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TIME FOR ACTION

COP25 CHILE MADRID 2019
UN CLIMATE CHANGE CONFERENCE

Fossil Fuel to Renewable Energy Transition

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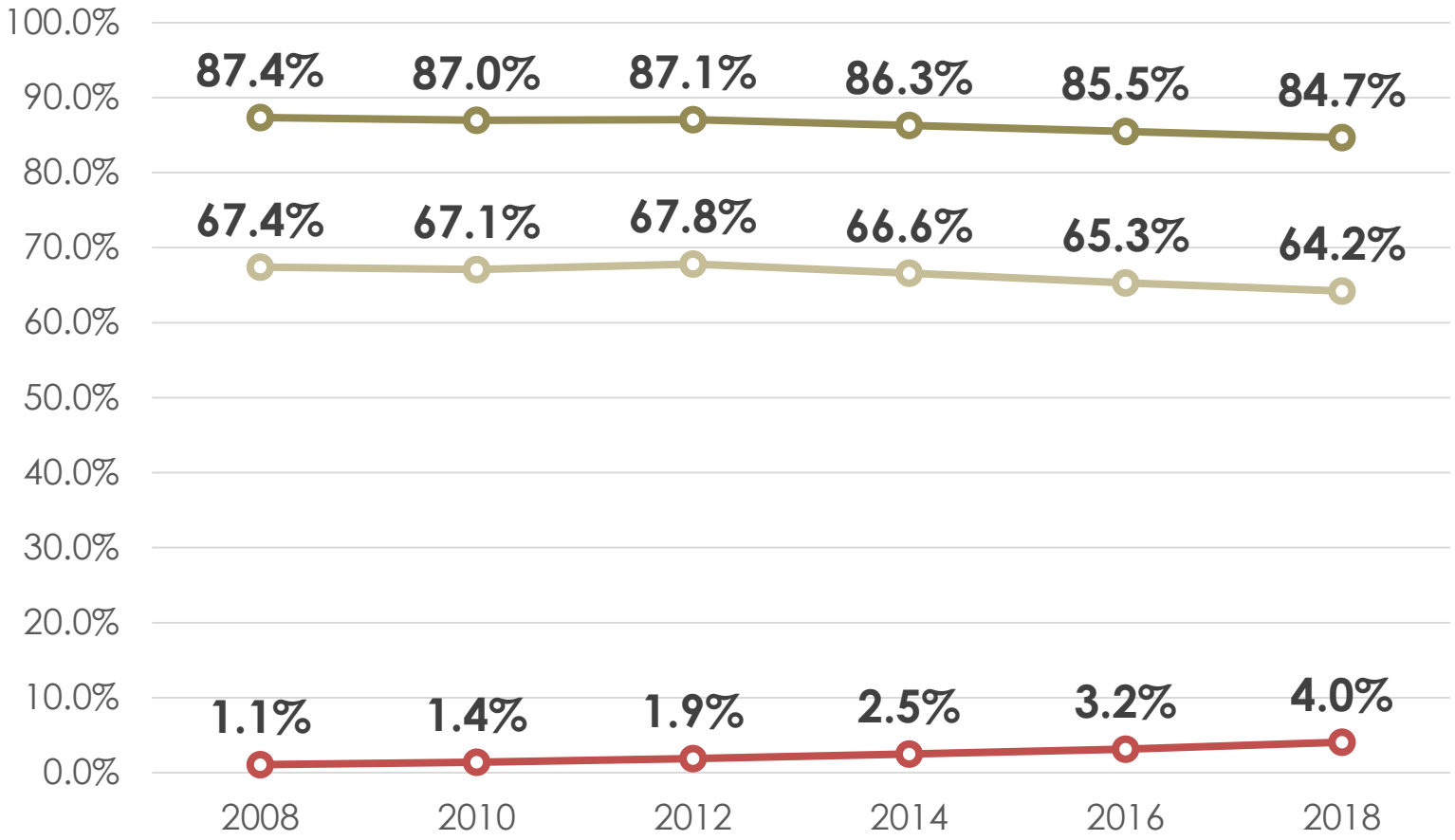
FF- RE Tranistion Issues

