



Global Collaborations – Innovations in Energy Transition

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GITA is a not-for-profit section-8 company jointly promoted by **Technology Development Board**, Department of Science & Technology, Government of India and **Confederation of Indian Industry**

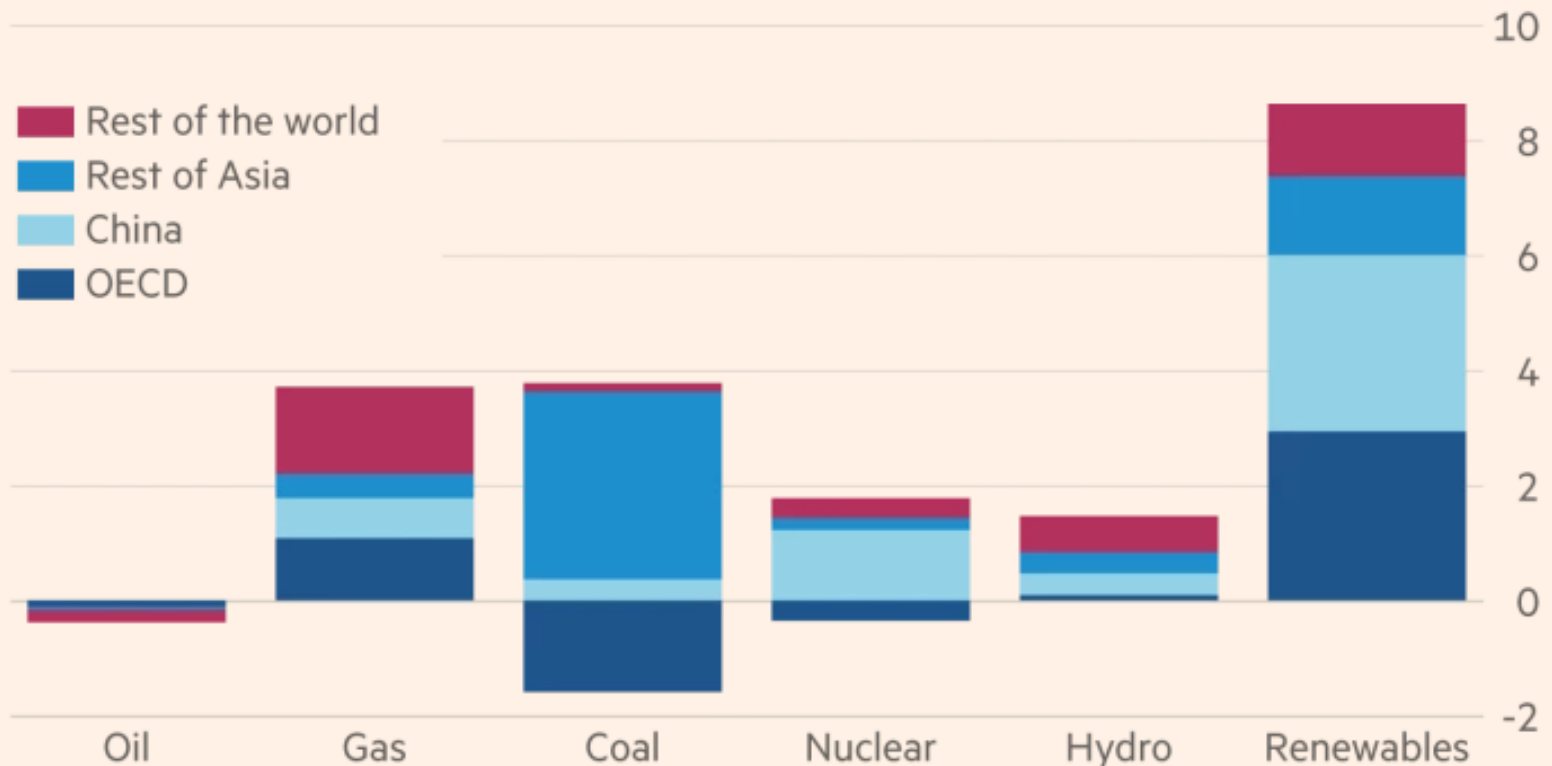






Growth of power generation, 2016-40

TWh ('000)



Source : BP Energy Outlook 2018

Some Mega Trends



1

Paris goals- technically and economically feasible - but require fundamental changes.



