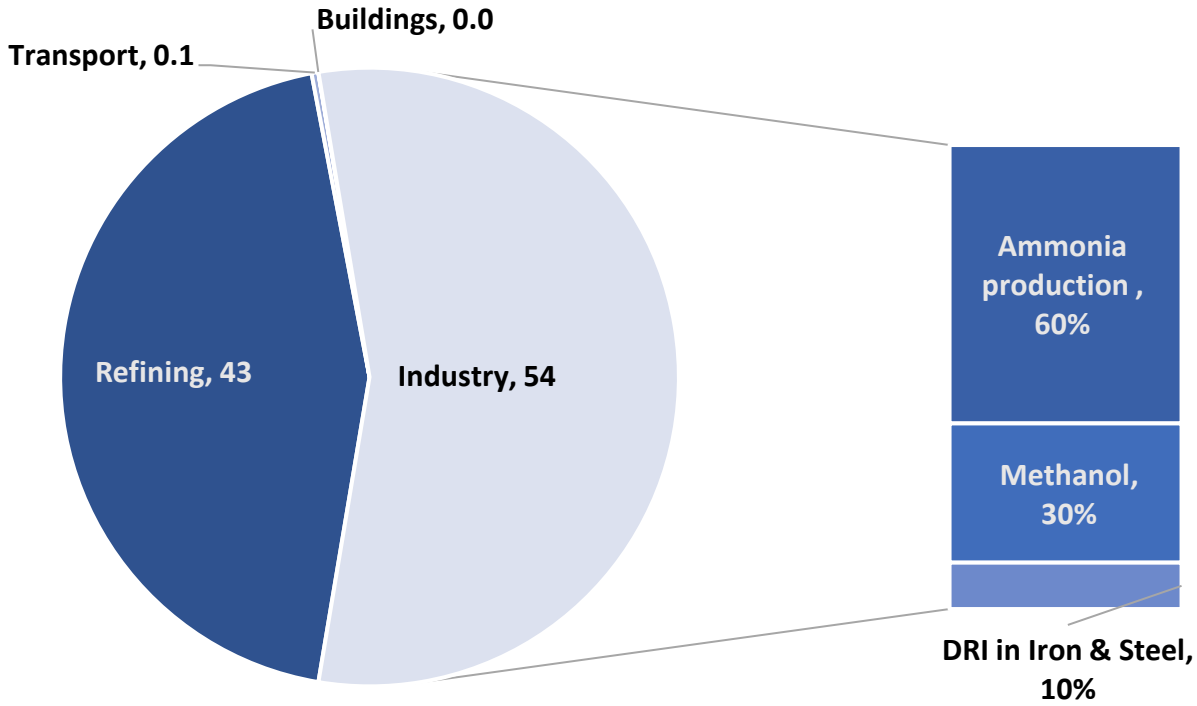
Global hydrogen landscape

Global Hydrogen Demand

Global demand for Hydrogen 2023 (MMTPA) by Region



Global demand for Hydrogen 2023 (MMTPA) by Sectors



- Global hydrogen use reached 97 MMTPA in 2023
- Low emissions hydrogen[1] production accounts for ~1 MMTPA out of which hydrogen from water electrolysis Is ~ 0.185 MMTPA

Current low penetration of Green Hydrogen signals significant potential for replacement demand & new uses

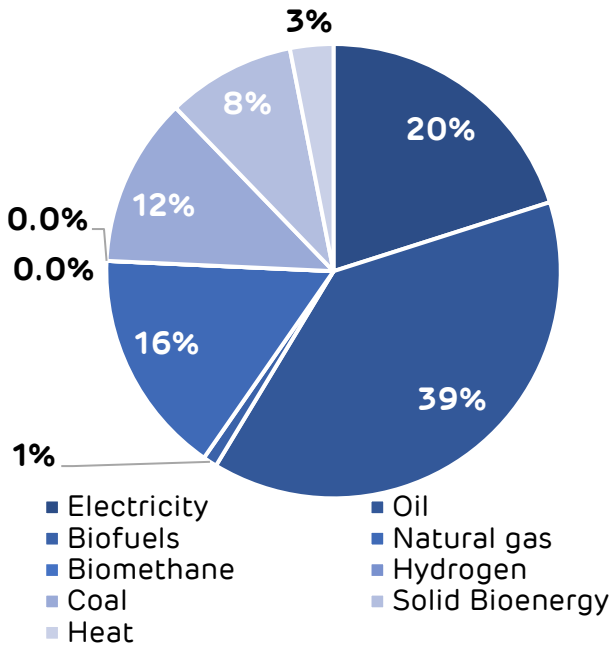
Source: World Energy Outlook 2024 (IEA); Global Hydrogen Review 2024 (IEA)

