BRIDGE TO INDIA

India: Emerging as a renewable energy giant

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Presentation by:
Jasmeet Khurana – Associate Director – Consulting, BRIDGE TO INDIA

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Contents

BRIDGE TO INDIA is a leading consulting company in the Indian solar market

360 degree view of the market dynamics

Unrivalled industry network

Cross-functional team with skills in engineering, finance, business management and economics

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Contents

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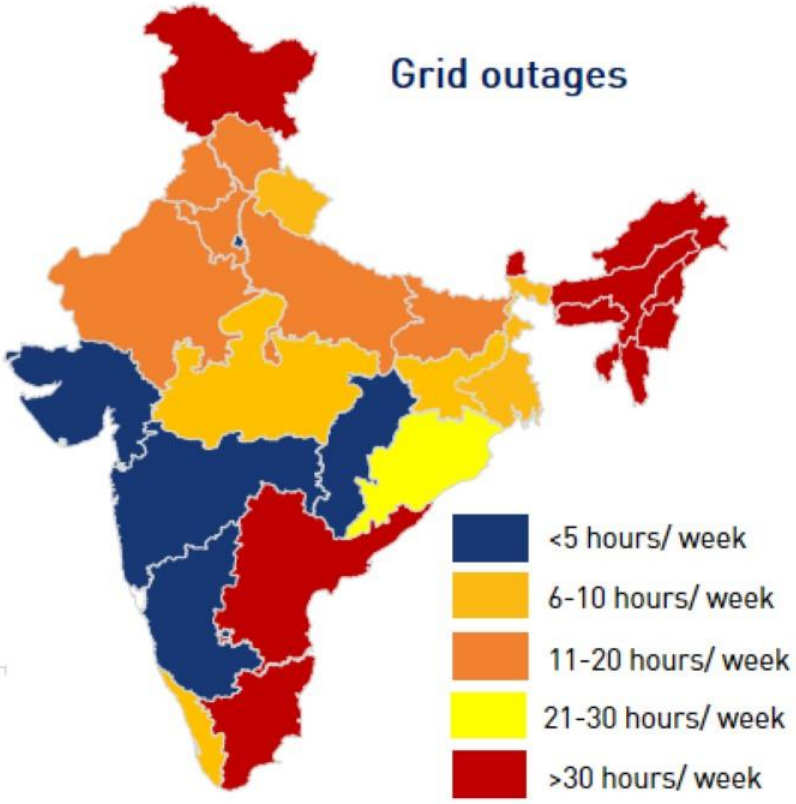
India has a crippling and unsustainable energy deficit

250 million people without access to grid electricity

Per capita power consumption, 2014

Grid outages

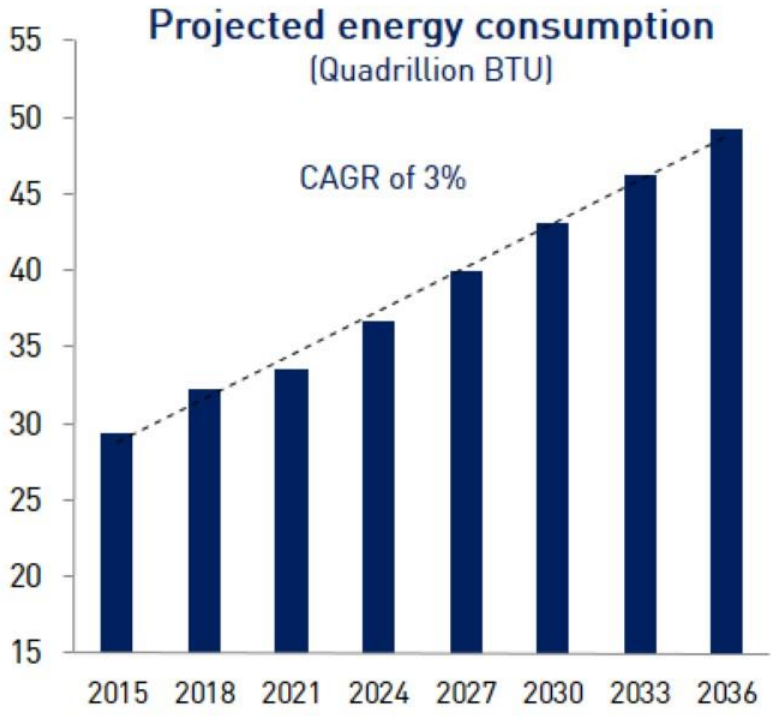


Source: World Bank, BTI research

Improving energy supply is critical to the country's economic prospects...