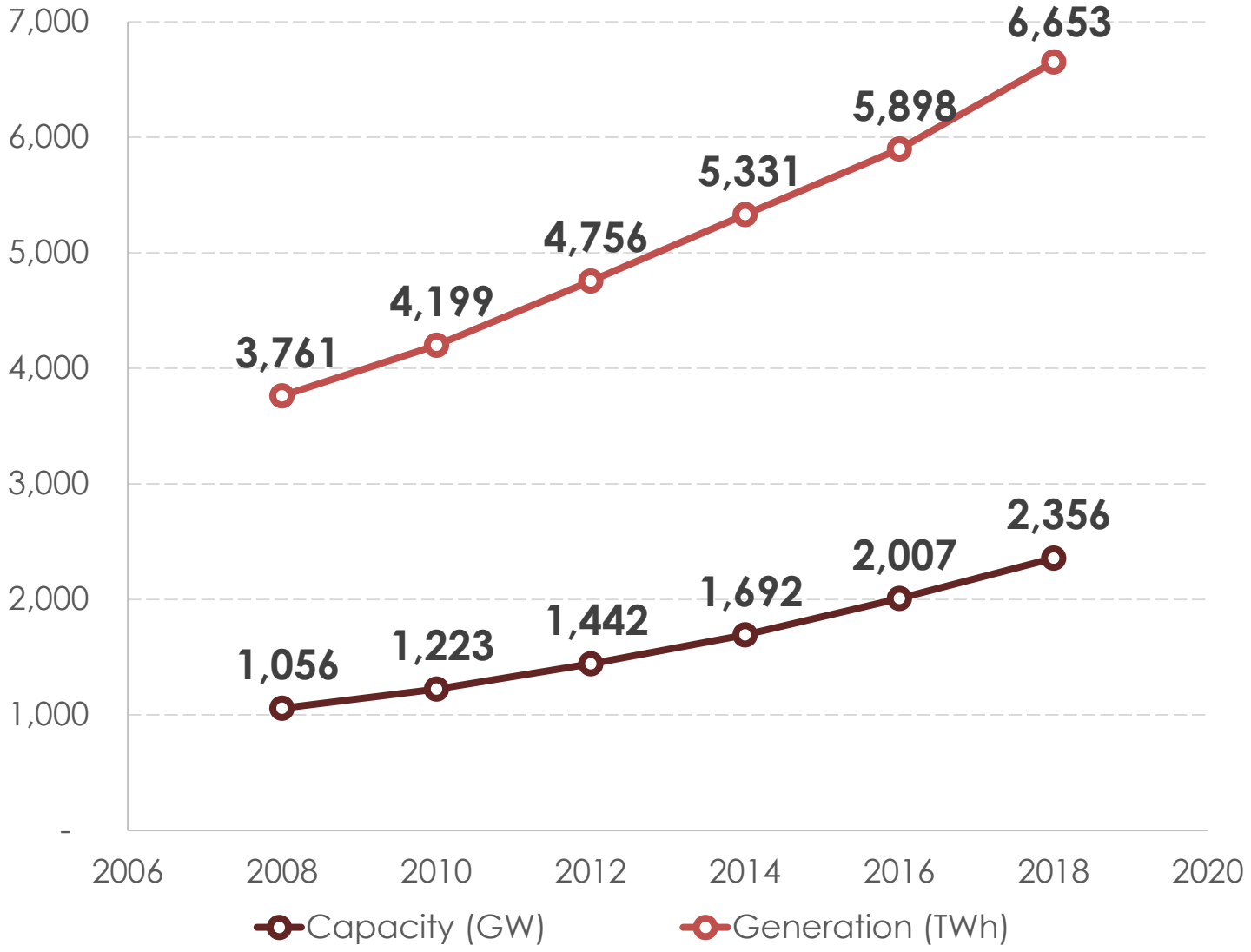
And the world is still heavily reliant on fossil fuel to meet its energy needs



Decarbonizing the energy system would require faster adoption of RE and improved efficiency

