

# INDIA ENERGY FORUM

17th India Power Forum 2014

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Optimizing Power Availability  
- Action Plan for the next decade -

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New Delhi

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# Key issues to address across the Value Chain

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## Fuels & Generation

- Fuel shortage
- Ambiguity in fuel related policies
- Idle capacities
- Ineffective RPO

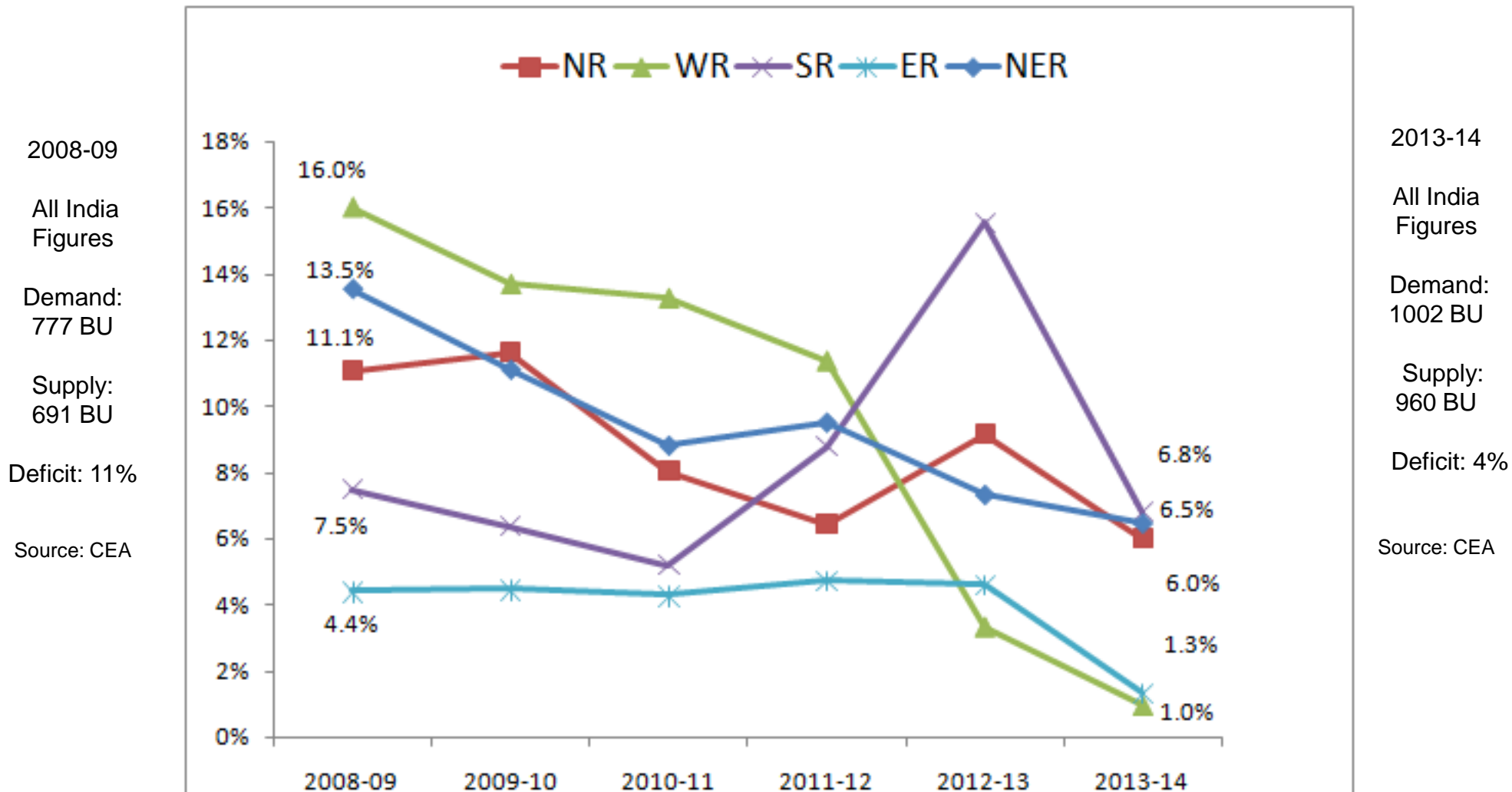
## Transmission

- Inadequate transmission capacity
- Delay in establishing green energy corridors