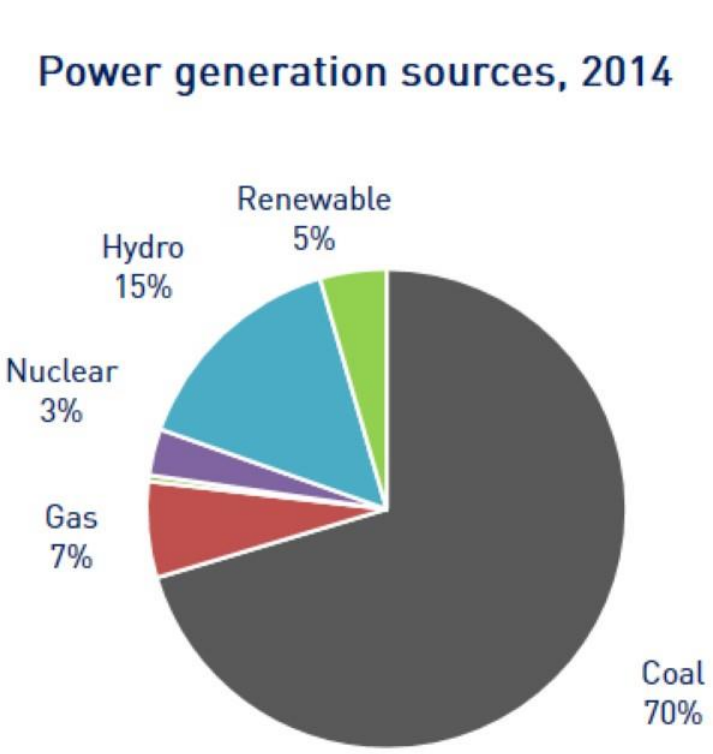
New capacity of 450,000 MW required over the next 20 years

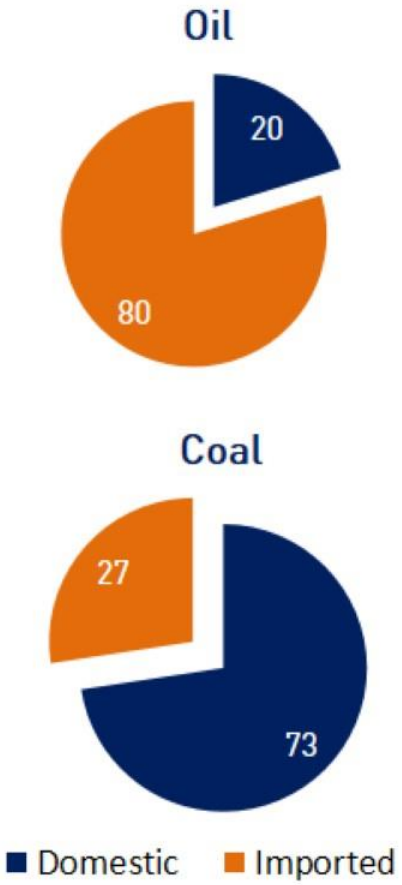
Target to provide 24 x 7 power for all by 2020



Source: BP Energy Outlook 2035

...but there are few viable options to fulfil its growing energy demands





Source: CRISIL, BRIDGE TO INDIA research

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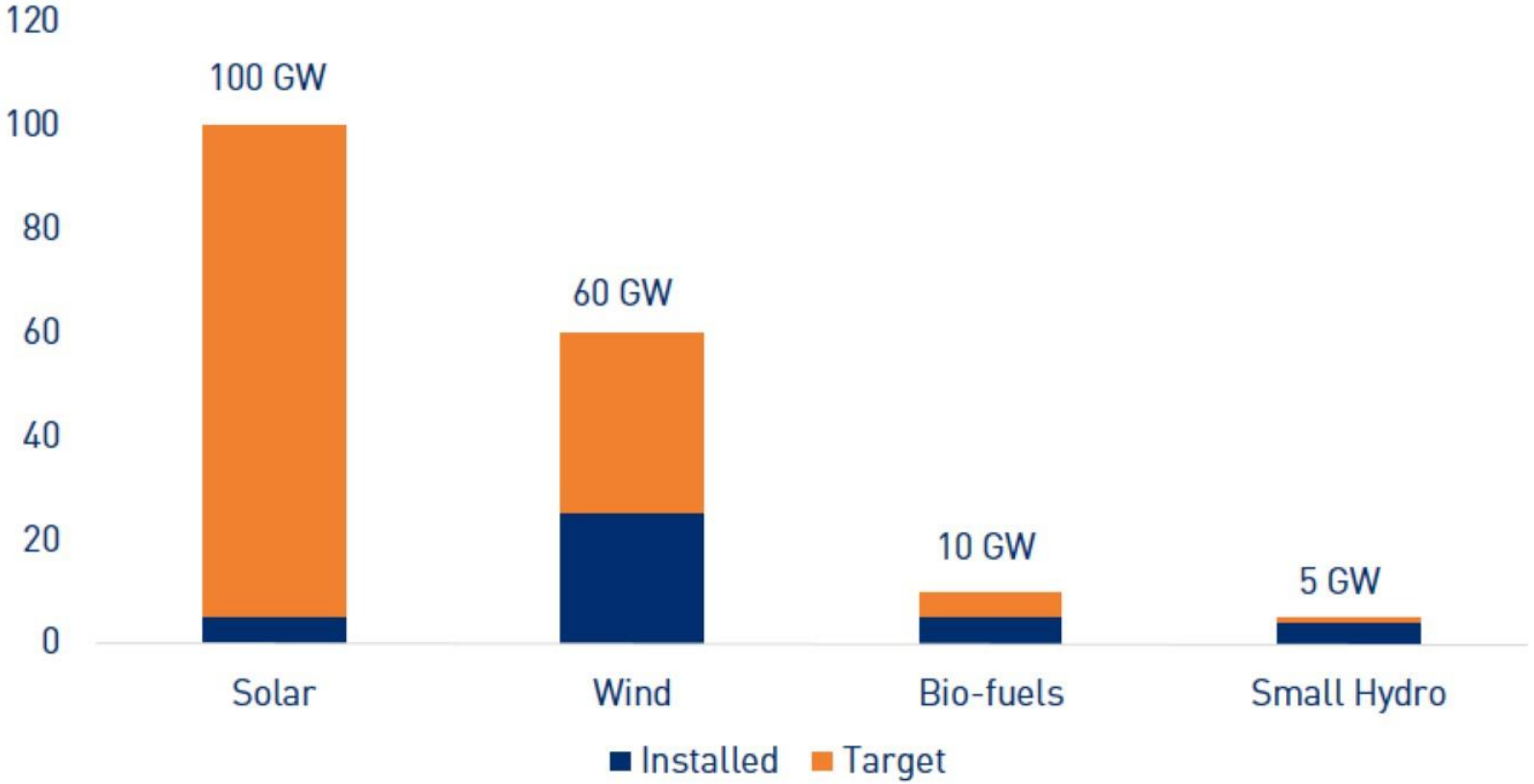
The government realizes that renewables are crucial to the power sector growth and has set ambitious targets

