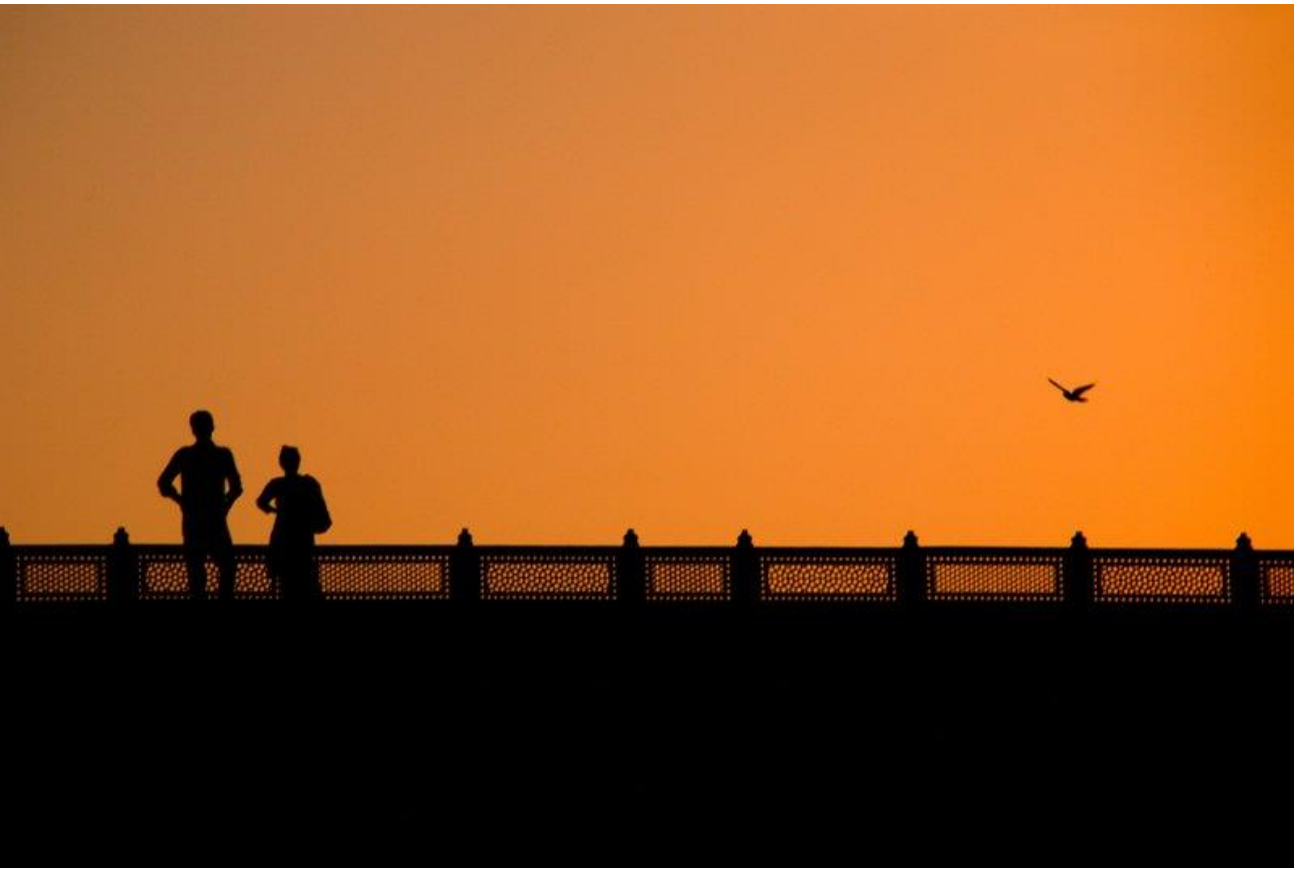
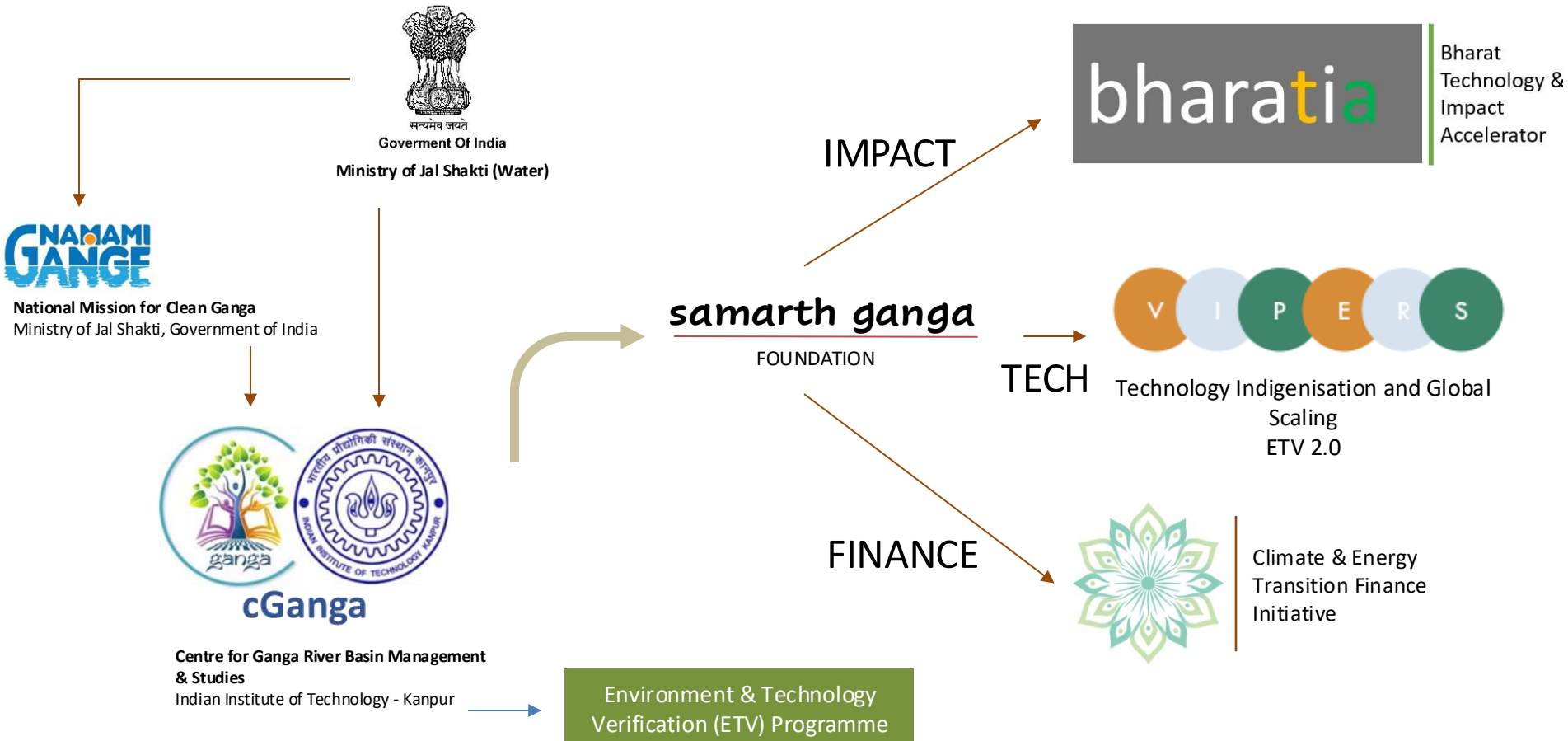


bharatia
Bharat Technology & Impact Accelerator

Hyper-accelerating Icelandic technologies in India

Tuesday, 8th April 2025
India Iceland Trade Council
Reykjavik

Genesis



About Bharatia

The Bharat Technology and Impact Accelerator (Bharatia) is a pan emerging markets, non-profit, Foundation that delivers impact through a unique blend of technology commercialisation and investment management.

bharatia Bharat Technology & Impact Accelerator

Tech HyperX

The technology hyper-acceleration platform takes solutions from validation to First-of-a-Kind commercial demonstration project in shortest possible timeframe.

https://www.bharatia.org/etv

Climate & Energy Transition Finance Initiative

CETFI develops structured finance solutions and investment platforms with qualified "Asset Managers" to accelerate commercialisation and global scale up of solutions.

