

India – Current Scenario

Rajkiran V Bilolikar,
Associate Professor

Administrative Staff College of India



Administrative Staff College of India, Hyderabad



POWER GENERATION AND INSTALLED CAPACITY IN INDIA – 356100.19 MW



Power Generation Technologies	Installed Capacity in MW as in Jan 2018	Installed Capacity in MW as in April 2019	Added capacity in MW in last 10 months
Thermal	219809.51	226279.34	6469.83
Nuclear	6780	6780.00	0
Hydro	44963.42	45399.22	435.80
TOTAL	271552.93	274034.76	6905.63
Renewable Energy	Dec 2017	April 2019	
Solar	17052.41	28180.71	11128.30
Wind	32848.46	35625.97	2777.51
Biomass	8413.80	9103.50	689.70
Bagasse/ Waste to Energy	114.08	138.30	24.22
Small Hydro	4418.15	4593.15	175.00
TOTAL	62846.9	77641.63	14794.73

64% Thermal, 2% Nuclear, 13% Hydro and 22% RE (Solar 8% Wind 10%)





Indian Power Sector



Percentage Share of India Consumption



India is the third largest producer and third largest consumer of electricity in the world, with the installed power capacity reaching 356.82 GW as of May 2019. The country also has the fifth largest installed capacity in the world.

India is ranked 4th in wind power, 5th in solar power and 5th in renewable power installed capacity as of 2018. As of 30 April 2019, India has 78,539 MW installed capacity for renewable energy sources.

Wind energy is estimated to contribute 60 GW, followed by solar power at 100 GW by 2022 and 15GW from biomass and hydropower. The target for renewable energy has been increased to 175 GW by 2022. The government plans to double the share of installed electricity generation capacity of renewable energy to 40 per cent till 2030





Electrification Achievements



Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya)

Total Outlay
₹16,320
crore

Gross budgetary support (GBS)
₹12,320 cr

Rural Households

Outlay
₹14,025 cr

GBS
₹10,587 cr

Urban Households

Outlay
₹2,295 cr

GBS
₹1,732 cr

State-wise Level of Un-electrification

Focus States for Saubhagya



Funding Pattern

S.No	Agency	Nature of Support	Quantum of Support (percentage of project cost)	
1.	Govt. of India	Grant	60%	85%
2.	Utility/State Contribution	Own Fund	10%	5%
3.	Loan (FIs/ Banks)	Loan	30%	10%
4.	Additional Grant from Gol	Grant	50% of total loan component(30%) i.e. 15%	50% of total loan component(10%) i.e. 5%
5.	Maximum Grant by Gol	Grant	75%	90%

Estimation - Un-electrified Households

S.No	Description	Number
1.	Total no. of households	1796 Lakhs
2.	Electrified rural households	1336 Lakhs
3.	Remaining un-electrified households (1-2)	460 Lakhs
4.	BPL households already sanctioned under DDUGJY and yet to be electrified	179 Lakhs
5.	Balance households yet to be electrified	281 Lakhs (say 250 Lakhs)
6.	Economically poor households in urban areas yet to be electrified	50 Lakhs
7.	Total un-electrified households (5+6)	331 Lakhs (say 300 Lakhs)

India is on path to achieve 100 per cent household electrification by March 31, 2019, as envisaged under the Saubhagya scheme.

As of March 2019, more than 26.2 million households have been electrified under Saubhagya scheme.

By 2018, a total of 25 states have achieved 100 per cent household electrification which included 23.1 million rural and 844,670 urban households.

The remaining households are expected to be electrified by March 2019.

100 per cent FDI is allowed under the automatic route in the power segment and renewable energy





Advantage India



- Expansion in industrial activity to boost demand for electricity.
- Growing population along with increasing electrification and per-capita usage to provide further impetus.
- Power consumption is estimated to reach 1,894.7 TWh in 2022.

Growing
Demand

- As of June 2019, government launches US\$ 5 billion of transmission-line tenders in phases, to reach 175 GW target till 2022.
- The Government of India is expected to offer nearly 20 power transmission projects worth Rs 16,000 crore (US\$ 2.22 billion) for bidding in 2019.

Attractive
opportunities

ADVANTAGE INDIA

- India's power sector is forecasted to attract investments worth Rs 9-9.5 trillion (US\$ 128.24-135.37 billion) between FY19-23.
- Total FDI inflows in the power sector reached US\$ 14.32 billion during Apr 2000 to Mar 2019, accounting for 3.48 per cent of total FDI inflows in India.
- As per economic survey 2018-2019, additional investments in renewable plants up to year 2022 would be about US\$ 80 billion and an investment of around US\$ 250 billion for the period 2023-2030.