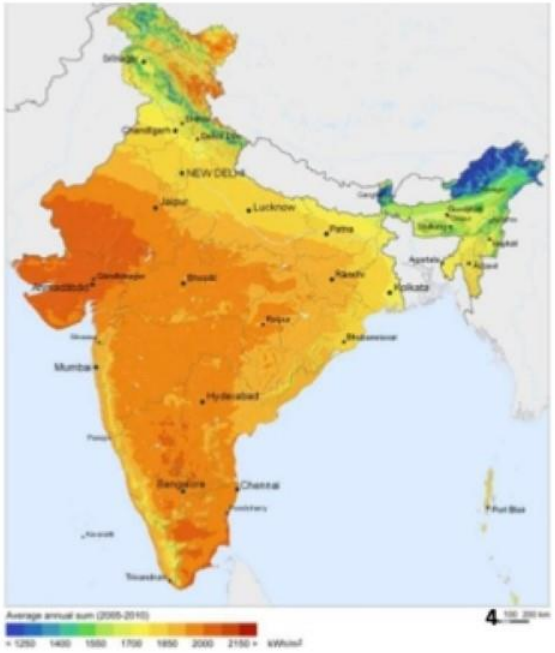
India plans to achieve 175 GW of renewable power capacity by 2022



Solar is the most preferred energy source for India and pivotal to achieving its economic potential

- Improving techno-commercial viability
  - Grid parity
  - Meter parity for C&I consumers in many states
- Greater energy security
- Environmentally friendly
- Unconstrained by location
- Quick deployment
- Distributed potential

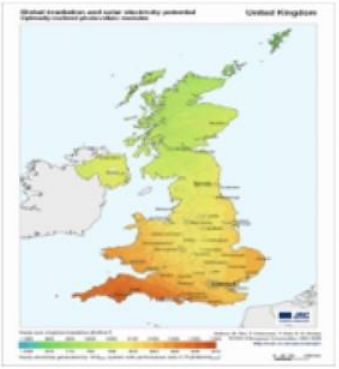
India



Source: SEC-NREL Project

Germany

U.K.



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Contents

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Driven by the compelling fundamentals, the government has announced a very ambitious target

100 GW of solar capacity by 2022

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...and backed it up with a slew of policy measures...

Amendments in Electricity Act	Increase in solar RPO to 8%, introduction of RGO Waiver of inter-state transmission charges and CSS
Renewable Energy Act 2015	Comprehensive sector-wide framework for investment
UDAY scheme for DISCOMs	Transfer of debt to state governments Reduction in interest cost burden Improved operational efficiency
Renewable Energy Certificates	Solar REC prices rationalised Vintage multipliers introduced
State solar policies	Draft model state policy Solar policies announced by most major states

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... and financial incentives

Accelerated Depreciation	80% depreciation in first year
Duty exemption	Waiver/ reduction on customs duty and excise duty for equipment
Tax Holiday	10-year tax holiday (MAT payable)
Special Incentive Package Scheme	Financial incentive of up to 25% of the capital cost of module manufacturing facilities