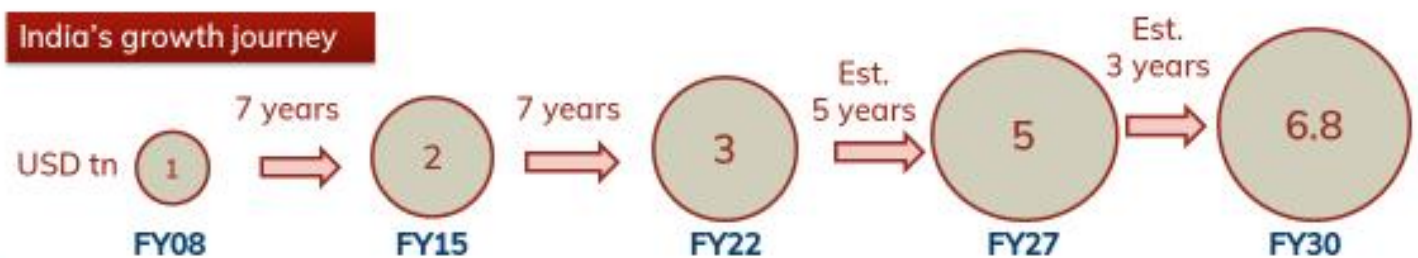
www.cetfi.org

India Opportunity

cGanga

bharatia Bharat Technology & Impact Accelerator

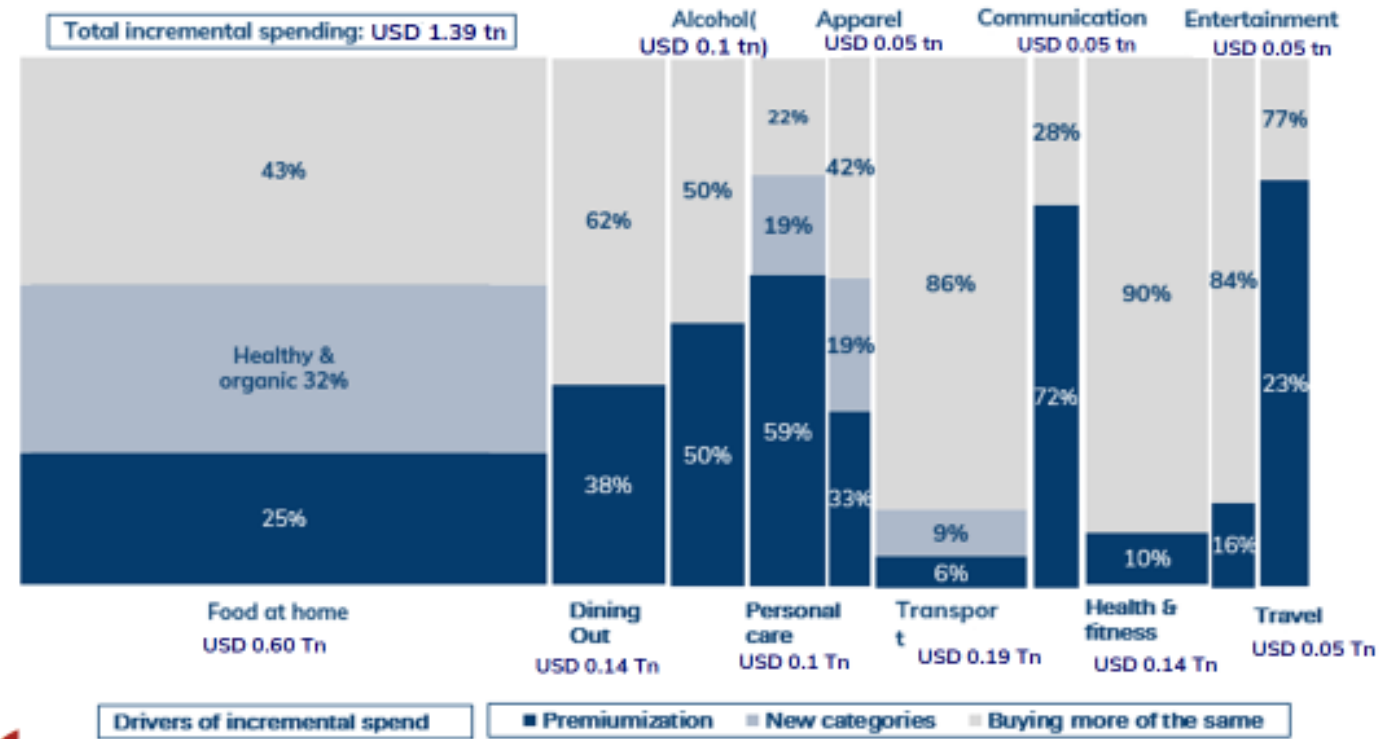
India to become a USD 7tn economy in FY30...



Source: IMF & ICICI Bank Research

India Opportunity

Drivers of incremental consumption (FY23-FY27)



Source: World economic forum and ICICI Bank Research

India Opportunity

cGanga

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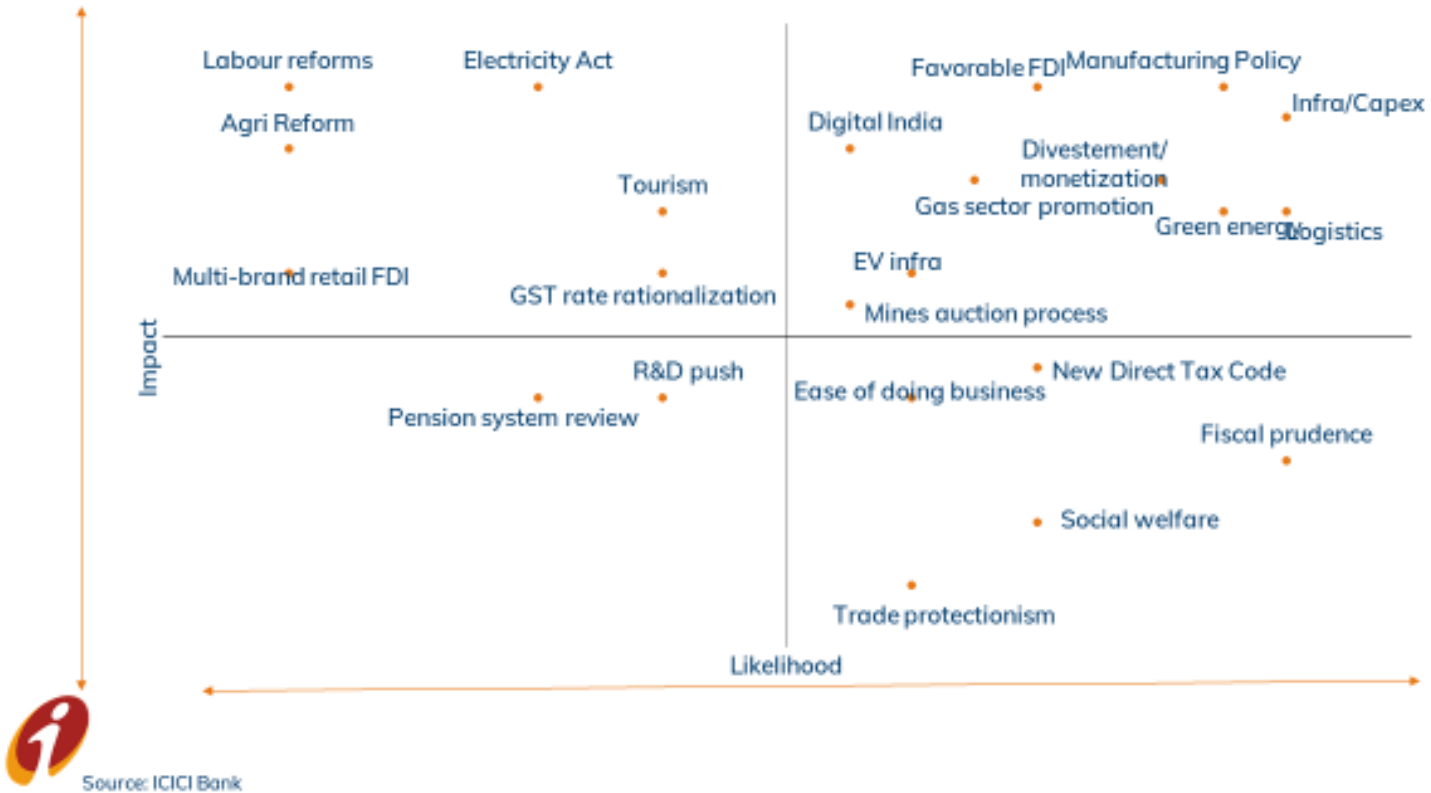
Focus area during Modi 3.0



Source: ICICI Bank

Climate and Energy Transition Opportunity

cGanga

bharatia Bharat Technology & Impact Accelerator

Source: The energy shift – tapping into India's climate and energy transition opportunity | Deloitte February 2025