1. Low-emissions hydrogen is produced from electrolysis using electricity generated by RE or Nuclear, from Fossil Fuels with CCUS or derived from Bioenergy;

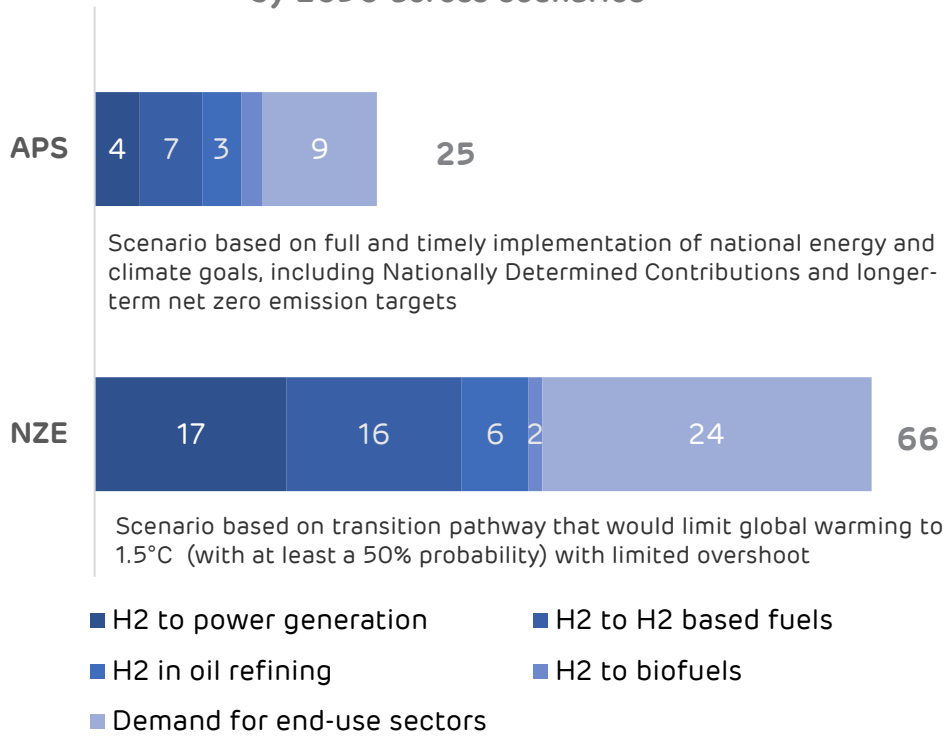
CCUS : Carbon Capture Utilization & Storage; MMTPA: Million Metric Tonnes per Annum; DRI: Direct Reduced Iron

Global Hydrogen Demand – Future Potential

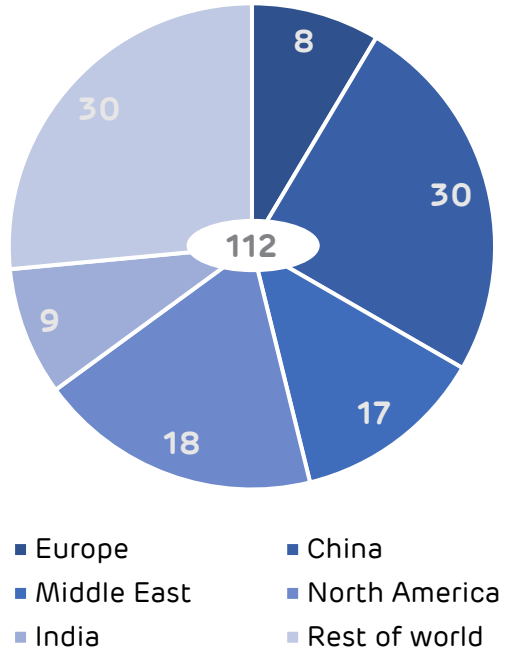
World energy consumption by Sources - 2023



Low-emissions H_2 demand (MMTPA) by 2030 across scenarios



Global H_2 demand (MMTPA) by 2030 - APS



- ❑ Electrification to contribute towards reducing fossil fuel demand, leading to increased share in future from current 20%.
- ❑ Green Hydrogen to also work as source of electricity in RE resources deficient areas.