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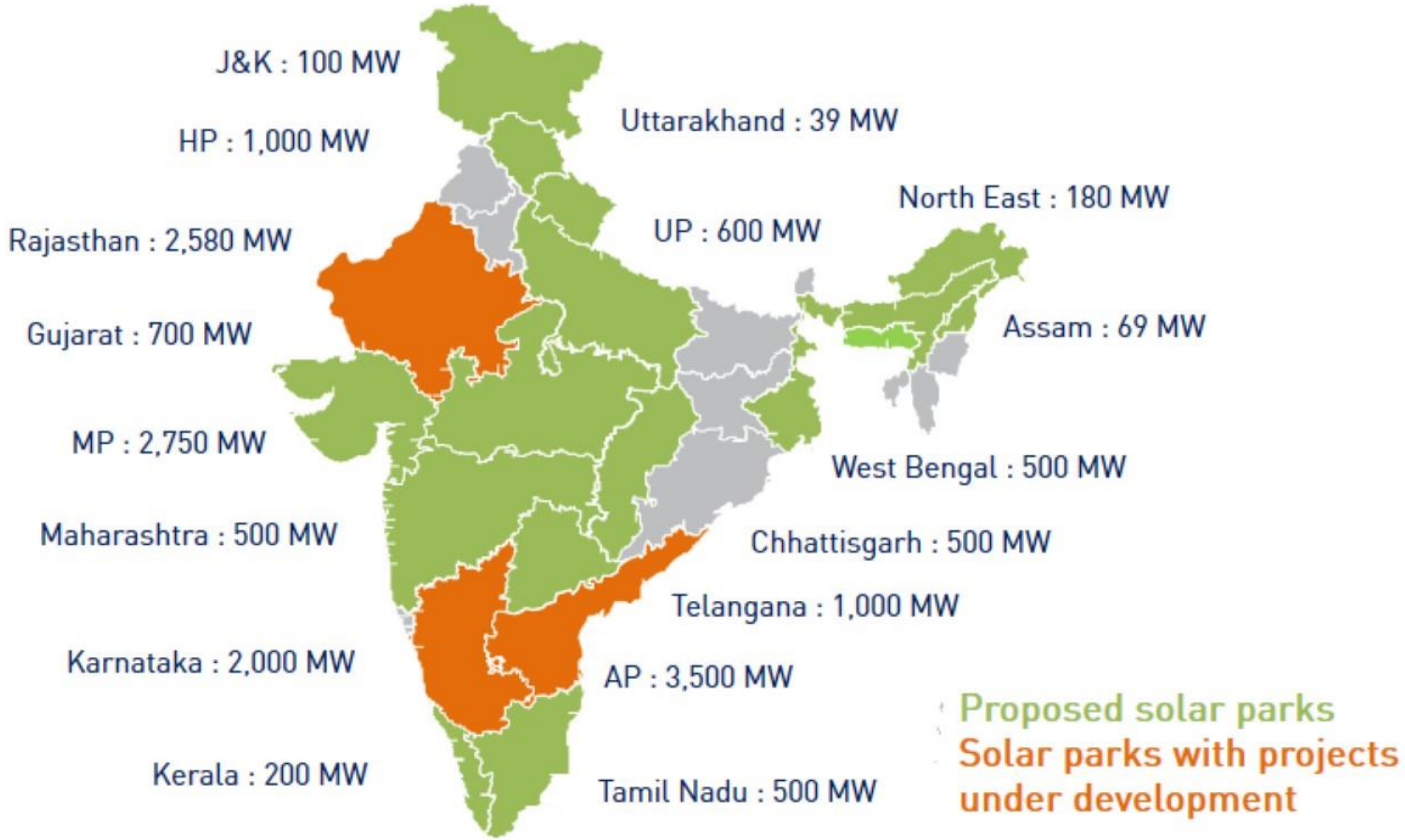
Development of government solar parks to provide land and transmission to projects has been a major success

33 solar parks with a total capacity of 20 GW are under development



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Different project development structures offer different risk-reward opportunities

	Allocation	Offtake	Scalability	PPA term	Key risks
NSM				25 years	Transmission, bid competition, financing
State projects				25 years	Transmission, offtake, policy uncertainty, transmission, financing
Other projects				10-25 years	Open Access policy

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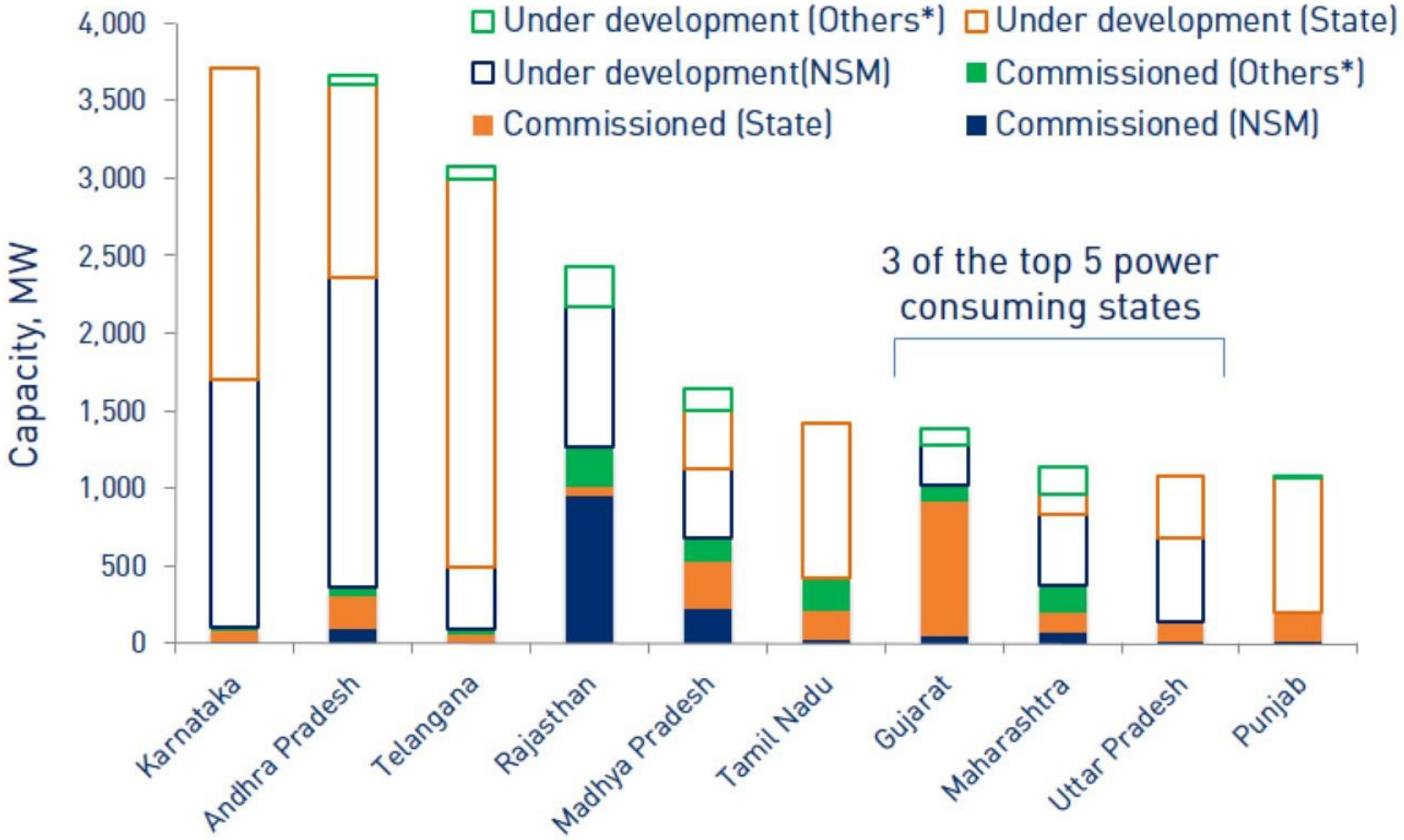
Southern and central states have taken the lead in capacity development