Barriers to Technology Commercialisation and Acceleration

Barrier 1

Technology is not Emerging Market Ready

Numerous technology companies, especially those originating from developed nations, encounter difficulties when attempting to effectively introduce their solutions to emerging markets like India. These challenges arise due to a failure in adapting their commercial offerings to the unique economic conditions prevailing in the target market. The key factors contributing to this issue are:

- Failure to adapt to local standards, policies and regulations
- Over-reliance on importing capital equipment and machinery that leads to higher costs
- Not adapting to local market economics
- Neglecting to develop local talent and delivery mechanisms

Barrier 2

No Reference Site in-country

Having a reference site is very critical to establishing confidence amongst all key stakeholders including clients, investors and lenders. The reference site also helps the technology company assess their in-country costs and commercial price offering. However, establishing a commercial reference site in country is not easy for companies. The factors leading to this situation are:

- Government clients cannot offer a commercial site on a nomination basis. This can only be done via a policy or a else the only other way is a “project-tender”
- Companies do not have any local presence to be able to qualify for a tender
- Companies do not also have local deliver set-up or partners

Barrier 3

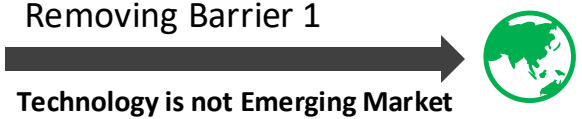
Lack of Scale

The final and a significant barrier that companies face in their pathway to technology acceleration is their inability to establish a structure that allows them to receive investments for scaling up. The factors contributing to the situation are:

- Not being able to distinguish or separate the technology engineering/innovation process from “projects – technology deployment”
- The engineering teams and project teams require different structures and skill-sets
- Project entities are balance-sheet heavy that require significant equity investment
- Engineering processes also require capital investment for being able to provide performance-guarantees

How ETV Programme Removes the Barriers

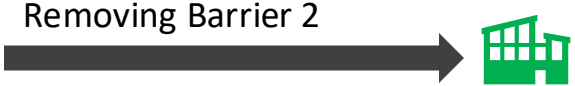
Removing Barrier 1



Technology is not Emerging Market Ready

- Conducting the Technology Readiness Level (TRL), Commercialisation Readiness Level (CRL) and Impact Readiness Level (IRL) assessment from emerging markets perspective
- Identifying the gaps and making recommendations to boost TRL/CRL/IRL scores
- Help with **securing local supply chain** and **comply with regulations**
- Help with finding with and entering a collaboration model with local delivery partners

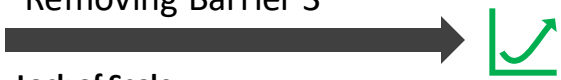
Removing Barrier 2



No Reference Site in-country

- Identifying the first commercial reference site
- Securing government (or client) permission and project award
- Developing KPIs for project success
- Developing the project financing model and helping secure funding

Removing Barrier 3



Lack of Scale

- Creating a PPP/BOOT/Leasing model for technology solution
- Developing commercial off-takes and partnerships
- Developing technology license partnership model
- Providing a framework for separating technology engineering and
- Developing the project financing model and helping secure funding

ETV-VIPERS - Approach

Provide a structured programme for international companies that provides a streamlined interface and takes away all the complexities of navigating through the Indian market. The programme using **VIPERS** approach will deliver:

Invite qualifying technology candidates to apply to the programme

Step 1 - Validation (V)

Assess Technology and Commercialisation Readiness Levels (TRL and CRL scores)

- Assess company's technology and commercialisation readiness level scores.
- This will help identify who are the right eco-system partners and what is the right commercial model for the technology introduction to market.

Step 2: Induction (I)

Commercial Pathway to Market Entry

Establish the most optimum commercialisation pathway for the international technology company

(a) Technology licensing only: needs a suitable partner who will invest in establishing the market
(b) Technology joint-venture: both parties jointly invest in establishing the market
(c) Wholly owned subsidiary: company establishes its own subsidiary and invests to build team/market

Step 3: Partners (P)

Secure Partner Eco-system in India

Secure partner ecosystem that will deliver the solution in country:

(a) **Original Equipment Manufacturer (OEMs):** who will manufacture individual components (hardware solutions)
(b) System Integrators: who will ensure technology integrates and adapts
(c) Project Developers: who will execute the project commercially

Step 4: Evaluation (E)

Evaluation

Consortium applies for an evaluation process to a specialist Panel of experts appointed from government approved agencies and institutions.

(a) Consortium presents to the Panel
(b) Panel reviews the technology solution and provides "Approval (move forward)" or "Amend and present" status in which case consortium makes necessary amendments

Approach - continued

Step 5: First-of-a-Kind (FOAK) Commercial Project Reference Site (R) → Step 6: Scale-Up (S)

A. Securing Project	Commercial Investors and Project Finance	Enabling Off-take Agreements	Nth-of-a-kind (NOAK)
• Identify Project • Proposal from delivery consortium • Receive Letters of Intent from the Project Sponsor • Sign binding project delivery agreements • Visibility on project off-take is there at this point	Project moves on to securing capital investment - Commercial investors shall enter into investment relationship with the delivery consortium. - Once equity investment is in place, the consortium proceeds to secure project finance / lending from various financial institutions - Project sponsor and Off-taker needs to see visibility of funding.	Once project funding is in place, the off-taker enters into binding agreement on delivery of service, eg managing cold-storage facility or an output commodity from the project – e.g. supplying treated water,	Consortium develops frameworks to scale the solution up using one or more models to bring capital into the project platform.

How does Bharatia deliver

Global Technology Sourcing

Technology Sourcing at TRL >= 5

Bharatia only takes on board technologies that have been developed and ready to be commercialised. It is technology commercialisation and not a technology development programme.

bharatia

High Impact Solutions

Working with Governments, regulators and other key stakeholders, Bharatia is developing a number of strategic solutions for systemic problems.

Solutions include:
> Technology +
> Commercial Model +
> Financing Frameworks

FOAK

FOAK: First of a Kind

The first of a kind commercial demonstrator project is deployed in country.

This establishes a lot of precedents and commercial benchmarks

NOAK

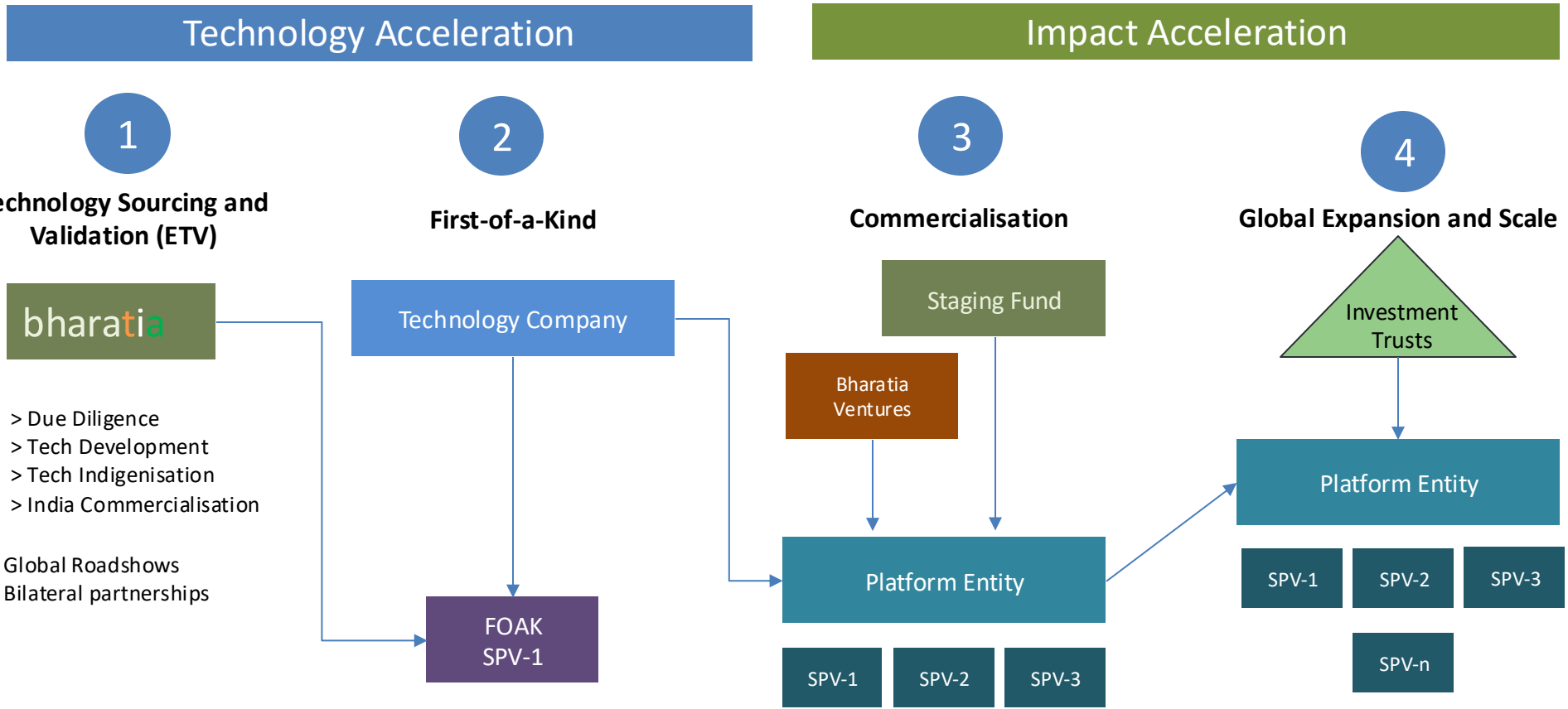
NOAK: Nth of a Kind

The Nth of a kind process scales the technologies via structured roll-out platforms and utilising financing structures such as bonds, capacity leasing models etc