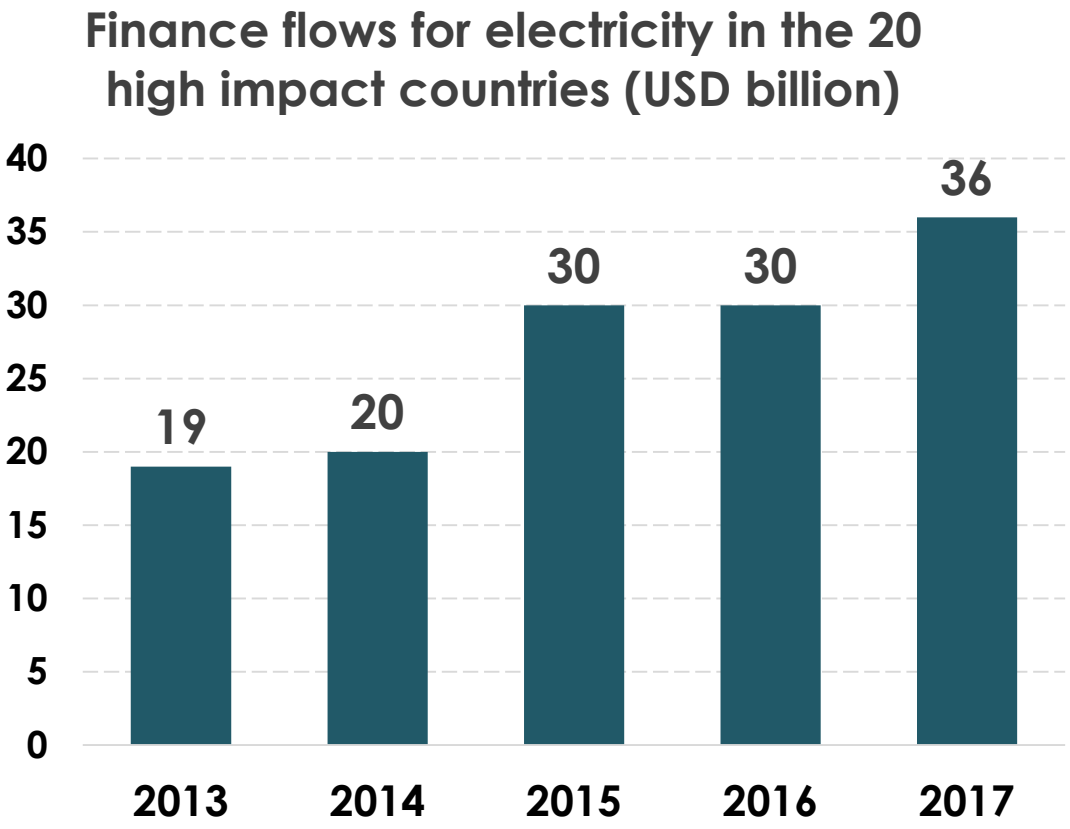
In 2018, renewable energy just contributed **~4%** of total primary energy and **25%** of the total electricity generation

However, renewable energy generation and capacity has been increasing rapidly



In just 10 years, electricity generation has increased by **5.9% CAGR** and installed capacity by **8.4% CAGR.**

Electrification investment gap (access) remains large where it is most needed



Required investment per year - USD 52 billion

- Investments allocated to off-grid solutions and mini grids accounted for only 1.2% of total financing
- Financing for electricity access sharply declined from most bilateral donors, particularly Japan and the US, from USD 4.1 billion in 2015-16 to USD 2.3 billion in 2017

Key challenges to energy access and transition.

- Limitations exist in receiving enough capital to scale-up energy value chain businesses
- Relatively low willingness to pay for electricity access solutions and low affordability of solutions
- Credit risk, liquidity, currency and political risk
- Small investment ticket sizes
- Increased risk of stranded assets,
- Need for large scale storage
- Grid/Utility Financial Viability.

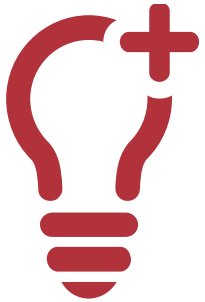
Significant public interventions are required

- Significant increase in commitments and investments in A2E from International Public Finance Institutions
- Policy makers need to prioritize non-coal based access in integrated energy plans – need for incentives and subsidies
- Revise approach to clean cooking – use all sources such as LPG in addition to improved cookstoves, Integrate gender and clean cooking policy approaches
- Focus on underserved areas and high impact countries

The Indian Experience

India has judiciously deployed policy and regulatory measures to decarbonize the economy, address energy access, and is on track to meet, rather exceed, its NDC commitments, 2030

Three “U”s behind India’s success story



UDAY
Arise/Surgir

Access to Electricity – reached to **over 200 million** people in less than 5 years

UJWALA
Brighten/Aclarar

Clean Cooking has reached to **100 million households** (400 million people) in less than 5 years