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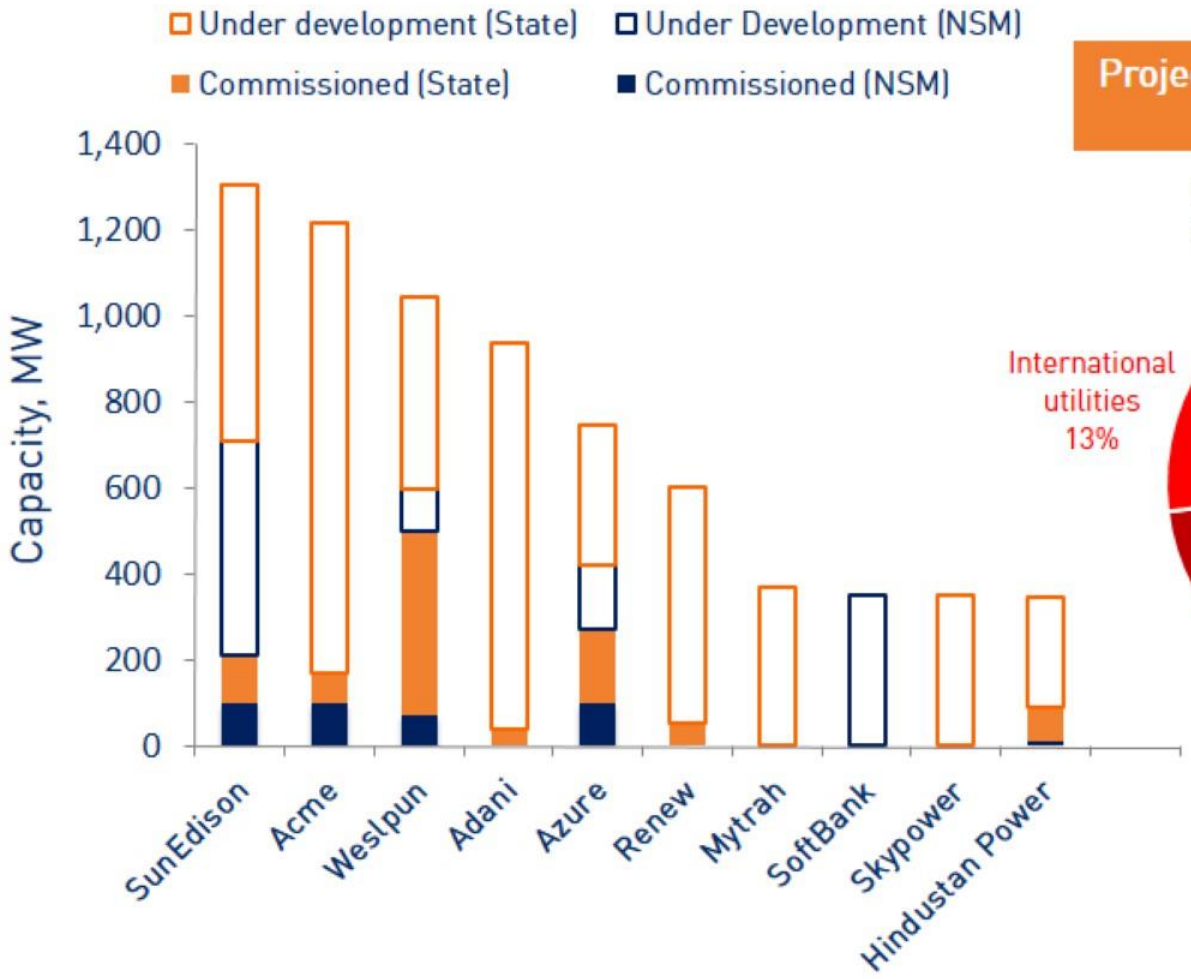
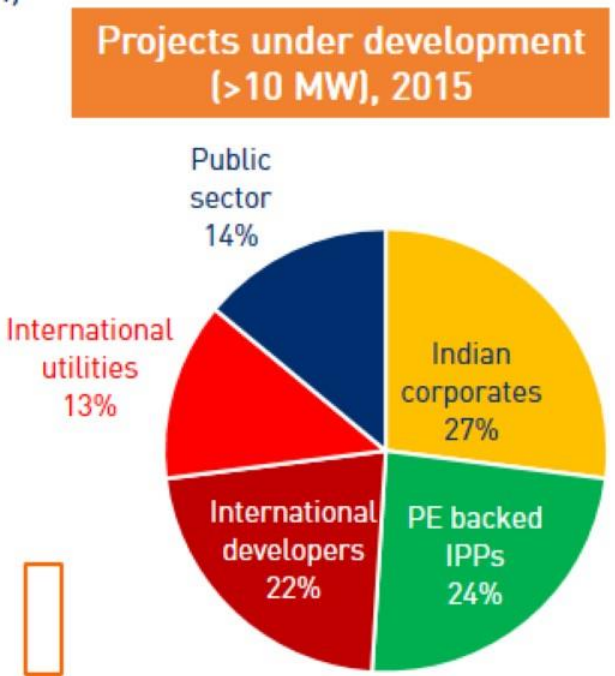
There is intense market interest in the sector