## Distribution

- Financial health of Discoms
- Operational inefficiency
- Ineffective open access
- Inadequate metering system
- 33% households - no access

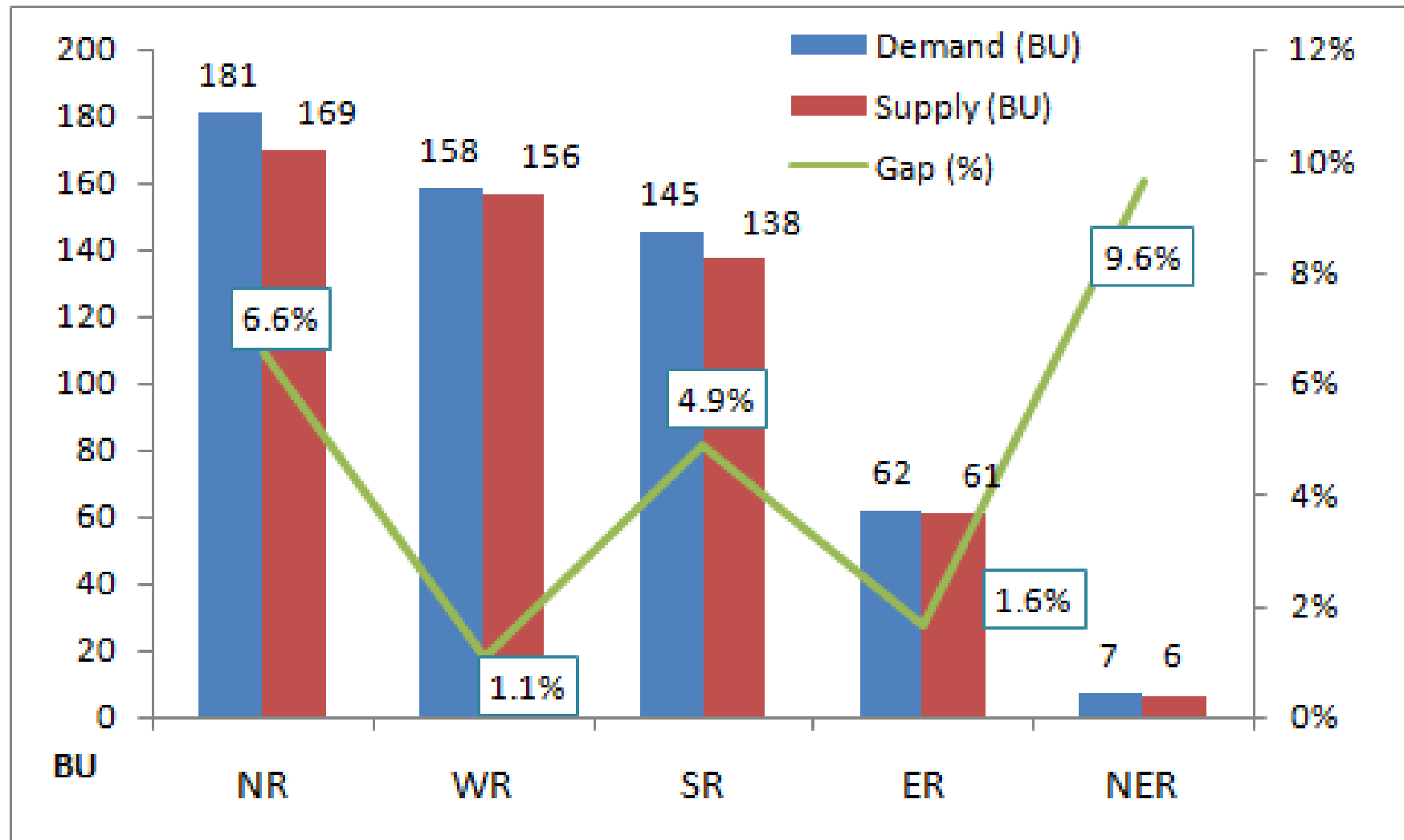
# India's energy shortage reduced from 11% to 4% in the last 6 years, But SR, NER and NR experienced over 6% shortage during FY14