UJALA
Lighted/Iluminada

Over Energy Efficient Lighting at over **100 million households**

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Picture: Mint

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Picture: IISD

UJALA

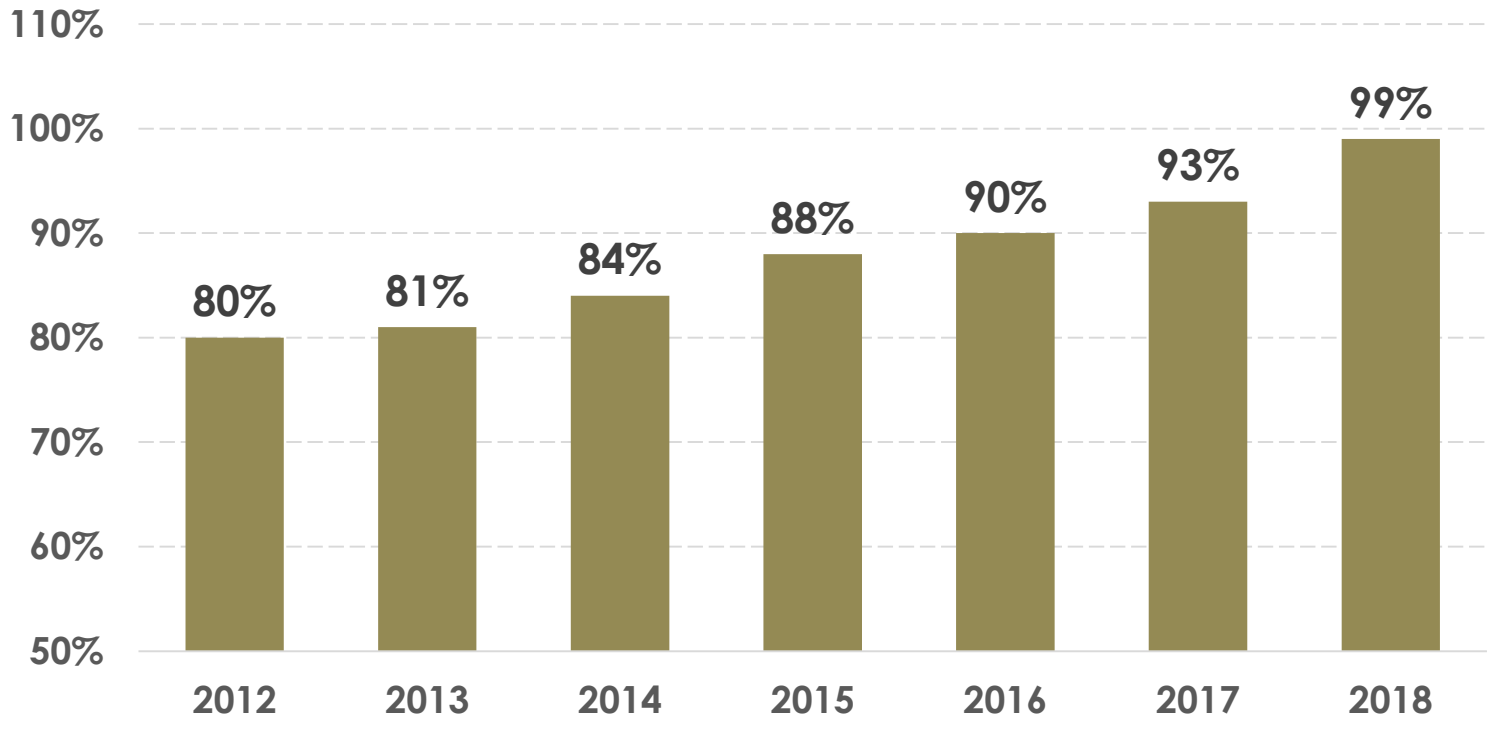
Lighted/Iluminada

Over Energy Efficient Lighting at over **100 million households**

Picture: UN

India has seen major shift in access in recent years but it may not be clean/renewable as yet