The solutions get rolled out globally

Climate & Energy Transition Finance Initiative

bharatia Bharat Technology & Impact Accelerator



Solution 1: Soil less farming

The IMEC ® hydro-membrane farming systems comprises of the Hydro-Membrane and the water and nutrient feeding system that is economical and simple to set up and operate which allows anybody and everybody to grow food. Developed by Mebiol Inc, Japan, the **the world's first Hydro-Membrane based Farming Technology coupled with climate controlled system developed by** Mebifarm, addresses some of the serious issues that our world faces today such as water scarcity, reduction of arable land due to soil degradation and contamination, and climate change.

Salient Features Include:

- Anywhere and Everywhere farming
- Climate controlled system enables 365 days
- Reducing water consumption by upto 80%
- Eliminating agricultural run-offs
- Highly nutritious and high quality produce
- Zero chemicals at root level
- Easy set up
- High ROI

IMPACT

By enabling soil-less farming,

- Allows top-soil to regenerate and saves on water
- Reduces carbon
- Near/inner city farming eliminates transport costs
- High Income and Livelihood for farmers

SECTOR: Food and Agriculture
TARGET SIZE: 100 hectare farm systems across the country

Farm in India

Solution 2: Decentralised Waste-water Treatment

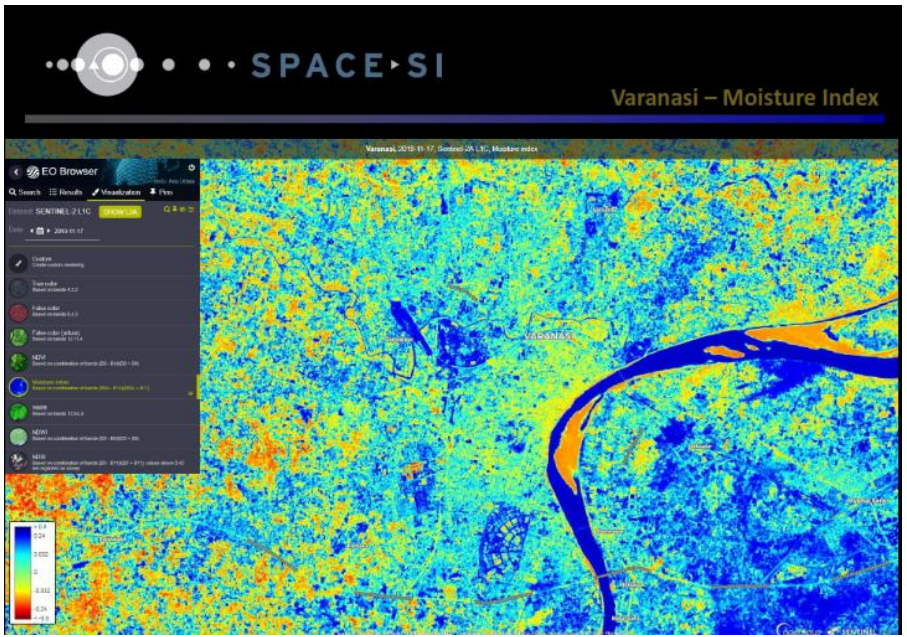
> Continuous Sequential Flow Reactor / SABRE technology sourced from UK
> Technology allows waste-water to be treated on-site
> Technology indigenised by cGanga/ETV/Bharatia by demonstrating in cleaning up of a lake in 48 hrs (Mumbai, above) and a real time treatment of a drain (Pimpri)
> Technology deployment cost reduced to make it affordable
> Can be deployed rapidly in under 2 weeks at any given site

IMPACT

In-situ treatment

- High rate enzymatic biotechnology
- Can rejuvenate ponds, lakes, drains, rivers in weeks
- Reduces water transport cost and infrastructure
- Provides high quality water bathing or drinking level
- Enables water supply to those not receiving it
- Major increase in water resilience

Solution 3: Satellite Remote Sensing



> Advanced remote sensing satellite technology sourced from Slovenia
> Technology allows mapping water bodies even through penetration of cloud cover
> Technology indigenised by cGanga/ETV/Bharatia by partnership with IIT-Kanpur
> Technology deployment makes it easier for river basin organisations to map various water bodies and historical changes going back upto 5 years

UN recognises the solution as a transformational tool for river basin management

cGanga signed MoUs with Space SI and VGB Maribor during the President Ram Nath Kovind to Slovenia in September 2019. The ceremony took place in presidential palace In Ljubljana and was hosted by the Slovenian president H.E. Mr. Borut Pahor.

IMPACT

By enabling satellite remote sensing

- Allows managers of land, forests, water bodies to put in place measures
- Advanced warning on risks
- Access to historical data

Solution 4: Waste Management – End of Life Tyres

Over 2.2 MMT of end of life tyres produced in India annually | EPR regulation applies

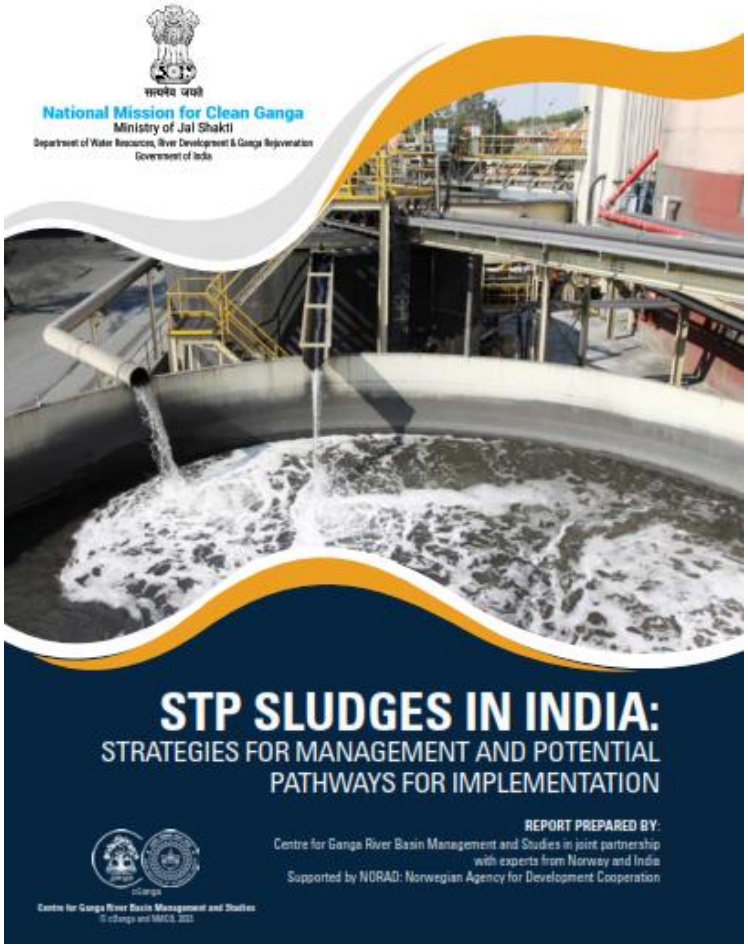
- Ultra High-Pressure Water-jet (UHPW) uses high pressure water streams to pulverise scrap tyres into premium value rubber powders
- The output is 100% guaranteed free of inter-banded cross-contamination (very “clean” product)
- Energy efficient
- Enables 100% resource recovery
- The process can be adapted to deliver recycling of : Passenger car tyres, Truck/Lorry tyres, Heavy earth moving equipment tyres and other materials such as plastics, cable wires and electronics