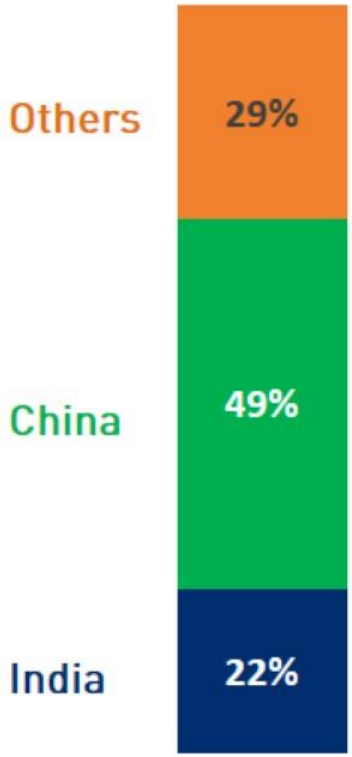
International developers and PE funds are the most aggressive players...



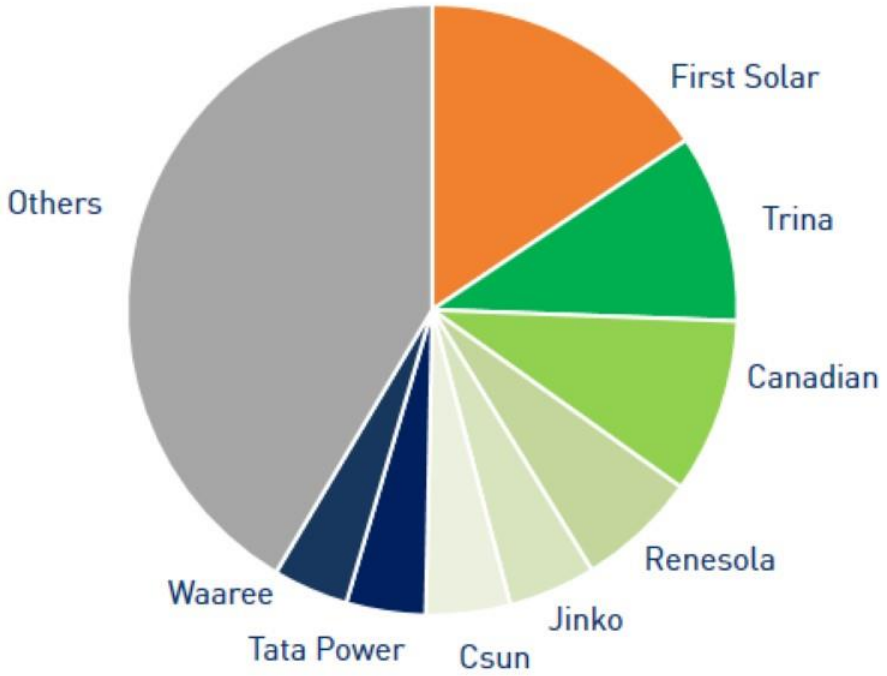


Modules are largely imported from China

Source of imports (annual)

