Accelerating Growth of New India’s Innovations

30 September 2021
Sector Insights: CLEAN ENERGY

- **243%**
  Increase in Renewable Energy Capacity (2013-21)

- **3rd**
  Largest Installed capacity of Renewable Energy

- **5x**
  5x growth in Solar power capacity in the last 5 years

- **5th**
  Largest Solar Installed Capacity in the World

- **4th**
  Largest Installed Capacity of Wind Power in the World

Renewable Energy Capacity in India (GW)

<table>
<thead>
<tr>
<th>Year</th>
<th>Capacity (GW)</th>
<th>CAGR</th>
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<tbody>
<tr>
<td>FY 2016</td>
<td>45.9</td>
<td></td>
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<tr>
<td>FY 2021</td>
<td>94.4</td>
<td>15.51% CAGR</td>
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Investment Insights: CLEAN ENERGY

- **3rd** In Renewable Energy Country Attractiveness Index
- **400** Early stage venture capital deals in 2020
- **$225 Bn** Investment Opportunities
- **100%** FDI allowed for renewable energy generation & distribution
- **450 GW** Targeted renewable energy capacity of by 2030

New Investments in CleanTech (USD Billion):

- **2004 - 2007**: 16.6
- **2008 - 2011**: 29.7
- **2012 - 2015**: 27.1
- **2016 - 2019**: 49
Innovation: CLEAN ENERGY

International cooperation in clean energy RD&D:

<table>
<thead>
<tr>
<th>Country</th>
<th>Mission Innovation Challenges</th>
<th>Lead</th>
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<tbody>
<tr>
<td>INDIA</td>
<td>3</td>
<td></td>
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<tr>
<td>EUROPEAN UNION</td>
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<td></td>
</tr>
<tr>
<td>CANADA</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>UNITED KINGDOM</td>
<td>2</td>
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<td>CHINA</td>
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4th Largest energy start-up ecosystem in the world with 183 startups (2016-20)

52.7% Share of clean energy start-ups in total energy start-ups

Out of top 10 leading B2B start-ups, by funding are from clean energy sector
Case Study: CLEAN ENERGY

ReNew Power

- One of the top companies in India by Asset Size, ReNew Power operates utility scale wind, utility scale solar and rooftop solar projects.
- Only renewable sector company in India with over 5 GW of operational capacity.
- First renewable energy company in the world to be recognized a ‘Lighthouse’ by the World Economic Forum.
- Operates across 9 states in India and involved in over 110 utility-scale project.

Azure Power

- Pure play solar power company providing low-cost and reliable solar power solutions.
- First Indian energy asset to be listed on the New York Stock Exchange.
- Azure Power has listed the first solar green bond on the Singapore Stock Exchange.
- It has a solar assets base of ~2 GW of operational capacity and over 5.1 GWs of capacity under construction and in the pipeline.
Future Outlook: CLEAN ENERGY

**Challenges**

- Lack of adequate transmission capacity available for interstate trade
- High initial unit capital costs of renewable projects lead to financing challenges and initial burden
- Only 38% share of the total installed capacity is derived from Renewable sources
- Existing long-term physical Purchase Power Agreements (PPA’s) represent about 90-95% of total generation

**Govt. Initiatives**

- Green energy corridor – 12,600 KM of transmission lines planned
- PLI scheme in Solar PV manufacturing with financial outlays of INR 4,500 Cr. under Atmanirbhar Bharat 3.0
- 100 Smart city projects – provision for Solar rooftop & mandatory 10% renewable energy
- 60 solar cities approved and $1.3 bn allocated for setting up 50 solar parks of 40GW by 2020
Accelerating Growth of New India's Innovations
Prime Minister’s Science Technology and Innovation Advisory Council (PM-STIAC)

National Missions

- Artificial Intelligence
- Quantum Frontier
- Waste to Wealth
- Biodiversity
- Electric Vehicles
- Indian Language Translation
- Deep Ocean Exploration
- Genomics
AGNIi: Accelerating Growth of New India's Innovations

Provides dedicated support for scouting technologies across India’s R&D, innovation and startup ecosystem

Provides a platform for innovators to bring market ready products/solutions to industry

Enables matchmaking between technology providers and technology seekers
Technology Scouting

67 Open Innovation Challenges

Focus Areas
AI, Cyber Security, Automotive, Agri & Food, Mobility, Water, Pollution, Sanitation, Clean Tech, AI/ML, AR/VR, Health, Education, Defence

Outcomes Achieved
Every partner offered at least one of the below to 1-3 innovators in each open innovation focus area:

✓ Pilot
✓ Incubation
✓ Licensing
✓ Market access
✓ Funding
✓ Access to R&D facility
Technology Showcases

Focus Sectors
- CleanTech
- Defence
- Waste Management
- Agriculture
- Auto & EV

Outcomes Achieved
Every partner offered at least one of the below to shortlisted innovations in each technology showcase:
- Pilot
- Licensing
- Market access
- Funding
**Key Highlights**

**Area of Interest:** Embrace emerging tech to achieve carbon neutrality and identify alternatives to natural gas, diesel and other source of carbon generation.

AGNiI Mission shortlisted 28 technologies from the areas of alternate energy generation, alternate solar panel material, hydrogen as fuel, energy efficiency and management.

**Support rendered:** Paid pilot at manufacturing plant, full-fledged contract opportunities if found suitable

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**Area of Interest:** Enhancing solar panel efficiency, Recycling of wind turbine blades, discarded solar panels and used Li Ion batteries

MoP shortlisted 2 innovations from the AGNiI Energy portfolio – double axis solar panel and waterless solar panel cleaner.

The solution would be deployed through SJVN – JV Gov. of India and Gov. of Himachal Pradesh.

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**Area of Interest:** Industrial Low Carbon Technology, Deeptech, Resource Efficiency, Food & Agriculture, Commercial & Residential Energy Use, Storage Technology.

AGNiI Mission supported UNIDO’s Low Carbon Technology Accelerator program by scouting innovations from the startup ecosystem. 200+ applications received. Result announcement in Oct 2021.
Thank You

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