Higher
investments

- 100 per cent FDI allowed in the power sector has boosted FDI inflows in this sector.
- On April 28, 2018, all un-electrified inhabited census villages have been electrified, supported by schemes like Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY) and Integrated Power Development Scheme (IPDS).

Policy
support

Source - IBEF

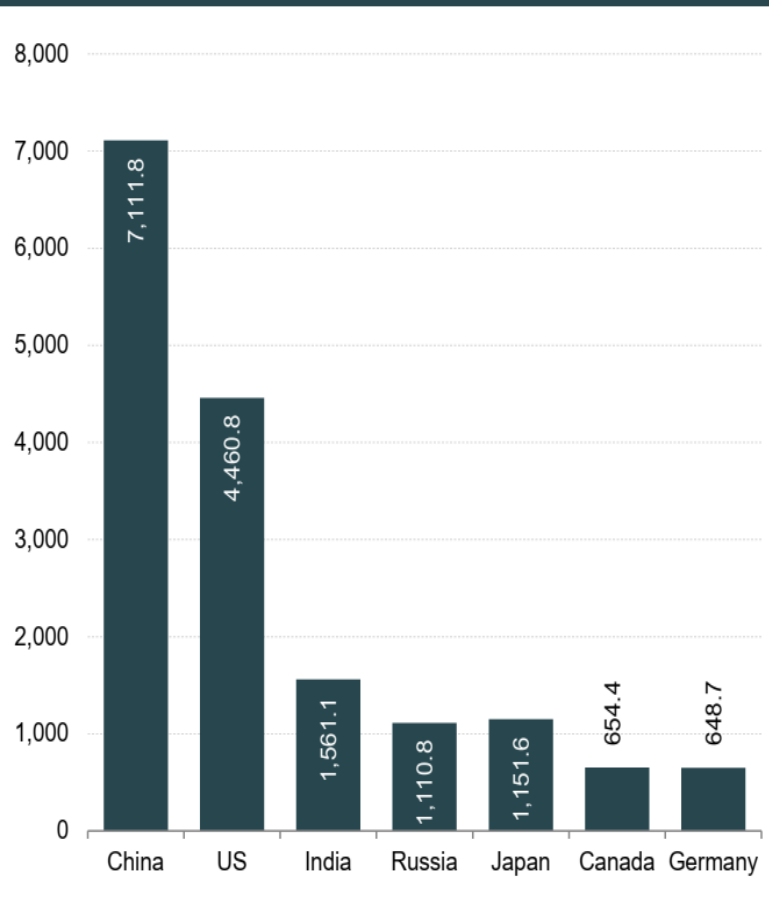




India among top Four Power Generating Nations



World's leading electricity generation in 2018 (TWh)



With a generation of 1,561 TWh, India is the third largest producer and the third largest consumer of electricity in the world.

Power generation has grown more than 100 fold since independence, demand is increasing due to accelerating economic activity.