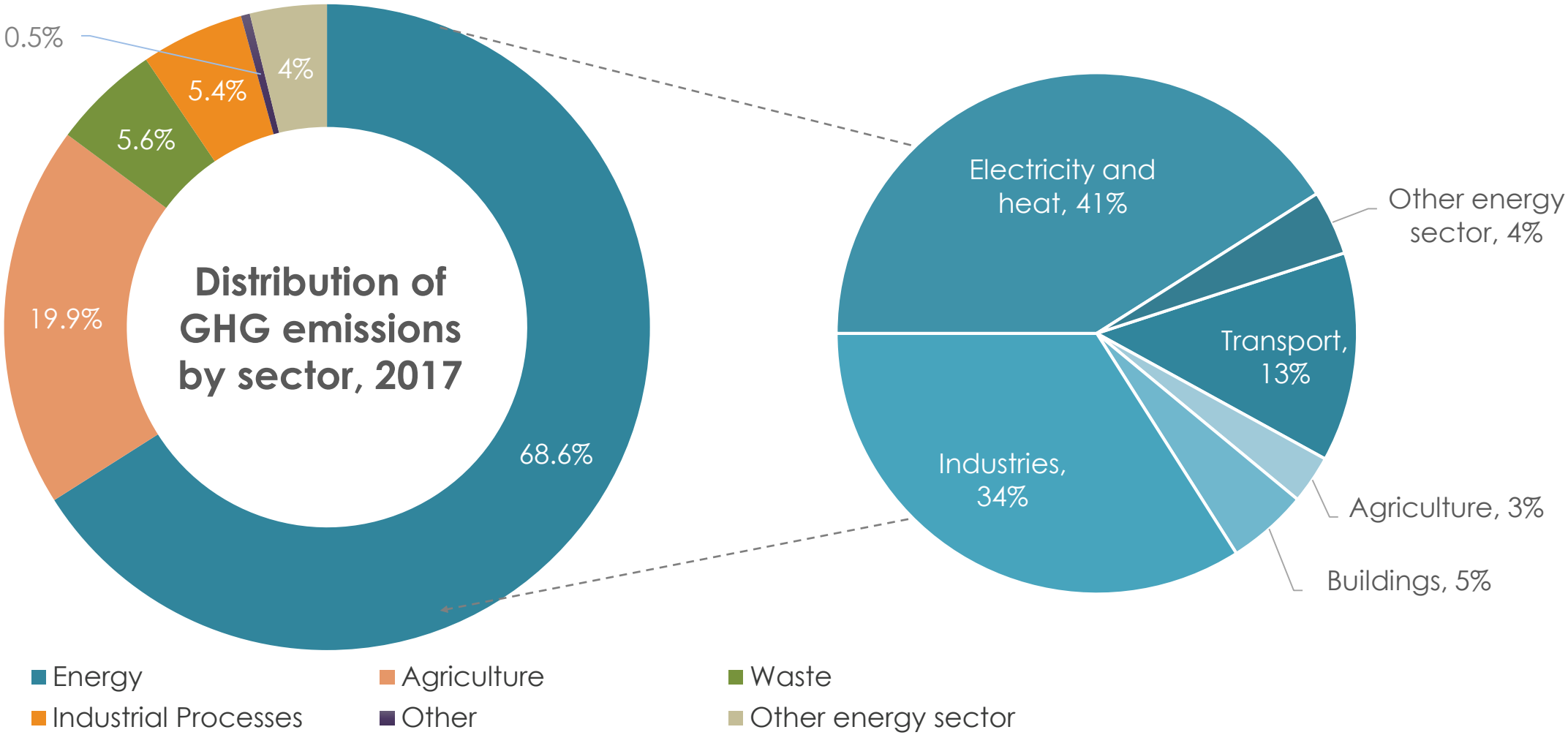
Access to Electricity: 200 million people added to electricity connections in last 3 years



Renewable energy generation is still contributing only ~10%-12% of total energy generation, however this is changing rapidly and there are issues of stranded power assets, non performing banking assets, grid instability/storage and [coal ?]

On clean cooking access India has increased LPG connections to 80 million households in 3 years.

India is targeting four key sectors to decarbonize its economy, including electricity, industry (energy efficiency), transportation, and forestry