2008-09  
 All India  
 Figures  
 Demand:  
 777 BU  
 Supply:  
 691 BU  
 Deficit: 11%  
 Source: CEA

2013-14  
 All India  
 Figures  
 Demand:  
 1002 BU  
 Supply:  
 960 BU  
 Deficit: 4%  
 Source: CEA

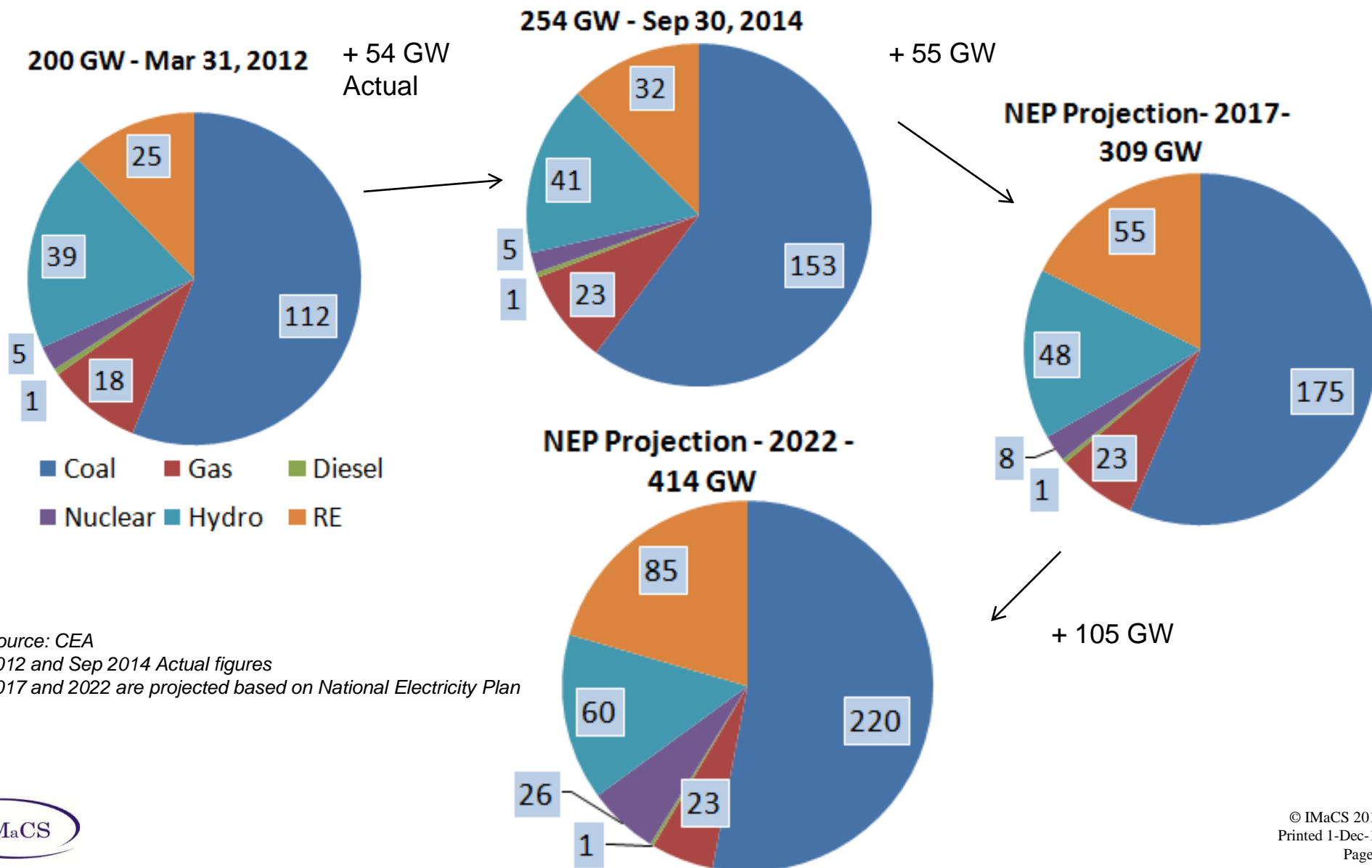
# NER, NR and SR continued to experience significant energy shortage during H1 of current year (FY 2014-15)