Solution 5: Sludge Management

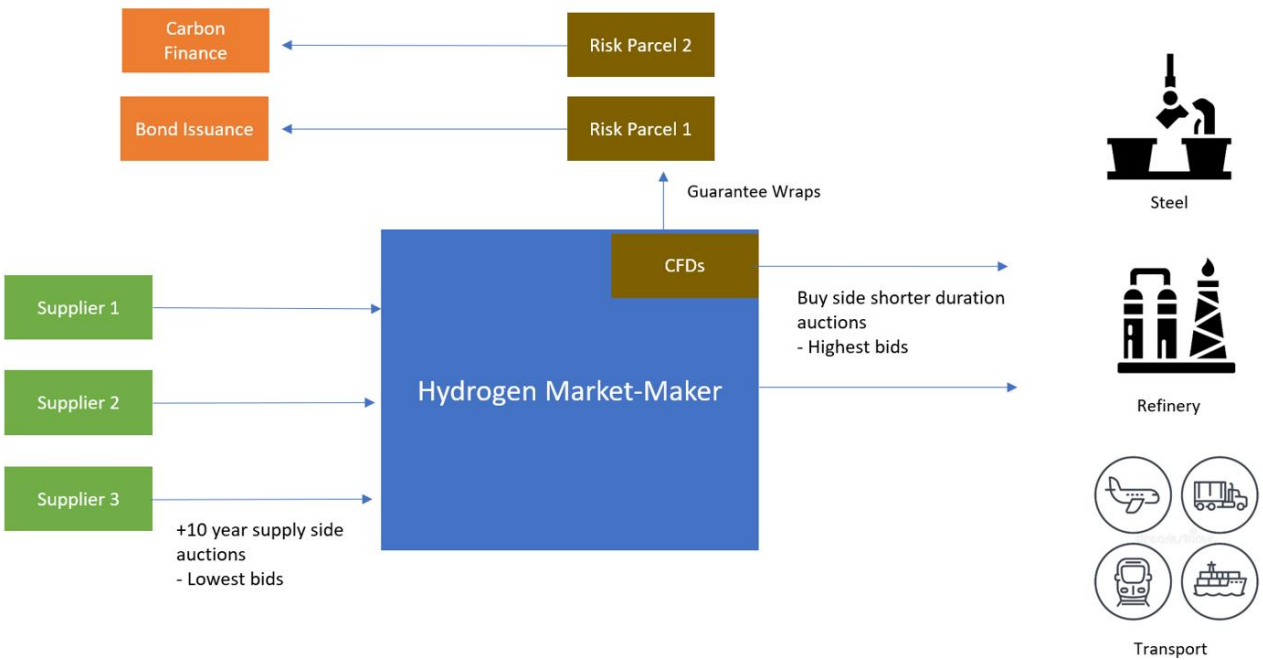
IMPACT

Sludge Treatment

- Hugely toxic and highly polluting reject of STPs sorted
- Diversion to landfill reduced
- Provides high quality soil enhancer
- Top soil rejuvenation



Initiative : GH2 Market Maker



- Impact trading platform in partnership with global climate funds
- Offers 10+ years off-take to producers
- Downstream Market-making
- Price discovery on both ends
- Packages “differential” in pricing in separate risk parcels
- Green bonds and carbon financing

Sectors

Primary

Water
Wastewater treatment
Water supply
Drinking water
Water network
Water resource management
Water use efficiency

Energy
Renewable energy
Clean hydrogen
Bioenergy
Energy efficiency
Energy networks
Storage and RTC

Waste
Waste management
Waste material recovery
Circular economy
Waste recycling
Waste reduction

Agriculture
Sustainable agriculture
Climate controlled farming
Irrigation efficiency
Yield enhancement
Agri supply chains
Organic farming

Climate
Climate science
Climate data
Climate modelling
Climate Decision systems
CO2 and CH4 tracking
Emissions/Carbon trading
Emissions reduction

Enabler

Digital
Digital twins
Sensors and IoT
Data analysis
Remote sensing
Decision support systems
Digital Apps

Applied Sectors

Transport
Electric Vehicles
Charging network
Hydrogen powered transport
Hydrogen filling stations
Biofuels powered transport
Biofuel filling stations
EVTOLs

Manufacturing
Green Manufacturing
Material efficiency
Production efficiency
Waste management
Energy efficiency
Heat recovery
Emissions reduction

Urban
Green buildings
Green cities
Urban redesigning
Reducing heat islands
15-20 mins cities
Cities adopting villages
Slowing urbanisation
Air pollution

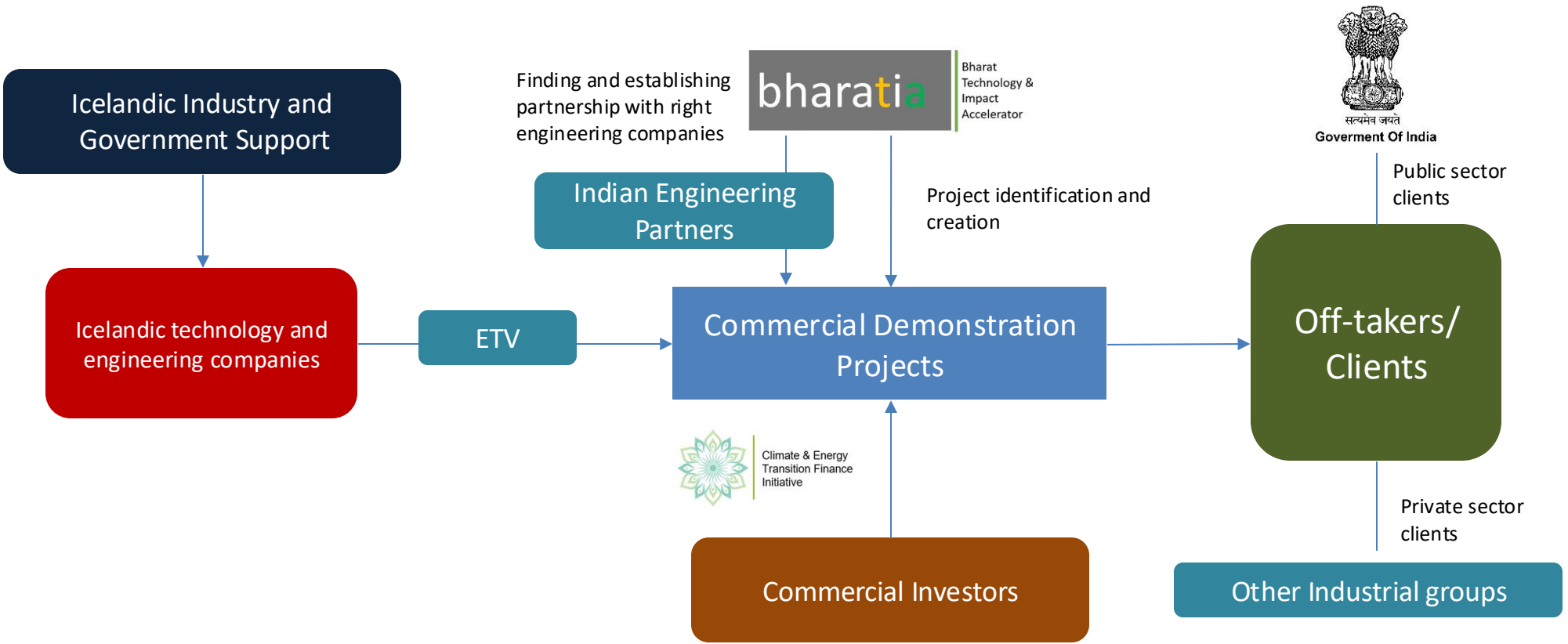
Moral Obligation

Biodiversity
Top-soil rejuvenation
Wildlife and animal conservation
Wetlands restoration
Oceans restoration
Nature rewilding
Afforestation

Strategic collaboration with Iceland

1. One-stop for market entry and technology acceleration
2. Deep innovation eco-system for OEMs and partners
3. IP protection
4. Access to **dedicated marquee projects**
5. Access to deep talent pool
6. Access to Indian and global investors
7. Strategic springboard to global emerging markets
8. to market entry reduced by 80%
9. Solution scaled up to over 4bn global market

Iceland – India Ambition



bharatia Bharat Technology & Impact Accelerator

Partners to solve global climate problems

Icelandic scientific, technological and engineering expertise

India’s ability to scale solutions

Contact Details

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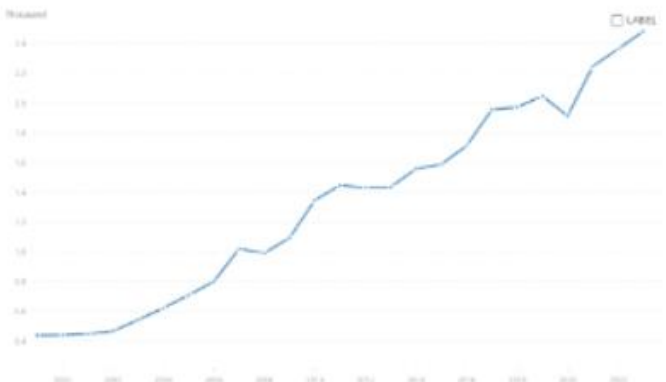
MD and CEO: Bharatia
sanmit@bharatia.org