2

Wind and solar power - set to grow rapidly; will become major source of electricity by 2050, globally.



3

Significant integration costs with multiplicity of renewable feedstock.



4

Energy storage options developing rapidly; will both increase range and lower costs of EVs



5

Transportation revamp; EVs leading change.

Some Mega Trends

6

Gas-fired appliances to continue to power much of world's heating, though may see shift towards electric systems and hybrid appliances.

7

Decarbonized gas technologies important to resolving paradox of sustainability - reducing GHG emissions and rising energy demand.

8

Digital technology will be key for system-wide efficiency improvement; still evolving.

9

Gas and oil are set to play a continuing role and by 2050, technology has potential to reduce projected ALC for both by ~ 30%.

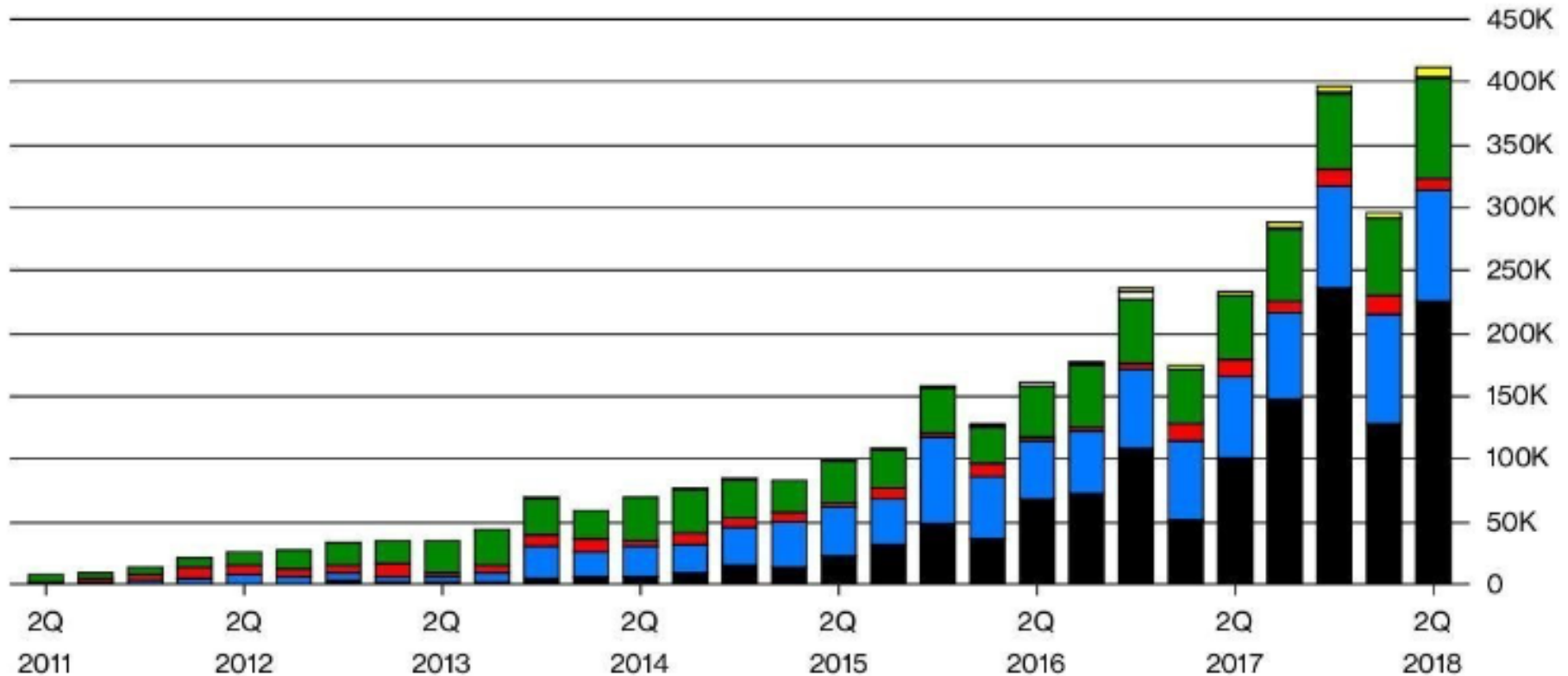
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Less is More - Energy efficiency offers massive potential to reduce emissions and save energy.