- ❑ As per APS 2030, Low-emissions H_2 from electrolysis using RE or Nuclear will be 18 MMTPA and to be 7 MMTPA from Fossil Fuels with CCUS or Bioenergy.
- ❑ China, Europe, Middle East and North America to lead the growth in H_2 demand and will account for ~ 65% of 2030 total demand

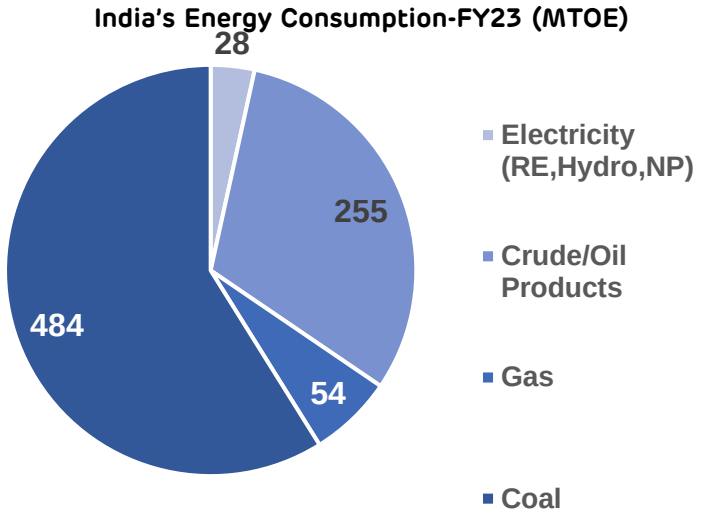
Source: World Energy Outlook 2024 (IEA)

APS: Announced Pledges Scenario ;NZE: Net Zero Emissions by 2050 Scenario; **MMTPA:** Million Metric Tonnes per Annum CCUS: Carbon Capture Utilization & Storage

03

India’s green hydrogen market

India consumes 6.55 MMTPA hydrogen (grey)



Green H_2 – Moving from Greening the Grid to Greening Industry and Mobility

44% of Gas and ~89% of Oil imported for a net import bill of USD 144 Bn in FY23

Green H_2 and Derivatives can substitute use of fossil fuels in industry thus reducing import requirements

Green H_2 and Derivatives are also an option for hard to abate sectors such as fertilizers, steel and refineries

Source: MOSPI (Ministry of Statistics and Program Implementation) 2024 report on Energy Statistic

Hydrogen Consumption by sector for India (2021)

Refining (48%)

- Imported natural gas to produce H_2 through SMR process
- H_2 is used to process crude oil to obtain refined fuels e.g. gasoline, diesel. Sulphur impurities are removed via Hydro-desulfurization

Fertilizer (33%)

- H_2 is used to produce ammonia and ~90% of ammonia is used to manufacture fertilizers
- Natural gas (80% imported) is the main feedstock for the fertilizer production

Methanol (8%)

- Hydrogen is used in production of methanol which is further used in production of acetic acid and formaldehyde

Hydrogen Peroxide (4%)

- Hydrogen is used in the first step, i.e. hydrogenation of working solution of four-step hydrogen peroxide manufacturing process

Glass (3%)

- Hydrogen is used as a getter gas to prevent oxidation over tin baths used in float glass manufacturing process, glass formed on the baths is made without defects

Steel (2%)

- To produce virgin metallics (DRI or HBI) from lump iron ore (or pellets) requires ~650 Nm^3 of hydrogen (or 58 kg) per ton of DRI

MTOE: Million Tonnes of Oil Equivalent | 1 MTOE is equivalent to 0.35 Million tonnes of Hydrogen on Lower Heating Value (LHV) basis | NP: Nuclear Power
SMR: Steam Methane Reforming | DRI: Direct Reduced Iron | HBI: Hot Briquetted Iron | ICE: Internal Combustion Engine

India's green hydrogen (GH_2) target & demand by 2030

National Green Hydrogen Mission

At least
5 MMT GH_2
Annual production

125 GW RE
capacity for GH2 generation & associated transmission network

60-100 GW
Electrolyser capacity

INR 8 Lakh Cr
Investment

Sectoral Demand

End Use Sectors	Green H_2 Market (MMTPA)			Remarks
	FY26	FY30	FY35	
Refinery Demand	0.13	0.78	1.85	– Green H_2 consumption by existing refining capacity
Green Ammonia	-	0.52	0.78	– Substitution of Ammonia imports (~2.34 MMTPA in FY23)
CGD Demand	0.06	0.19	0.46	– Green H_2 blended with city gas distribution (15% blending expected)
Green Fertilizer	0.26	0.67	1.51	– India imports ~9 MMTPA (FY23) urea. Opportunity to substitute urea imports – GHCO mandates as decided by MNRE
Mobility - Methanol	0.18	1.35	8.66	– Pilots are being conducted for 15% methanol blending with diesel – ICEs being developed for H_2 use
Exports and Shipping fuel	0.30	3.50	8.50	– Additional demand from green shipping fuel
Total	**0.9**	**7.0**	**21.8**	– Capex incentive scheme for GH2 pilot projects announced, for end use in Shipping, Ports, Steel, Mobility