Mobile: +91 98109 32226
Whatsapp: +44 7939 052 996

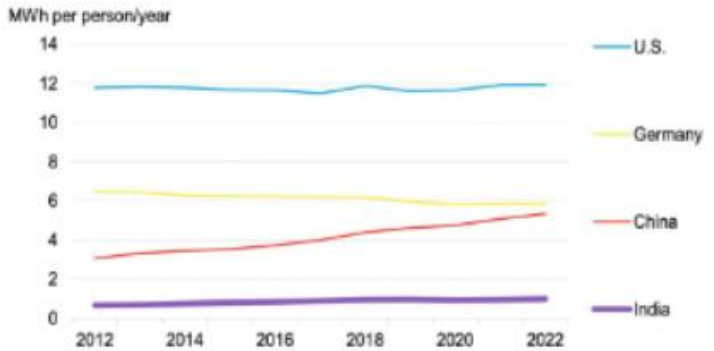
Backup Slides – only if needed

India Power Market

India | A high growth market with per capita income (current US$) growing almost 5x in last two decades

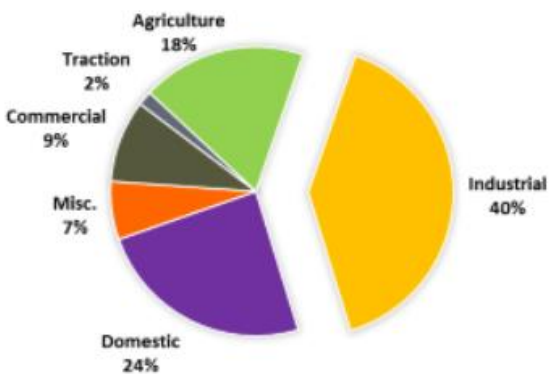


Poor infrastructure and connectivity has meant very low power consumption per capita compared to other markets

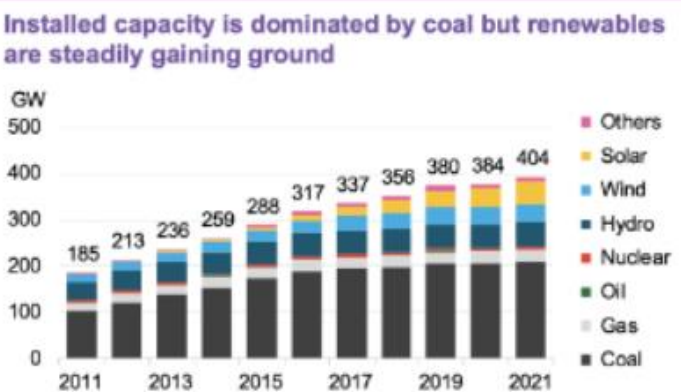


Source: BloombergNEF, World Bank

Expectedly, industry and domestic consume more than 2/3rd of the electricity in India



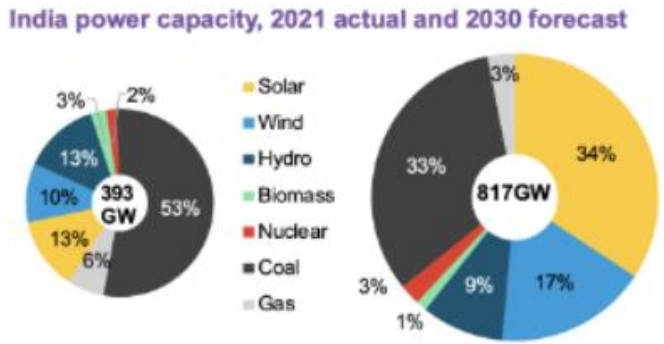
As a policy, India is moving away from coal thermal



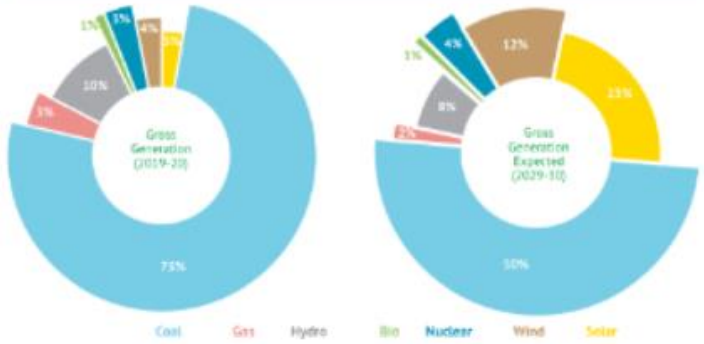
Source: World Bank, Bloomberg, SEIS

India Power Market

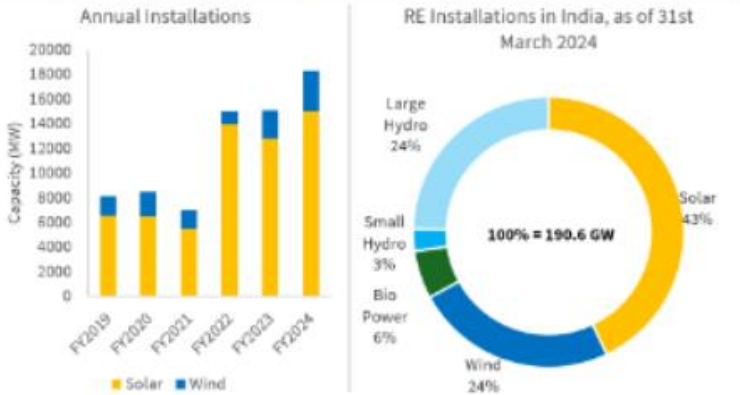
India power capacity is expected to be dominated by RE sources in 2030



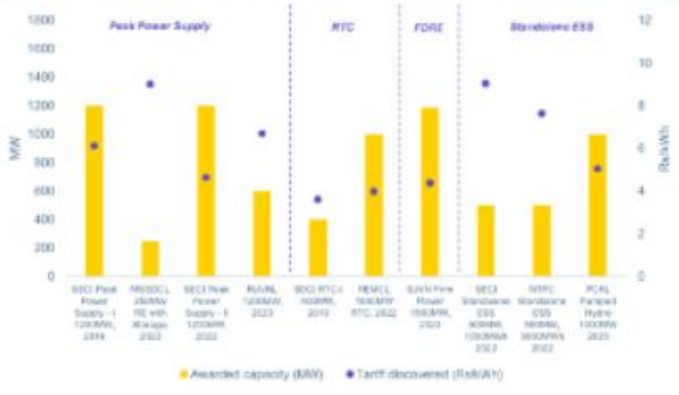
RE sourced power generation is expected to be half of the total mix by 2030



RE installed capacity crosses 190GW, with a strong pipeline of 100GW+



Auction based FDRE tariff quoted @ Rs 4.38 – Rs 5.59, last 12 months



Source: MNRE, SECI, McKinsey, Bloomberg, SEIS

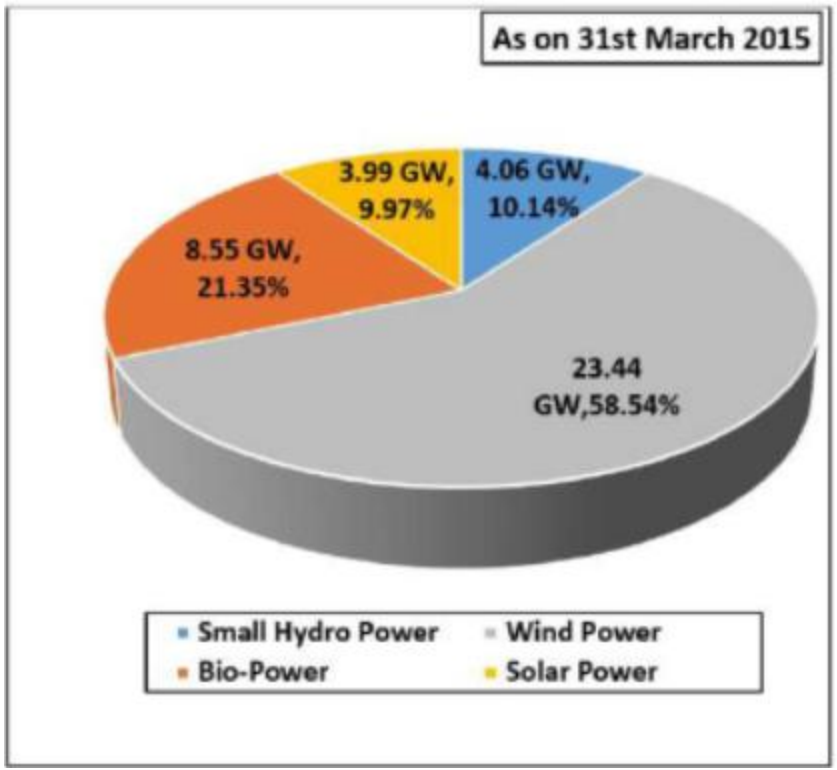
Share of Renewable Energy in overall Energy Mix in India