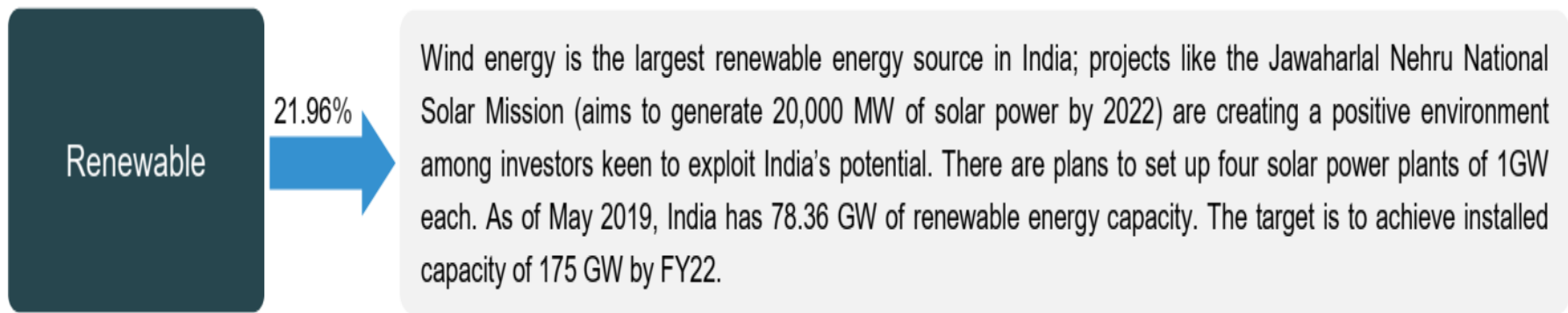
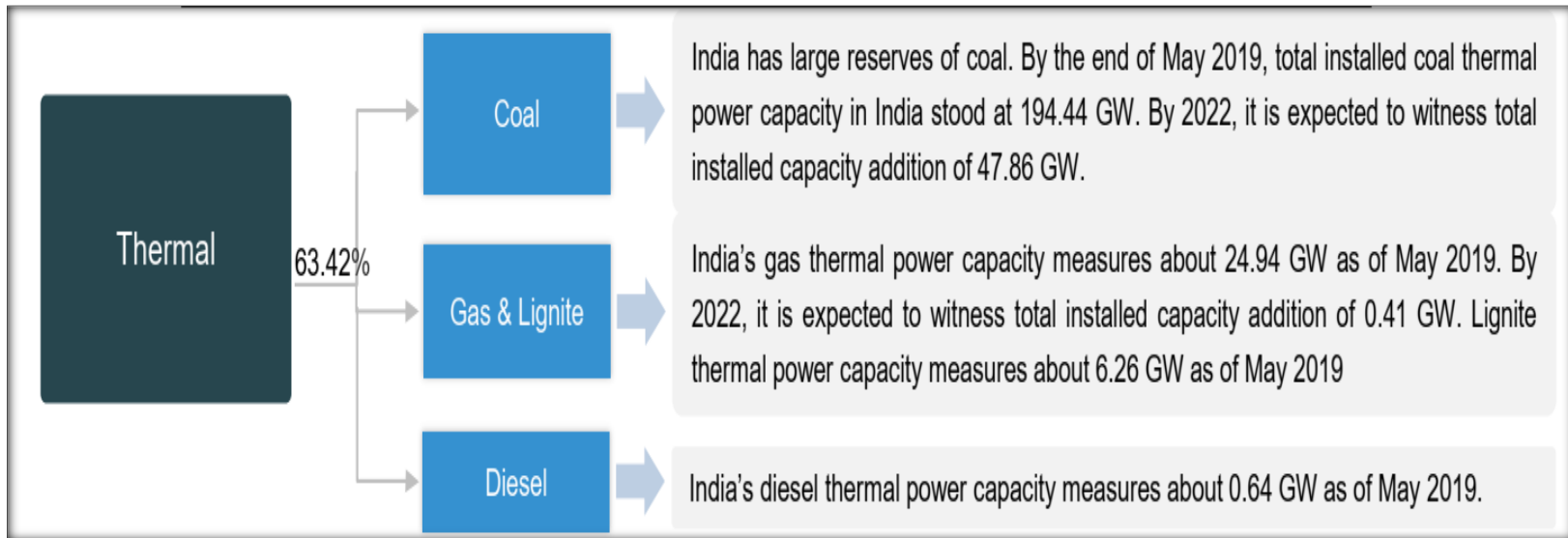
India to become the world's first country to use LEDs for all lighting needs by 2019, thereby saving Rs 40,000 crore (US\$ 6.23 billion) on an annual basis.

India's energy firms have made significant progress in the global energy sector, according to the latest S&P Global Platts Top 250 Global Energy Rankings, with 10 out of 14 Indian energy companies making it to the list and RIL and IOC ranking third and seventh, respectively.





Sources of Power with shares in total Capacity





Sources of Power with shares in total Capacity



Hydro

12.72%

With a large swathe of rivers and water bodies, India has enormous potential for hydropower. As of May 2019, India has 45.40 GW of hydro power generating capacity. By 2022, it is expected to witness total installed capacity addition of 6.82 GW.

Nuclear

1.90%

As of May 2019, India has 6.78 GW of installed nuclear capacity; with one of the world's largest reserves of thorium, India has a huge potential in nuclear energy. By 2022, it is expected to witness total installed capacity addition of 3.30 GW.