Electric Vehicles Charge Ahead

Sales worldwide top 400,000 units in a single quarter for the first time

■ China ■ Europe ■ Japan ■ North America ■ Rest of world ■ South Korea



Data: Bloomberg NEF; graphic by Bloomberg Businessweek

How can India leverage this unparalleled opportunity?

- Concerted action plan by all actors
- Focus on fundamental R&D good but thrust on commercialization critical
- Leverage existing knowledge – national and global
- Collaborative efforts essential – domestic and international
- GITA strategically positioned to support industrial R&D

The GIITA Mandate

VISION

Strengthen India's **innovation ecosystem** through **supporting** and enabling **technology** and innovation driven enterprises

MISSION

To **catalyze India's recognition as a key innovator** and provider of technologies at the global level.

To **inspire Indian industrial community** to recognize RD&D (Research Development & Deployment) as a key and sustainable driver for individual and collective business growth.

To **enhance risk appetite of Indian industry for taking up innovative projects** by inculcating a culture of RD&D (Research Development & Deployment) and sensitizing the importance of protecting intellectual property.

To **create a vibrant skilled work force** to take up research activities and in turn strengthen the RD&D (Research Development & Deployment) ecosystem of India.

To **become an enabler for transfer of world class technologies** to India through viable arrangements.

The Origins

- **Prime Minister's Council on Trade & Industry** recommended incorporation of an arm's length entity in **PPP** mode to a) **professionally manage Government's industrial innovation funds**, b) for providing flexibility to industry for R&D, including with global partners and c) **deliver commercialisable products and services to Indian and global markets**.
- On **November 29, 2011**, the **Global Innovation & Technology Alliance (GITA)** was incorporated as a not-for-profit (Section 8) company jointly by the **Technology Development Board (TDB)** of Department of Science & Technology (DST), Govt. of India and the **Confederation of Indian Industry (CII)**.
- To provide sufficient flexibility to GITA and its operations, the **majority (51%)** share of GITA's capital has been invested by **key member companies of CII** and the **balance (49%)** has been invested by Government of India.



On **National Technology Day** (11 May 2012), launch of GITA was blessed by the Chief Guest, **Dr. APJ Abdul Kalam**, former President of India; and other dignitaries.

Board of Directors

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JB Mohapatra
JS & FA, DST



Dr Rajeev Kandpal
Director, DIPP

Our Approach



FUNDING

GITA extends financial support in form of Grant / Conditional Grant to promote industrial R&D, innovation, Technology Acquisition and International S & T Collaborative efforts.



CAPACITY BUILDING

GITA catalyzes innovation and empowers ideas by offering specialized Information, matchmaking, IP protection etc. in the areas of technology design and IPR management.