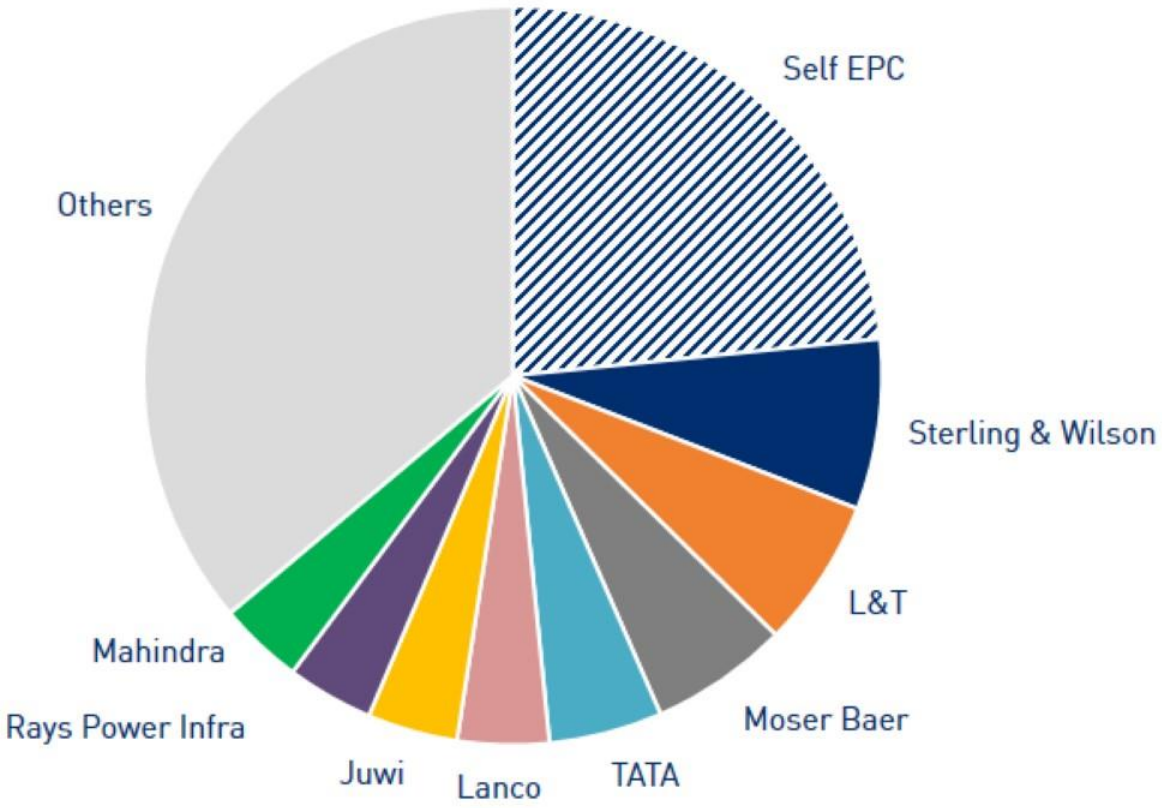


Cumulative market share



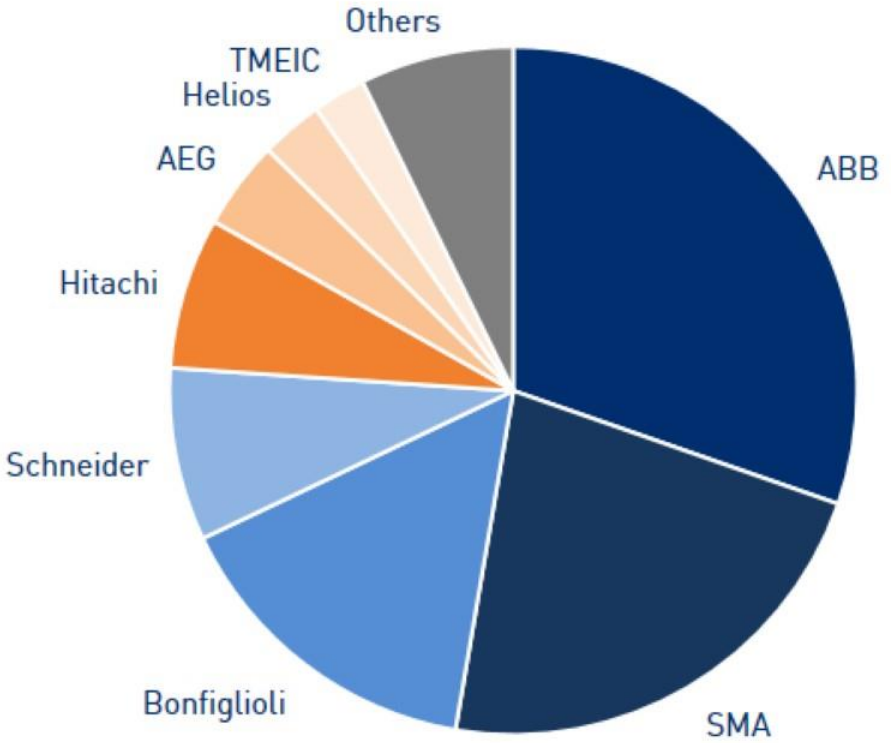
Source: BRIDGE TO INDIA research
Data until Sep-2015

The EPC market is dominated by local players and developers



Source: BRIDGE TO INDIA research
Data until Sep-2015

Inverter market has been dominated by European companies but Asian companies are now getting a foothold