Strategies Adopted



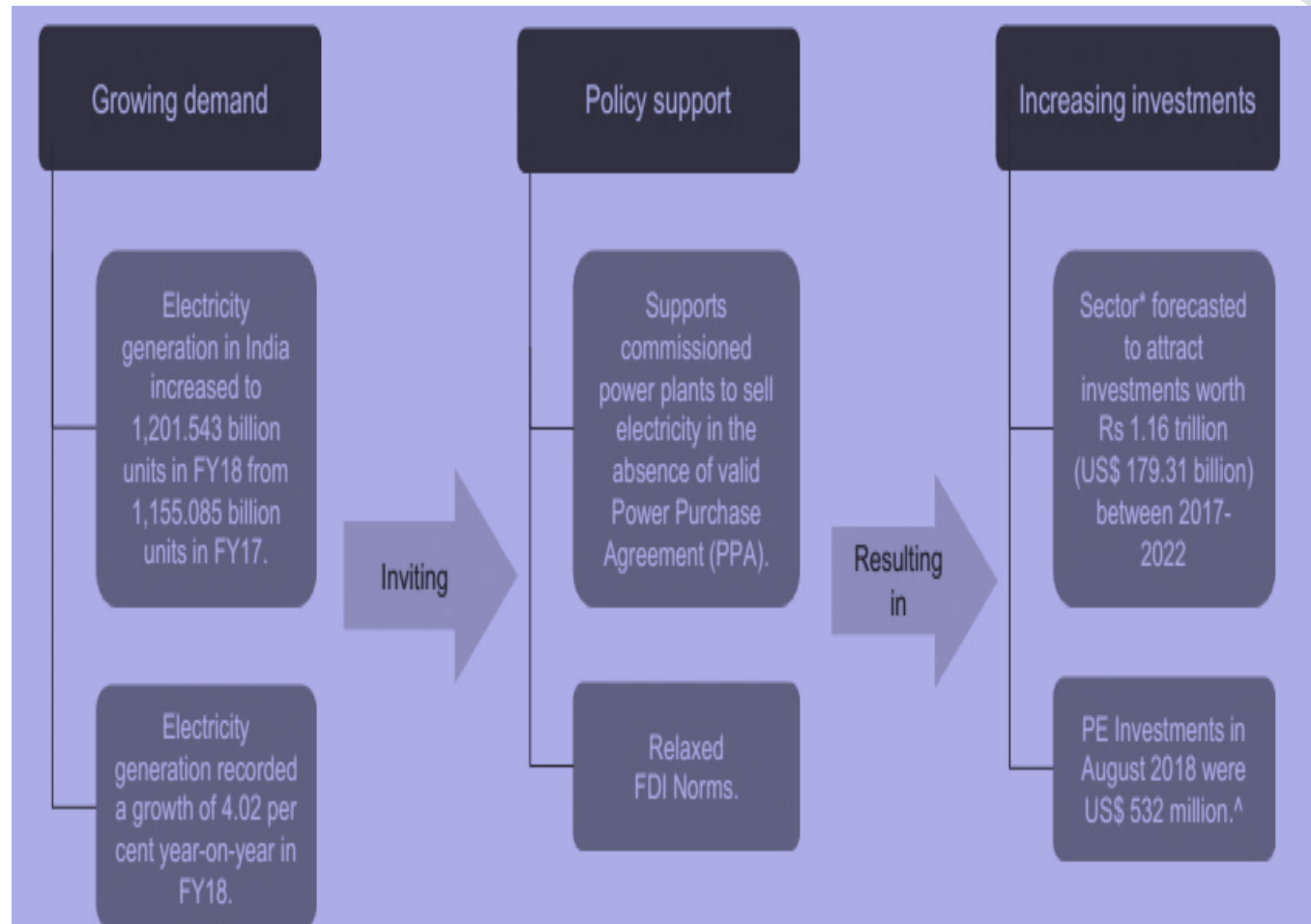
Control generation costs

Acquiring sources of fuel supply

Diversifying generation technologies

Additional revenue streams

Digital India





India's Renewable Story

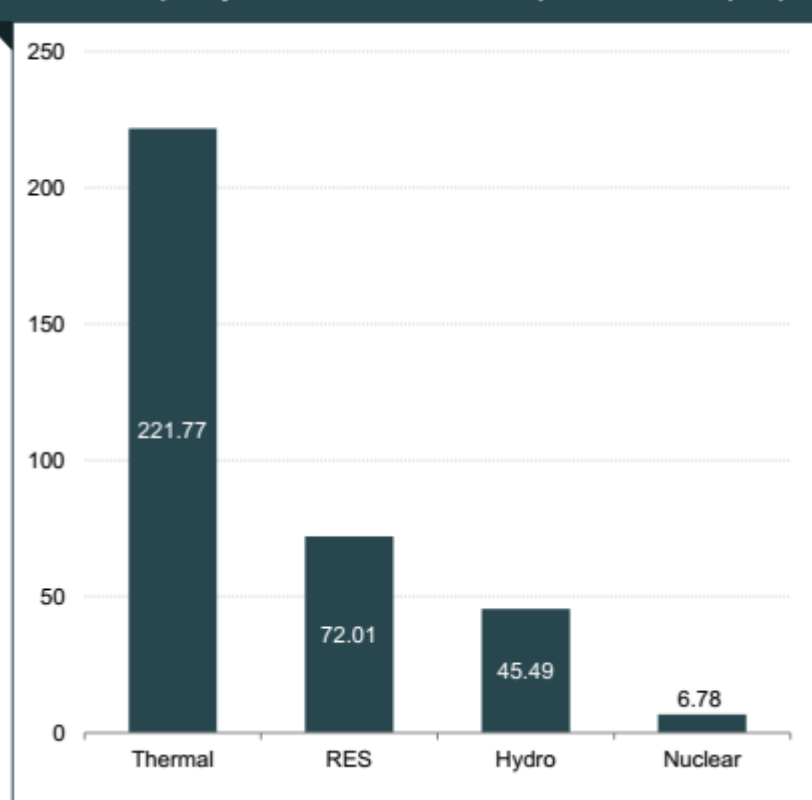


By 2022, India has set a target to achieve total production 175 GW from renewable resources out of which 100 GW will be produced

In August 2018, KfW a German based financial institution signed a US\$ 228.15 million loan agreement with India's Rural Electrification

As a part of the green corridor project, the power lines would transmit 20 gigawatts of power capacity from 34 solar parks across 21 states

Installed capacity for different sources of power – FY19* (GW)





Policy Support and Initiatives



UJALA Scheme

- Over 353 million LED bulbs were distributed to consumers in India by Energy Efficiency Services Limited (EESL) under Unnati Jyoti by Affordable LEDs for All (UJALA) as on July 08, 2019 and 11.17 million LED bulbs were sold by private players till March 2019.

Energy Conservation Campaign

- Replacing nationwide street lights with LED lights.
- Plan to save 10 per cent energy that would light up 11 crore lives.
- Replacing 1 crore bulbs in Delhi within one year.

Power to the people

- The Union Budget 2019-20 has allocated Rs 40.66 billion (US\$ 592.4 million) towards the Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY) and Rs 52.8 billion (US\$ 769.3 million) towards the Integrated Power Development Scheme (IPDS).

Ujwal Discoms Assurance Yojana (UDAY)

- It was launched by the Government of India to encourage operational and financial turnaround of State-owned Power Distribution Companies (DISCOMS), with an aim to reduce Aggregate Technical & Commercial (AT&C) losses to 15 per cent by FY19.
- The Government of India has signed four Memorandum of Understanding (MoU) with the state of Nagaland and Union Territories (UTs) of Andaman & Nicobar Islands, Dadra & Nagar Haveli & Daman & Diu under the Ujwal DISCOM Assurance Yojana (UDAY) to improve operational efficiency of electricity departments in these places.