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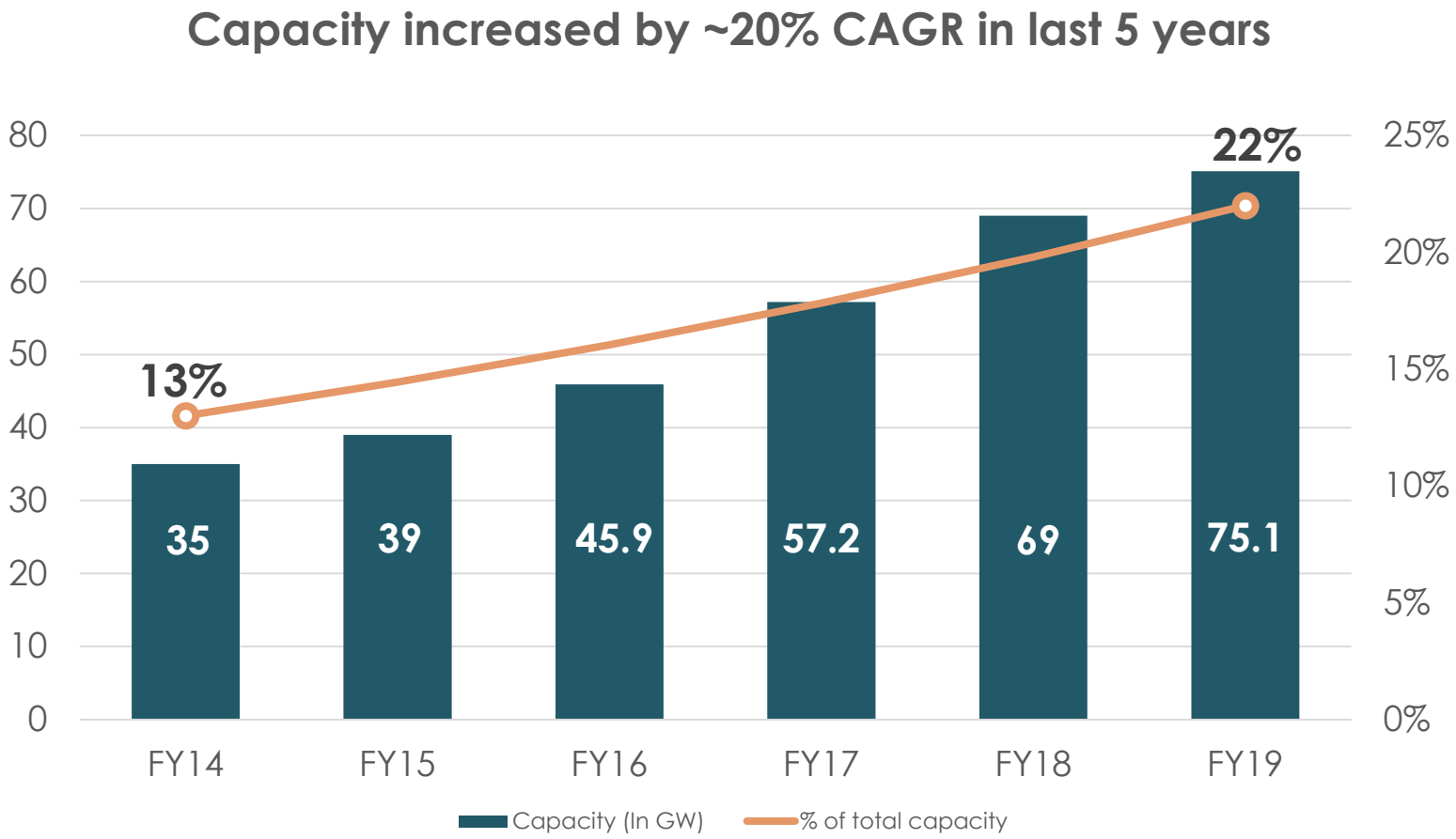
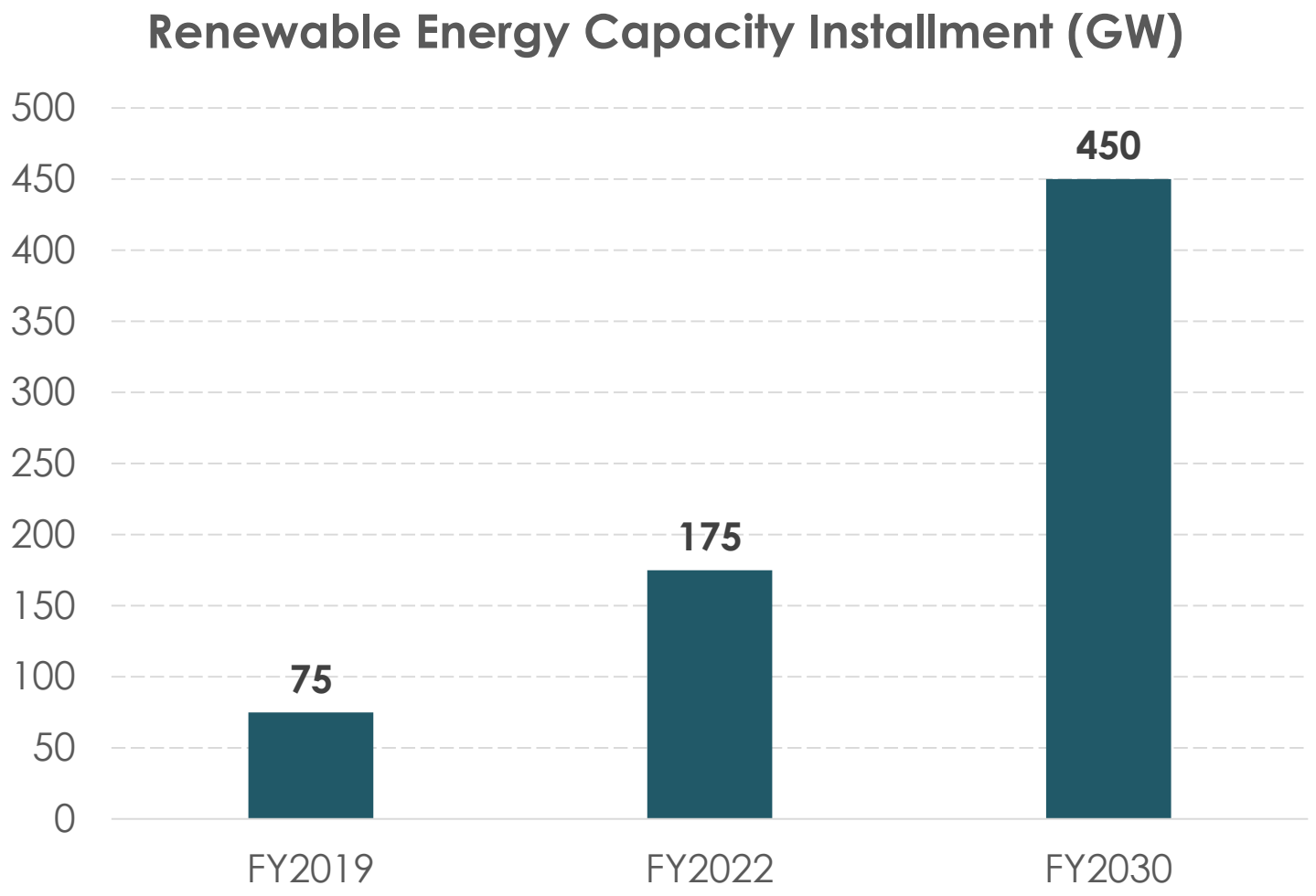
..and has also started decarbonizing its energy supply with renewable energy increasing from 13% to 22% of total installed capacity even after installed capacity getting more than doubled