H1 All India Figures: Demand: 553 BU Supply: 530 BU Deficit: 4%

Source: CEA

# In the period 2012-2022, additional generation capacity of 214 GW is projected including 108 GW of coal based and 60 GW of RE capacity



Source: CEA  
 2012 and Sep 2014 Actual figures  
 2017 and 2022 are projected based on National Electricity Plan

# Coal supply is precarious in short term; Long term policy needs clarity to build confidence amongst stakeholders

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1. CIL's coal production in H1 is about 211MT as against the target of 220 MT
  - Nearly 90 thermal power plants have coal stock for less than 7 days of requirement
  - Industries in Telangana , Goa, Maharashtra and TN are facing frequent power cuts.
2. Central coordination to facilitate swapping of fuel to reduce logistics costs
3. Rules for e-auction of coal and linkage to electricity tariffs will bring clarity
4. Opening up the coal sector for private and International players
5. Comprehensively addressing the scope and remit of a Coal regulator

# What could be some avenues to increase generation in the short run?

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## 1. India has captive power plants of capacity 40MW (20% of installed capacity)

- Can some of these plants be induced to supply at viable rates?
- Are there customers who would be willing to pay the prices which are attractive?
- The Pune model – a tested approach; what are the barriers to scaling?
- Can a market-based framework be created for this?

## 2. Incentivising CGS and SGS power plants for attaining higher efficiencies

## 3. Generation Station Franchisee – Is this workable?

- Different from O&M contracts for Generating Stations
- Concession/ franchise for long tenure (say 20+ years) with / without Capex responsibility

# Need to clear hurdles for investment in renewable energy

- ❑ RPOs are not enforced at various states – need to introduce statute driven obligation
- ❑ RE PPAs provide for a single part tariff (energy charges). To avoid revenues loss in the event of grid conditions preventing evacuation of the power, payment should be made for “deemed generation” to RE generators.
- ❑ Procurement of wind power by a central agency on the lines of NRVNL is desirable:
  - Inter-state procurement of RE power through competitive bidding is complex. Procurement by an experienced central agency would improve the success rate of the bids
  - Possibility of attracting competitive bids due to economies of scale and better creditworthiness
- ❑ Solar power encouragement – Rooftop solar plants; FiT based PPAs
- ❑ Can we introduce RPO for generators also? (This is besides RPO for discoms)