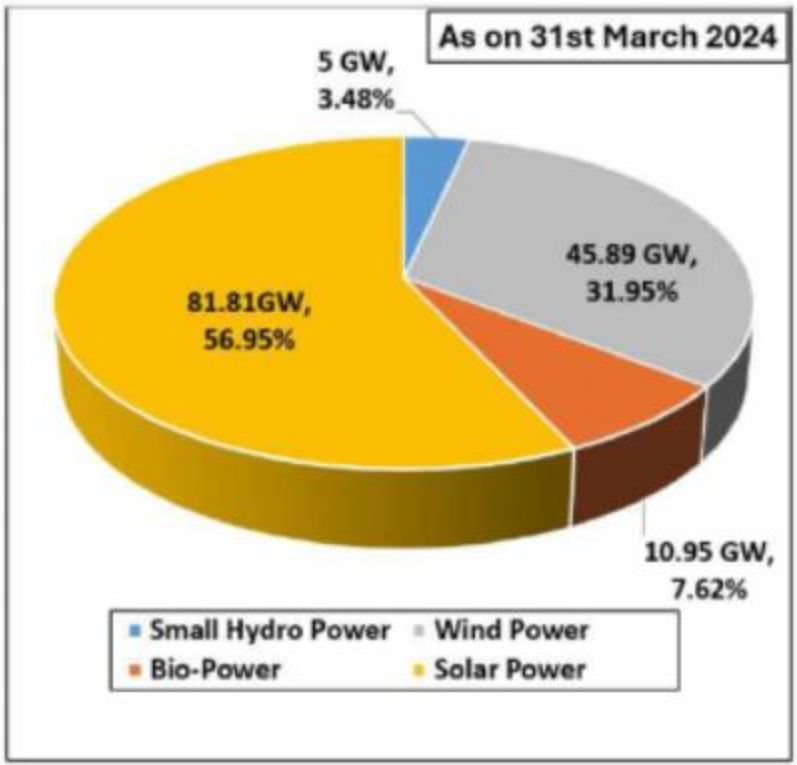
Share of RE has grown from 29.44% in 2014-15 to 43.14% in 2023-24

Source: Renewable Energy Statistics 2023-24, Ministry of New and Renewable Energy, Government of India

Share of various sources of RE – cumulative installed capacity

Solar has become the most dominant source of RE power in India with 56.95% share of capacity.
India surpassed 100GW installed capacity in Jan 2025, with 84GW under implementation and 47GW under tendering. **500GW RE target by 2030.**





Source: Renewable Energy Statistics 2023-24, Ministry of New and Renewable Energy, Government of India

State-wise distribution of installed capacity

Top 5 states are: Gujarat (27,461 GW), Rajasthan (27,103 GW), Tamil Nadu (22,161 GW), Karnataka (21,441 GW) and Maharashtra (17,530 GW)

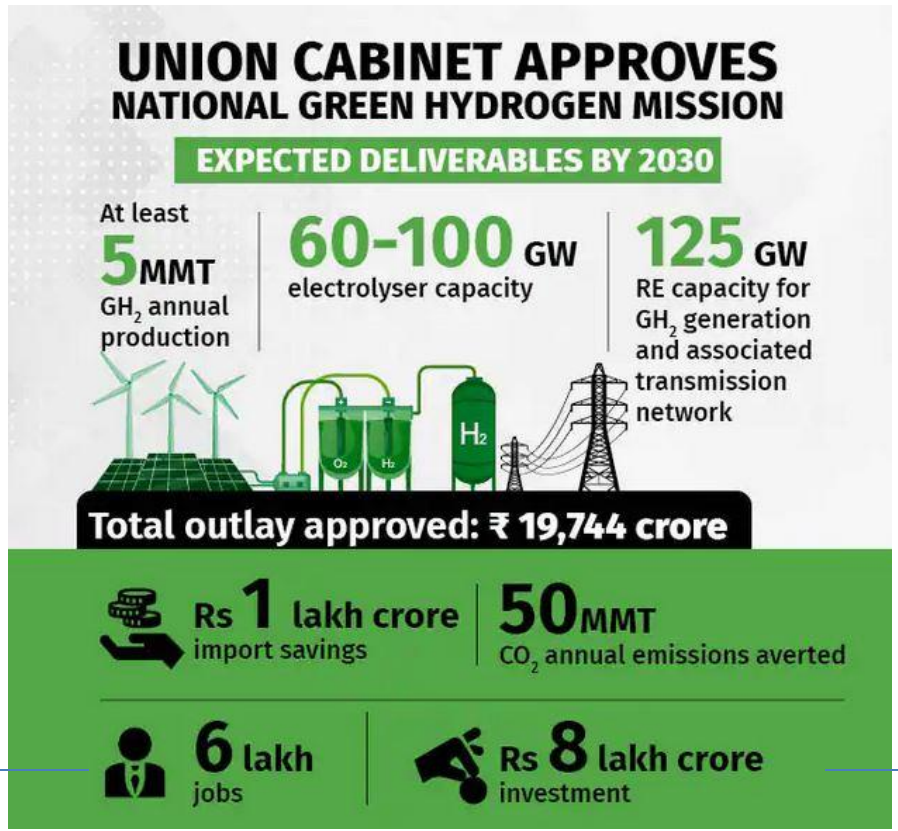
(in MW)

States /UTs	Small Hydro Power	Wind Power	Bio Power	Solar Power	Large Hydro	Total Capacity
Andhra Pradesh	163.31	4096.65	574.39	4584.98	1610.00	11029.33
Arunachal Pradesh	133.11		0.00	11.79	1115.00	1259.90
Assam	34.11		2.00	156.18	350.00	542.29
Bihar	70.70		140.22	239.23		450.15
Chhattisgarh	76.00		275.00	1212.39	120.00	1683.39
Goa	0.05		1.94	43.48		45.47
Gujarat	91.64	11722.72	112.48	13544.88	1990.00	27461.72
Haryana	73.50		283.70	1475.72		1832.92
Himachal Pradesh	969.71		10.20	95.23	10281.02	11356.16
Jammu & Kashmir	169.93		0.00	65.44	3360.00	3595.37
Jharkhand	4.05		19.10	162.40	210.00	395.55
Karnataka	1280.73	6019.61	1907.72	8544.68	3689.20	21441.94
Kerala	276.52	63.50	2.50	1022.79	1864.15	3229.46
Ladakh	42.99		0.00	7.80	89.00	139.79
Madhya Pradesh	123.71	2844.29	134.94	3995.43	2235.00	9333.37
Maharashtra	382.28	5207.98	2643.19	6249.67	3047.00	17530.12
Manipur	5.45		0.00	13.04	105.00	123.49
Meghalaya	55.03		13.80	4.24	322.00	395.07
Mizoram	45.47		0.00	30.31	60.00	135.78
Nagaland	32.67		0.00	3.17	75.00	110.84
Odisha	115.63		59.22	495.63	2154.55	2825.03
Punjab	176.10		567.25	1324.27	1096.30	3163.92
Rajasthan	23.85	5195.82	125.64	21347.58	411.00	27103.89
Sikkim	55.11		0.00	7.04	2282.00	2344.15
Tamil Nadu	123.05	10603.54	1045.45	8211.38	2178.20	22161.62
Telangana	90.87	128.10	221.67	4758.16	2405.60	7604.40
Tripura	16.01		0.00	18.46		34.47
Uttar Pradesh	49.10		2226.14	2920.33	501.60	5697.17
Uttarakhand	218.82		142.24	575.53	4035.35	4971.94
West Bengal	98.50		348.36	194.07	1341.20	1982.13
Andaman & Nicobar	5.25		0.00	29.91		35.16
Chandigarh			0.00	65.52		65.52
Dadar & Nagar Haveli/ Daman & Diu			0.00	46.47		46.47
Delhi			84.00	256.51		340.51
Lakshadweep			0.00	4.97		4.97
Puducherry			0.00	49.91		49.91
Others		4.30	0.00	45.01		49.31
Total	**5003.25**	**45886.51**	**10941.15**	**81813.60**	**46928.17**	**190572.68**