Fossil Fuel make up 75% of the Indian energy mix, which is below the G20 avg. of 82%

By 2030, India plans to increase its renewable energy capacity by six times its present capacity



Rapid acceleration of RE deployment will get India ahead of its NDC target

India aims to reduce its emission intensity by 50% through energy efficiency alone

- Through mandatory energy efficiency policies which cover 26-50% of the total energy use
- PAT scheme which aims to reduce energy consumption in energy-intensive industries
- Setting standards and labelling appliances & equipment
- Energy Conservation Building Code (ECBC) for commercial buildings
- Demand Side Management (DSM) programme
- LED lamps/bulbs, Fans and Industrial EE Initiatives
- Clean and affordable energy security to agriculture sector

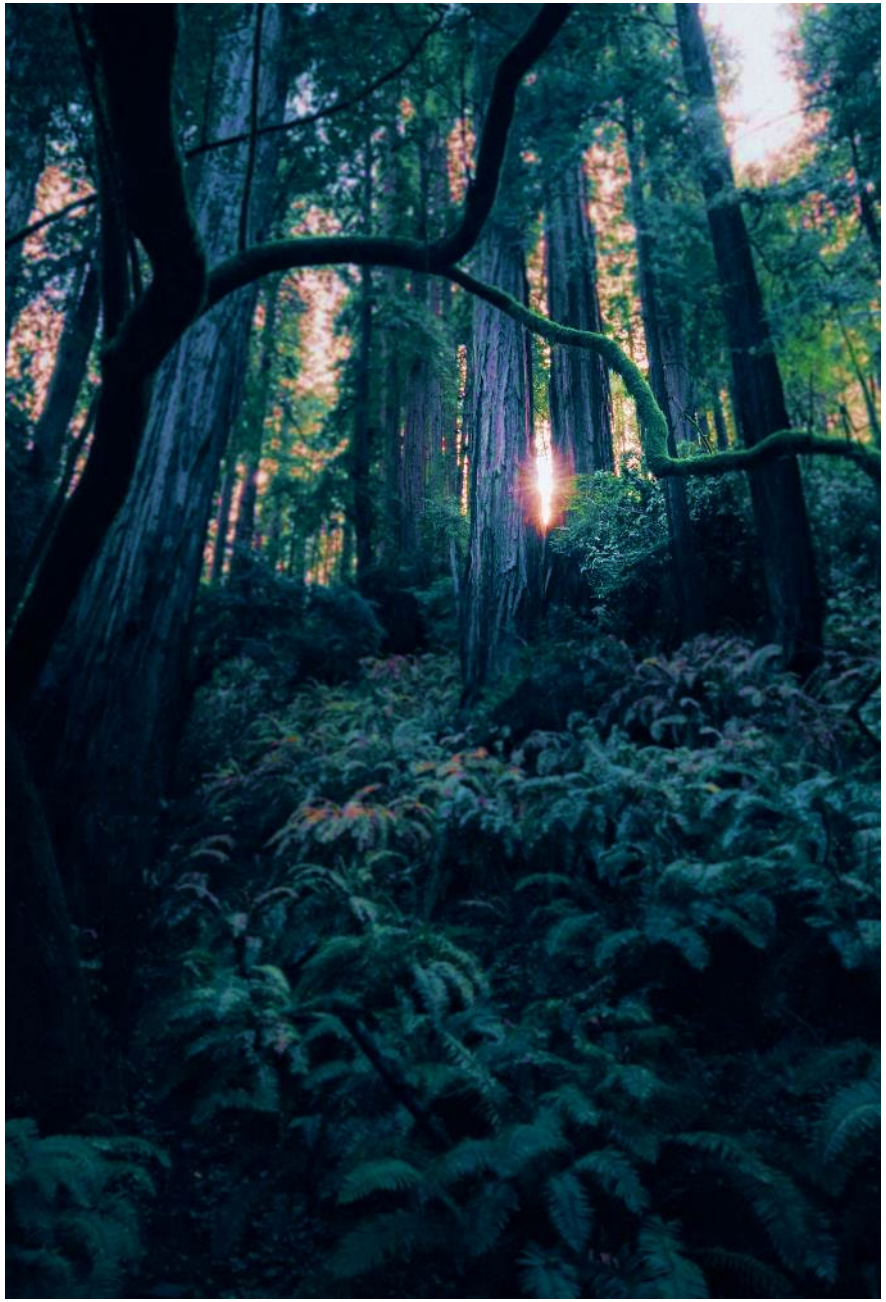
..and is transitioning to clean mobility – still a long way to go

Electrification of transport sector

- Aiming for 30% EV sales by 2030
- Budgetary support of Rs. 100 billion to support EV sector from central government
- 10 federal governments have published draft EV policies or notified final policies to accelerate electric mobility activities

Focus on mass transport and fuel-efficiency

- Smart cities mission, urban transport policy
- Tightened emission standards
  - 113 gCO2/km from April 2022
- Stringent fuel efficiency standards for heavy vehicles



..and is making land use and forest sector a net sink of emissions

- Increasing to at least one-third of the total land area under forest and tree cover, from the current level of 24.4%
- Goal of adding 2.5 to 3 bn tons of carbon stock to the existing stock of 7 bn tons by 2030
- Incentivising states to increase forest coverage; funds to states from the federal pool will be based on a formula that attaches 7.5 % weight to the area under forest

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Way forward: Prioritizing energy access and sequencing it with progressive grid decarbonization

- **Going "off the grid"**
  - *Use distributed renewable energy systems for access and decarbonization*
- **Creating a renewable energy market and public procurement**
  - *Energy efficient appliances/equipment, electric vehicles, and clean cooking*
- **Using public finance to de-risk market finance**
  - *Leverage international climate finance*
- **Managing demand and minimizing distribution losses**
  - *Lighting, Fans, Healing and Cooling, Agricultural Pumps and emerging energy technology*
- **Managing FFRE Transition**
  - *Stop adding coal plants but use existing plants effectively and flexibly. Add Renewable Energy at a faster pace. Increase storage capacity to handle steeper load curves.*

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Thank You