# Open access is often hindered by operational issues created by the discoms

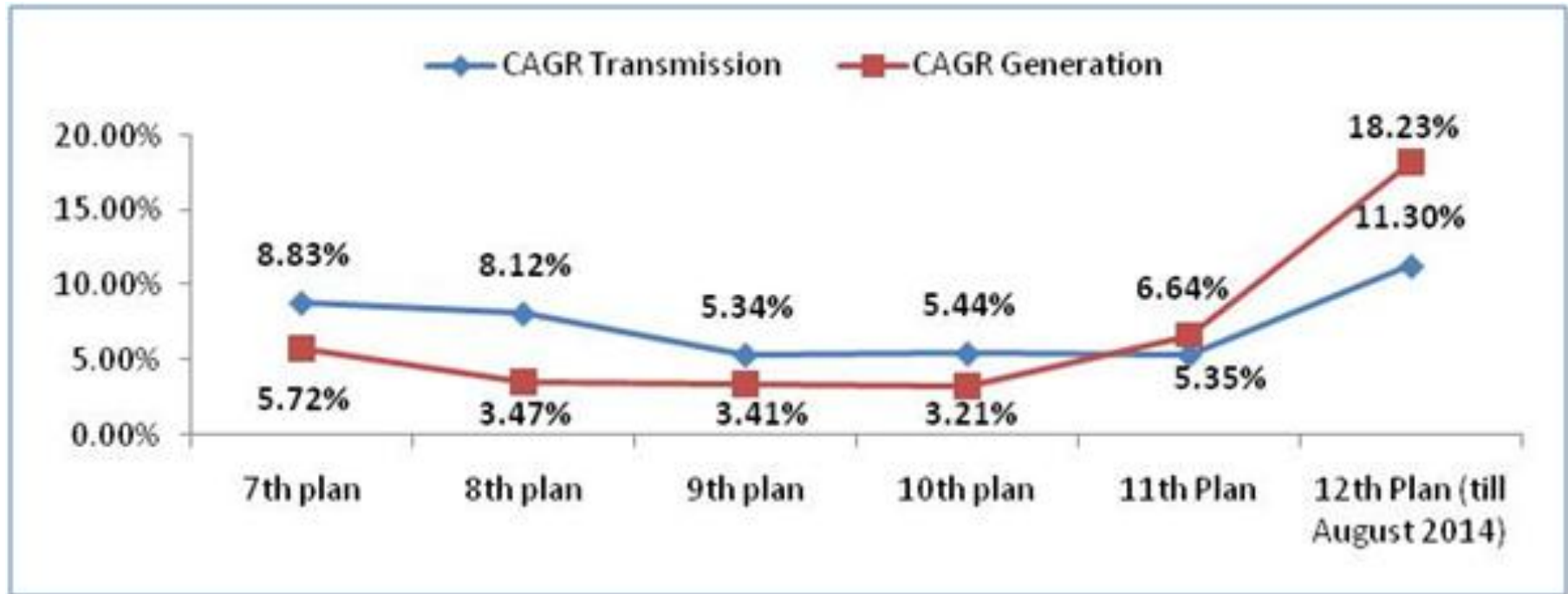
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- ❑ Industries in Telangana, Goa, Maharashtra and Tamil Nadu face frequent power cuts, resulting in loss of production or usage of expensive diesel generators
- ❑ Some IPPs have idle generation capacity which is economical and is available for procurement under open access.
- ❑ However, open access is often hindered by operational issues created by the discoms:
  - denial citing operational constraints
  - reduction or increase in contract demand
  - hurdles in metering and billing
  - lack of procedural clarity
  - hurdles in balancing and settlement
  - high cost of providing grid support

# Proactive support and funding by the Central Govt to kick-start open access can help boost economic output and Govt revenues

- ❑ The median cost of electricity is less than 6%<sup>1</sup> of the revenues generated in the manufacturing industry in India.
- ❑ Utilization of idle factory capacity due to power cuts can generate economic activity and revenue to the state and the central governments in the form of tax collection which is estimated as 20% of the value of the output (or more than three times the cost of the electricity).
- ❑ Research suggests that revenue loss for Indian manufacturing industry because of electricity shortage is about 5% of the revenues<sup>1</sup>.
- ❑ Hence, there appears to be a good case for Central Govt to support and fund the losses faced by Discoms in scaling up Open Access

# Need to shift to 'proactive' transmission planning from 'reactive' approach to avoid lag of transmission capacity behind generation