Source: BRIDGE TO INDIA research
Data until Sep-2015

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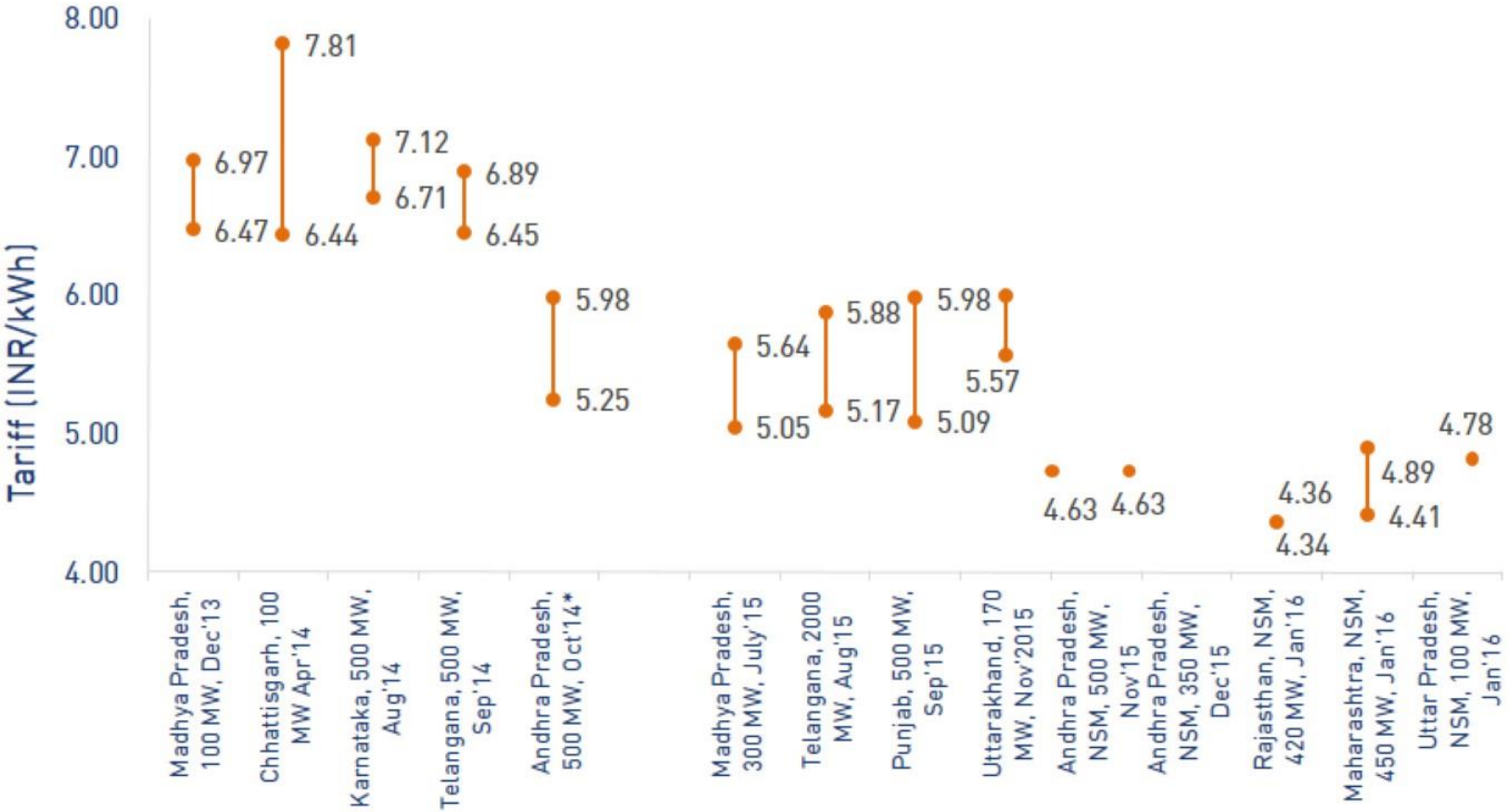
Tariffs discovered through bidding have fallen drastically and now stand at ~INR 4.5/kWh (JPY 7.4)



Note: Andhra Pradesh, 500 MW tender in Oct 2014 had tariff escalation of 3% pa in the first 10 years.

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But are these tariffs viable?

Developers under pressure to scale up; but capital is scarce

Risk not priced appropriately

Many developers assuming EPC risk

Project quality compromised

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Contents

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Grid integration and stability is the biggest challenge to long-term growth of the sector

175 GW of renewable capacity in 2022 would meet ~70% of national power demand at peak generation

- "Must-run" status granted to solar although NO evacuation guarantees
- Grid curtailment as high as 15% in select locations
- Insufficient peaking and balancing reserves
  - ➢ Lack of sufficient hydel or gas based generation capacity
  - ➢ Storage still too expensive

Green Corridors under development

National Smart Grid Mission approved

National Storage Mission in planning stages

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DISCOM insolvency is a major concern although there is cause for some optimism

- Accumulated DISCOM deficit of INR 40 trillion (3% of GDP)
- No defaults so far, payment delays more likely
- UDAY reform package accepted by 15 states but past experience is not encouraging
  - Transfer of 75% debt to state governments
  - Reduction in interest cost burden
  - Improved operational efficiency

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Debt financing is likely to get tougher as the sector scales up

Total bank credit to power sector – USD 90 b; incremental demand for renewables up to 2022 – USD 120 b

International lenders

Very selective, low appetite

Long due diligence and documentation process

Long-term swaps very restrictive

Indian lenders

Many banks reaching sector exposure limits

Floating rate debt

Usually with some recourse

Poor due diligence & documentation capability

Capital markets

Very selective, low appetite

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It is a very exciting market opportunity but be prepared for the ups and downs

Very strong fundamentals

Too big to ignore >> multi-decade growth opportunity

Risks need to be understood and analyzed thoroughly

Different opportunities have varying risk-reward

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Thank you!

Jasmeet Khurana

www.bridgetoindia.com

Email – jasmeet.khurana@bridgetoindia.com