Policy Support and Initiatives



Direct Benefit Transfer (DBT) Scheme

- The Union and state governments have agreed to implement the Direct Benefit Transfer (DBT) scheme in the electricity sector for better targeting of subsidies.

Vision '24x7' Power for All'

- All the states and union territories of India are on board to fulfil the Government of India's vision of ensuring 24x7 affordable and quality power for all by March 2019, as per the Ministry of Power and New & Renewable Energy, Government of India.

No environment clearance required for solar projects

- The Ministry of Environment, Forest and Climate Change, Government of India has clarified that solar PV (photovoltaic) power, solar thermal power projects, and solar parks will not require the environment clearance which was mandatory under the provisions of Environment Impact Assessment (EIA) notification, 2006.

Green Energy Corridor Project

- Under the Union Budget 2019-20, the Government of India has allocated Rs 5 billion (US\$ 73 million) to increase capacity of Green Energy Corridor Project along with Rs 9.20 billion (US\$ 130 million) for wind and Rs 30.05 billion (US\$ 440 million) for solar power projects.





Policy Support and Initiatives



Tariff

- Feed – in Tariff, scheme used for promoting generation of electricity from renewable energy sources. It allows Power Producers to sell renewable energy generated electricity to an off – taker at a pre – determined tariff for a given period of time.
- As of August 2018, the Ministry of New and Renewable Energy set solar power tariff caps at Rs 2.50 (US\$ 0.04) and Rs 2.68 (US\$ 0.04) unit for developers using domestic, and imported solar cells and modules, respectively.

Rent a roof policy

- The Union Government of India is preparing a 'rent a roof' policy for supporting its target of generating 40 gigawatts (GW) of power through solar rooftop projects by 2022.



Thank You

Rajkiran V. Bilolikar,
Associate Professor, Energy Area,

Administrative Staff College of India,
Bella Vista, Raj Bhavan Road,
Hyderabad - 500082

T: +91 40 6653 4390

F: +91 40 6653 4356

M: +91 9704087888

rajkiran@asci.org.in