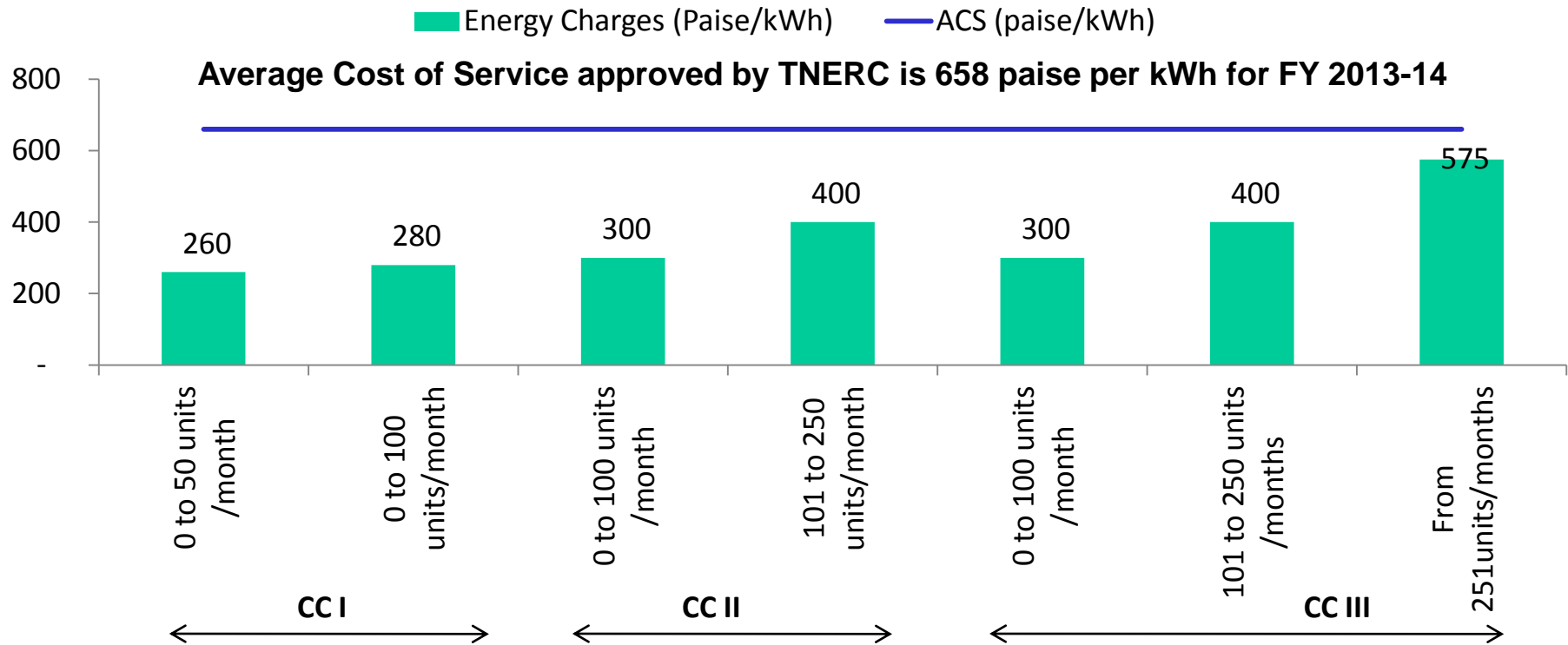
- ❑ Under the new policy regimes with separate connectivity product, IPPs book only a part of the capacity under long term open access
- ❑ At present, transmission planning is reactive responding only to requests of long term open access
- ❑ Need for creating redundant inter-regional and intra-regional transmission capacity

# Poor financial health of state owned Discoms is a big concern

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1. SERCs lack true independence and institutional capabilities;
  - Hence unable to monitor performance of the discoms by incentives and disincentives
  - Introduce third party validation of Capital expenditure projects /schemes
  - Introduce a “ceiling” for CapEx that can be absorbed as a hike in a given year
2. Insufficient tariff hike in categories;
  - E.g. domestic and agricultural segments
  - Insufficient subvention from state governments for subsidized categories
  - Compulsion to move towards cost reflective tariffs not adequate
3. Cross subsidy not enough to bridge the revenue gap due to higher growth rate in subsidized categories when compared to HT categories
4. Inefficient power procurement planning resulting in procurement of expensive short term power
5. Insufficient reduction in AT&C losses which is due to abnormally high commercial losses in some pockets

# Illustration (TN): Domestic consumers in the highest consumption category pay 83 Paise less than the average cost of supply