Source: Renewable Energy Statistics 2023-24, Ministry of New and Renewable Energy, Government of India

Green Hydrogen Potential

Due to abundance of solar and cheap RE power, India stands to become a global hub for GH2 production



600k jobs

£80bn

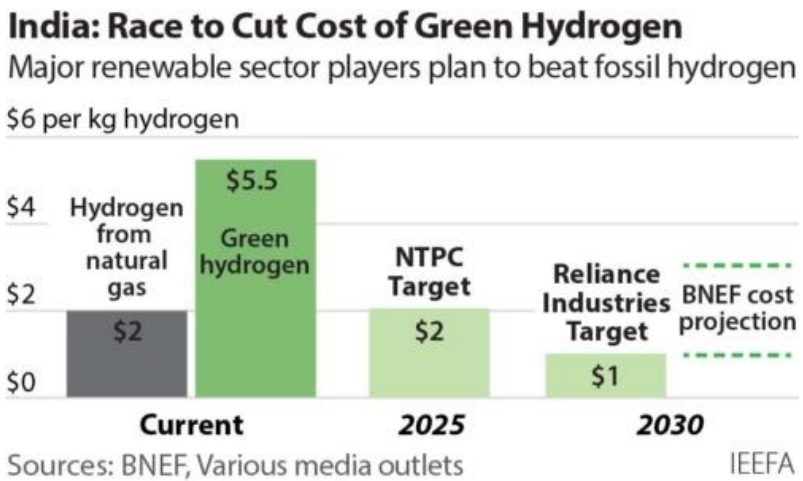
Source: Green Hydrogen Mission, Ministry of New and Renewable Energy, Government of India

Green Hydrogen Potential

Scaling-up will deliver a reduction in costs of GH2

The levellised cost of green hydrogen in India will likely fall by up to 40% to Rs260-310/kg (US$3-3.75/kg) with the support of incentives, cheap renewable electricity, waiver of ISTS open access charges, distribution and transmission charges and lowering the GST rate for hydrogen to 5%.

Electrolyser manufacturers are projected to achieve a 7-10% reduction in total system costs for the first five years with Rs2,960/kW (US$36/kW) being the average annual realisable base incentive.

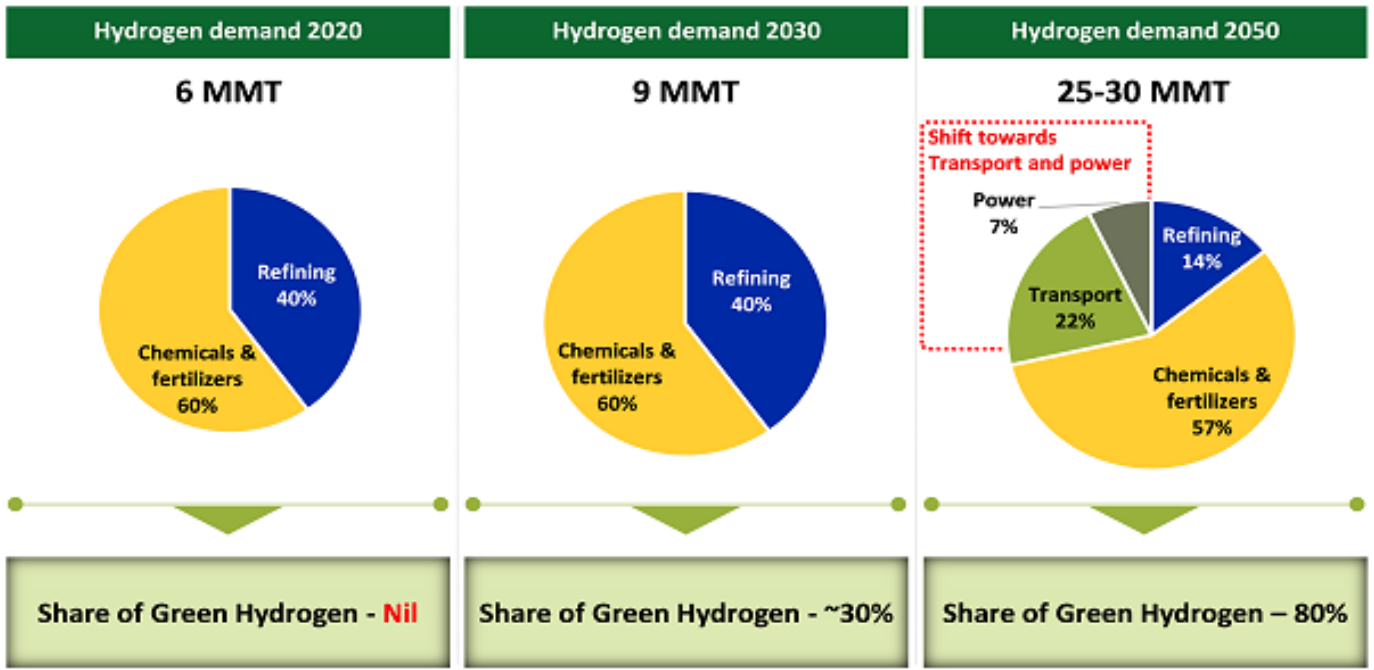


Source: Institute for Energy Economics and Financial Analysis

Green Hydrogen Potential

Consumption patterns in Hydrogen

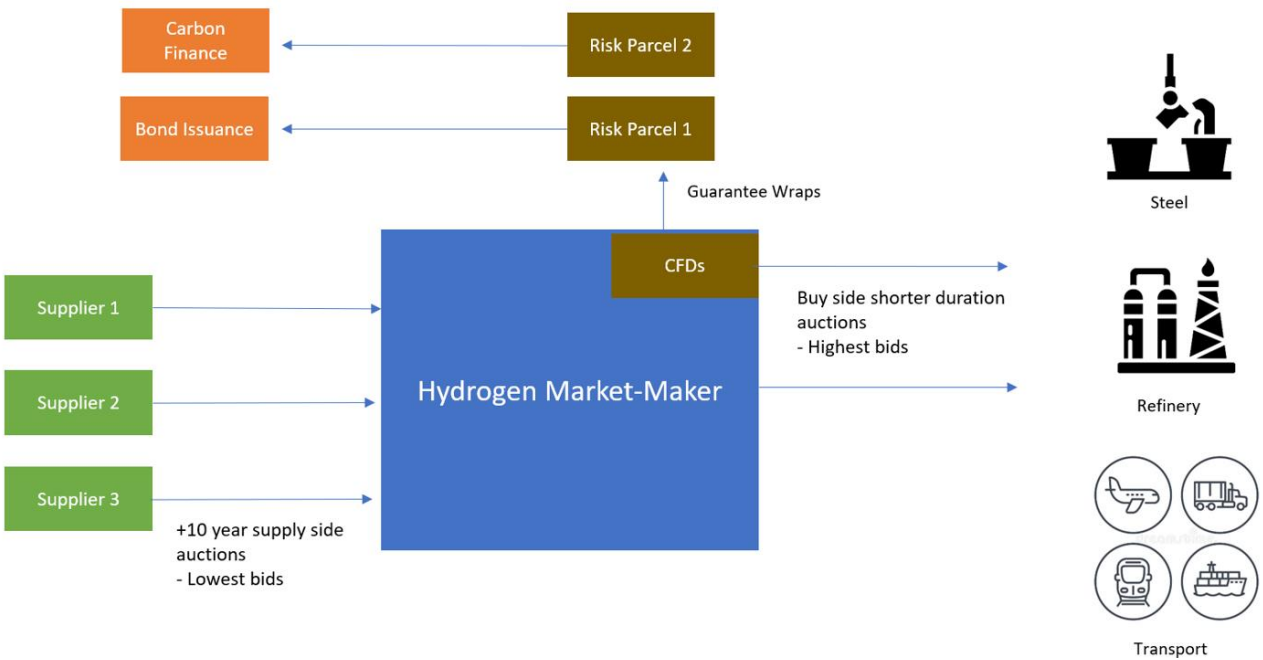
Hydrogen demand will see shift to transport and power going forward



Source: TERI, ICRA Research

Bharatia Initiatives in GH2

Initiative 1: GH2 Market Maker



- Impact trading platform in partnership with global climate funds
- Offers 10+ years off-take to producers
- Downstream Market-making
- Price discovery on both ends
- Packages “differential” in pricing in separate risk parcels
- Green bonds and carbon financing

Initiative 2: Electrolyzer Capacity Leasing Model