***GHCO**: Green Hydrogen Consumption Obligation | **CGD**: City Gas Distribution | **MMTPA**: Million Metric Tonnes Per Annum; | **ICE**: Internal Combustion Engine*

04

ANIL Strategy

Green hydrogen: India story

Decarbonization: "Panchamrit" strategy (COP26)

1. 500 GW non-fossil energy capacity by 2030
2. 50% of India's energy requirements from RE by 2030
3. Reduction in total projected carbon emissions by 1 Bn Tonnes between 2022 & 2030
4. Reduction in carbon intensity of the economy by 45% by 2030, over 2005 levels
5. Target of net zero emissions by 2070

Supportive policy environment

1. National Green Hydrogen Mission Phase-1 launched on 17th Feb 2022
2. Phase 1 included supply side incentives such as ISTS charges waiver, banking, etc.
3. Green Hydrogen Consumption Obligations (GHCO) for end-use sectors, PLI for green hydrogen & derivatives production
4. Support for value chain through PLI e.g., for Solar, Electrolyser manufacturing
5. Other measures such as ALMM, BCD

PLI: *Production Linked Incentive* | ***ISTS:*** *Inter State transmission system* | ***ALMM:*** *Approved list of Models and Manufacturers* | ***BCD:*** *Basic Customs Duty*

ANIL: One of the world's largest* fully integrated GH2 platform

What it takes to win

1 Competitive cost Green Electron

- Input power cost accounts for ~60% of cost of Green Hydrogen
- Economies of scale and large resources to facilitate lowest cost electron

2 End-to-end supply chain and resource control

- Execution Risk mitigation by full integration of supply chain
- Tighter control on capex and resources

3 Integrated Green H_2 ecosystem

- Integrated development across the value chain – pipelines/transport options, storage facilities, port facilities and terminals

adani New Industries

How we are delivering it

Large scale with high quality resources

- Investment of **USD 50 bn** in GH_2 ecosystem
- Secured resource rich contiguous land for RE and hydrogen production

Mine to module manufacturing ecosystem

- All key components of GH_2 projects within ANIL – Solar, Wind, Electrolyzers

Leveraging broader Adani ecosystem – RE, Transmission, Ports, Logistics, Gas

- GH_2 and derivatives hub at Mundra, Gujarat
- Integration into Global supply chain for hydrogen and its derivatives

Deliver the lowest cost green molecule to transform India's energy landscape

*Based on declared capacity; **GH_2**: Green Hydrogen; **MMTPA**: Million Metric Tonnes Per Annum

ANIL: Segments

Adani New Industries Limited

Supply Chain : Manufacturing

- Manufacture key components for RE & GH2 projects
- End to End development of supply chain

Solar – Mg Silica and Polysilicon

Solar – Ingot, wafer, cell, modules

WTG

Electrolysers

Battery & Fuel cells

End-end supply chain control

Green Electron Generation

- Integrated renewable (solar and wind) power plants
- Green feedstock for hydrogen electrolysers

Captive solar, wind and hybrid renewable power plants

Resource rich site for 42+ GW for Renewable Energy

Co-located to green hydrogen electrolyser

Integrated Renewable Power Project

Green Hydrogen Production

- Integrated GH2 projects
- Anchor site in Gujarat near Mundra :

Large scale resource rich site for ~2.1 MMTPA GH2 production

GH2 transport through dedicated pipeline to nearest port

High quality resources deployed at scale

Downstream

- Integrating GH2 with downstream products
- Leverage Mundra's experience of handling liquid cargo
- Integrate into global GH2 supply chain

Located near largest port in India providing strategic advantage

Flexibility to develop multiple downstream products near port

Well synergized with Adani ecosystem

Developed and being expanded

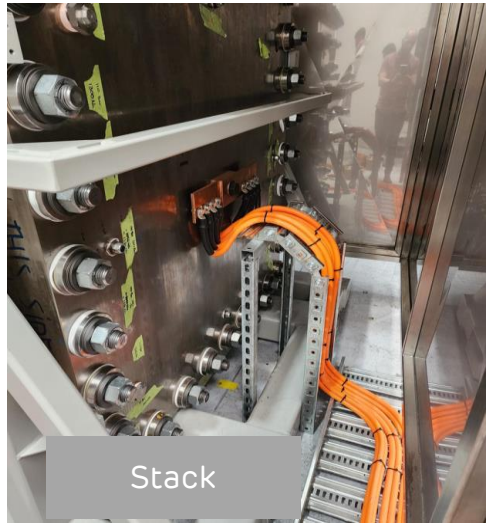
WTG : Wind Turbine Generator ; **GH2** : Green Hydrogen