STRENGTHENING ECO-SYSTEM

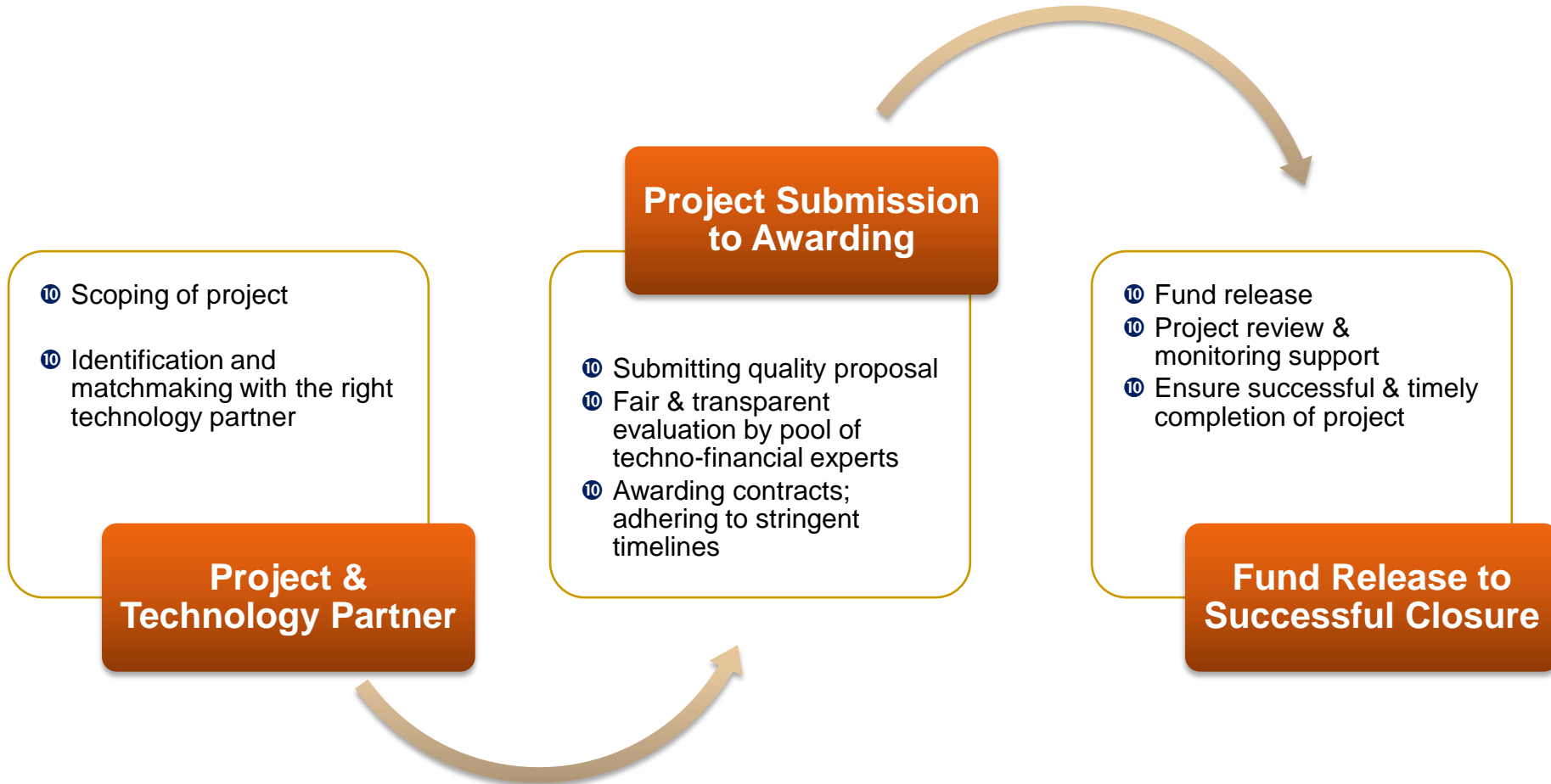
GITA is involved in Technical, Financial, Strategic policy research and advocacy to industry, research institutions, State & Central Governments and offers global networking platforms.



DEPLOYMENT

GITA is mandated to facilitate the implementation of various innovative and revolutionary scientific and technological industrial research and development projects worldwide.

Our Role



Canvas of GITA's Activities

BILATERAL INDUSTRIAL R&D PROGRAMS

Department of Science & Technology (DST) & Ministry of Electronics & Information Technology (MeitY), Government of India



MULTILATERAL PROGRAMS

INNO INDIGO
Partnership Program, GITA is a consortium partner in INNO INDIGO program promoted by the European Union (EU). INNO INDIGO focuses on involvement of SMEs / Industries as well as clusters / networks of excellence/competence.

Enterprise Europe Network (EEN)
GITA is a part of the 600 member organizations facilitating partnerships between Small and Medium Enterprises (SMEs).