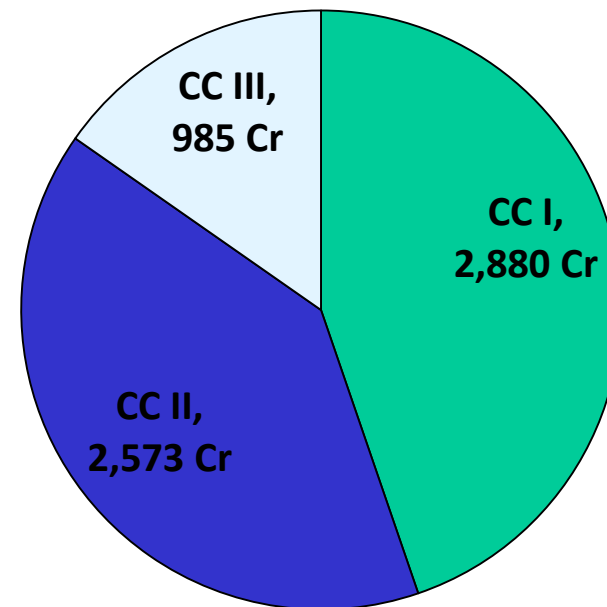


1. CC I - Consumers who consume from 51 units to 100 units per month
2. CC II - Consumers who consume from 101 units to 250 units per month
3. CC III - Consumers who consume 251 units and above per month

## Illustration (TN): Domestic consumers in the highest consumption category (> 251 units per month) underpay by almost Rs 1000 Crore

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- ❑ Estimated underpayment by the domestic consumers when compared to the average Cost of Service is more than Rs 6,000 Crore
- ❑ Subsidy being provided by GoTN to the domestic category is Rs 1,888 Crore