Overall manufacturing footprint

Manufacturing Businesses	Target Capacities in 1st Phase	Key Highlights
	**Polysilicon:** 30 KTPA **Ingot/Wafer:** 10 GW **Cells:** 10 GW **Modules:** 10 GW	– Existing 4 GW of cell and module manufacturing facility; – More than 7+ years of experience in cell and module manufacturing – **Full backward integration starting from silicon till modules**
	**WTG:** 5 GW	– **5.2 MW WTG in commercial production,** certified for global deployment – **Manufacturing of Turbine, Nacelle & Rotor Blades** – Technology partnership with well known global player (W2E & Windnovation)
	**Electrolyzer:** 5 GW	– **Backward integration for supply assurance and cost efficiency** – **300 MW** manufacturing capacity awarded under PLI Tranche 1 – Focus on reduction in stack & BOP cost through indigenization and scale – Manufacturing will cover multiple technologies such as Alkaline, AEM and others

KTPA: kilo tonnes per annum; **WTG**: Wind Turbine Generator; **RLMM**: Revised list of Models and Manufacturers; **AEM**: Anion Exchange Membrane; **BOP**: Balance of Plant

Electrolyzer development status


Stack

Technology development

Multiple tie-ups with Electrolyzer technology providers namely **Cavendish Renewable Technology (Australia)** and **Hydep (Italy)**

Alkaline	**5 MW** size Electrolyzer Pilot in progress
AEM	**Prototype stage** in progress
C-Cell	**Prototype stage** in progress


BOP

Preferred Technology

Alkaline
- Proven technology for 100 years.
- Lower initial CAPEX

Anion Exchange Membrane (AEM)
- High operational flexibility
- Lower CAPEX compared to PEM
- Better efficiency than Alkaline

Product development

- Established **Electrolyzer Testing Lab** to drive performance improvement
- Won 300 MW Capacity under PLI scheme
- Establishing **Electrolyzer Manufacturing Facility**
- **Supply chain development for achieving 90% indigenization of Electrolyzer**

PLI: Production Linked Incentive; **PEM**: Polymer electrolyte membrane; **AEM**: Anion Exchange Membrane;

Green Hydrogen Project: Great Rann of Kutch (GRK), Gujarat

~85,000 hectares land allotted

Studies Completed

- Site Survey- Land profile and Topography
- Soil and Seismic condition
- Feasibility study
- Pipeline & Storage
- Power evacuation system
- Basic Engineering
- Rainfall and Drainage pattern
- Off grid integration

On-going Studies

- Corrosion Study
- RE resource assessment
- Process study

ANIL to leverage Group expertise

- Expertise in Giga-Scale RE Project development – **Largest RE developer in India**
- Expertise in setting up long distance transmission lines – **Largest transmission system developer in India**
- Expertise in developing and handling large ports and associated infrastructure – **Largest port operator in India**

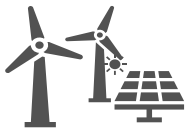
05

ANIL: Green Hydrogen Generation

ANIL: Green Hydrogen Ecosystem for First phase of 1.0 MMTPA GH2 by 2030

Key components:

Hybrid RE Generation

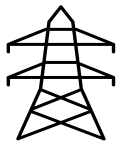


- **~21 GW+** Renewable Energy

Electrolyser for Green H_2 production

- Up to ~**17.5 GW** Electrolyser capacity

Transmission Line



- Grid connected

Green H_2 Compression

- **1 MMTPA** Green Hydrogen (H_2) compression

H_2 Pipeline

- **~215 Km** pipeline

Green Ammonia

- **~5.6 MMTPA** Green Ammonia capacity or equivalent derivatives
- Air separation Unit (ASU) for Nitrogen generation

Offtake of Derivatives[1]

- Development of derivative transport infrastructure at Mundra port
- Export to Europe, Singapore, Japan and Korea
- Domestic demand

Note:-Timelines of Project execution and commissioning to be aligned with market dynamics
Ecosystem Optionality includes Urea, methanol, LH_2, SAF, and others based on offtake requiremGH_2 : Green Hydrogen

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Thank You