NATIONAL PROGRAMS

Technology Development Fund (TDF)
Defence Research & Development Organisation (DRDO), GoI

Technology Acquisition Fund Program (TAFP)
Department of Heavy Industry (DHI), GoI

Technology Acquisition & Development Fund (TADF)
Ministry of Micro, Small, & Medium Enterprises, GoI

Sectors of Engagement



Innovation-driven Projects supported in Energy Sector⁽¹⁾

Sl.	Focus	Project Title	Key Elements / Outcomes
1	Generation	Commercialization of Biopanel Manufacturing from Rice Straw and Digestate Using Green Adhesives	Development of innovative bio-panels with rice straw or digestate and bio-oils for automotive industry.
2	Generation	Development of Innovative Gasification Technology With Tar Free And Purified Producer Gas for MSW-RDF	Cost-effective conversion of solid waste residuals into fluff (RDF)
3	Generation	Multi-Condition Robust Biomass Gasifier for Power Generation	Biomass gasifier using tar-free removal technology in gasification process resulting in less contaminated industrial waste water.
4	Generation / Storage	ZeTrucks/ Ze Mobiles	Development of fuel cell hybrid mini truck for Indian market.
5	Generation / Storage	Design and Development of Smart Electronically controlled Hybrid Energy recovery system for Buses and Electric Vehicles	Development of electronically controlled electro-pneumatic / electro-mechanical hybrid energy recovery system for EVs
6	Management	Advanced Smart Grid RxD, Demonstration & Commercialization Utilizing Distributed Energy Storage	Development of a 125 kWh dedicated system utilizing lithium-ion modules and bi-directional inverters.

Innovation-driven Projects supported in Energy Sector⁽²⁾

Sl.	Focus	Project Title	Key Elements / Outcomes
7	Management	Low-cost, High Performance Membrane Electrode Assemblies for India (L-CHIP MEA)	Development of a low-cost, high-performance Membrane Electrode Assembly (MEA) with a platinum-free catalyst
8	Management	Mechatronic Variable Speed Drive Transmission System	Cost-effective and efficient solution for EVs with an automatic and uniquely-designed 2-speed transmission system
9	Management	Autonomous Water Pump for Irrigation, Utilizing Solar Energy	Low cost solar enabled pumping system with higher efficiency and yield with decreasing operational and maintenance costs
10	Management	Energy Efficiency in Agricultural Pumping with Smart Groundwater Management through Monitoring & Targeting Aquifers	Beta site development for energy efficiency in agricultural pumping with Smart Groundwater Management
11	Storage	Development of low cost Lithium ion based Battery Management System and demonstration of the same in automotive and stationary applications for Indian application	Development of low cost Battery Management System (BMS) with electronic control, and improved EHS parameters
12	Storage	Development of Low Cost High Performance PEMFC Liquid Cooled Stack for Small Stationary Applications	Advanced fuel cells technology for portable electronics applications through development of a low-cost, high-performing and robust Membrane Electrode Assembly (MEA) for a liquid cooled fuel cell stack

Innovation-driven Projects supported in Energy Sector (3)

Sl.	Project Title	Key Elements / Outcomes
13	Vaayu: Inhouse development of a compact device, to convert Kitchen Waste to Cooking Gas (Methane)	Compact device to convert kitchen waste to cooking gas by extracting energy from organic domestic waste with capacity of 50gms / day/ litre with low risk of safety hazards.
14	Development Of Electric 3 Wheelers	Affordable tailor made Electric two wheeler & three wheeler vehicles made in India.
15	Decentralized Solar Dc Power – A Game Changer For India	High efficiency Inverterless solar DC 48 V to support DC appliances like LED bulbs, LED tube lights, BLDC fans, cell phone chargers with 60% power saving.
16	Smart Rural Electrification	Mini solar plants connected by power grid having attributes like solar power distributor based on GSM & URJA MITRA APP
17	Retrofittable Thermal Energy Storage to Enable Milk Cooling with Limited Grid Power	Retrofittable Thermal Energy Storage based on water to Enable Milk Cooling with Limited Grid Power

I⁴F Program



Launch of I⁴F Program by Shri Narendra Modi, with Israeli counterpart H. E. Benjamin Netanyahu on 15 January 2018, during “India Israel Business Summit 2018”, at New Delhi.

CFP-2	Date
Launch	16 Aug 2018
Close	24 Nov 2018

Focus sectors:

- ❖ Agriculture
- ❖ Energy
- ❖ Healthcare
- ❖ Information & Communication Technologies (ICT)
- ❖ Water

**“Nothing is more powerful than
an idea whose time has come.”**

— Victor Hugo

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