**Consumer sub-segment wise underpayment  
(Rs Crore)**

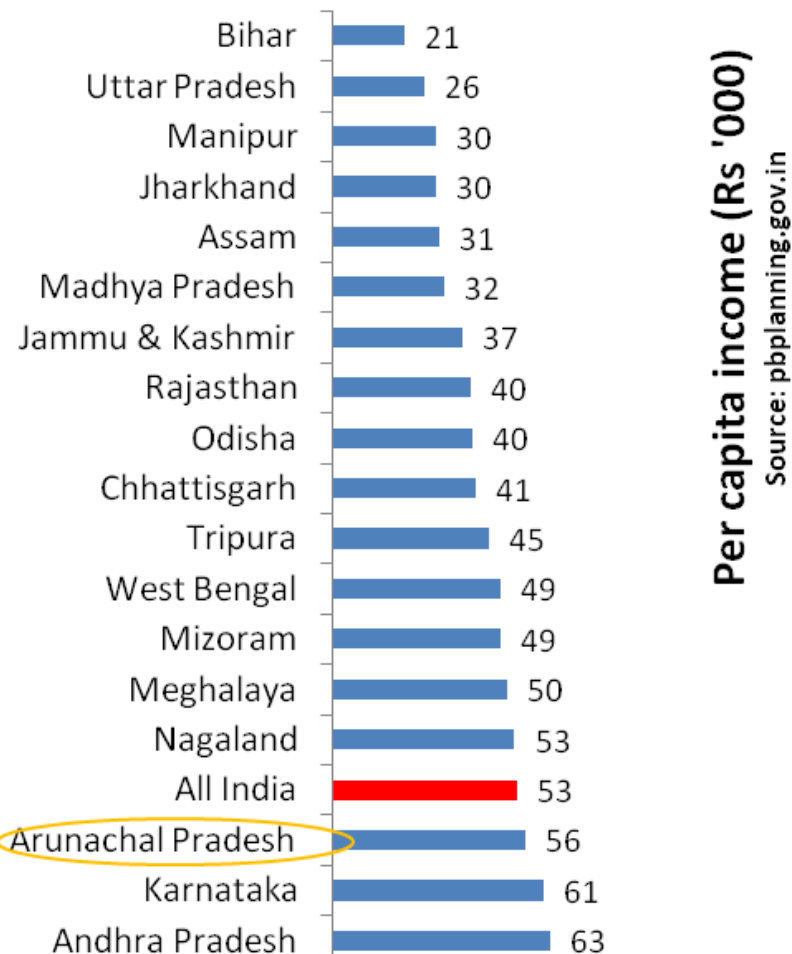
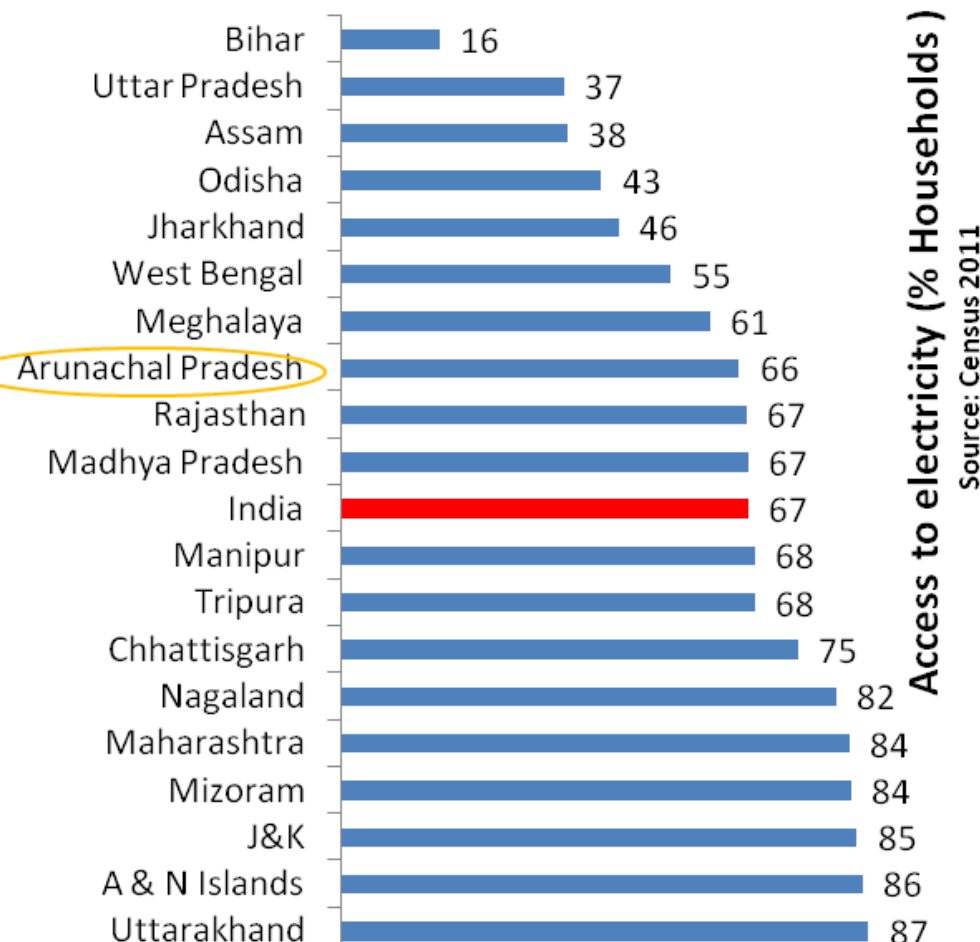
*Immediate need for tariff rationalization in many Indian states*

# Creating competition in distribution and enabling open access

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- Draft amendment to the Electricity Act is being proposed by MoP to separate wire business and retail supply business
- Wire business will serve as common carrier with a reasonable regulated rate of return on their investments and retail business to be made open to competing licensees operating in the same area.
- End customers would be provided the choice of selecting the suppliers based on price and quality of service.
- Investment in distribution networks is expected to improve since the wire business would be a distinct, regulated business with assured returns.
- Many of the existing discoms are inefficient in retail supply function resulting in high commercial losses
- Private sector players with relevant expertise can help improve the competitiveness in the retail supply function

# Affordability is the key hindrance for 33% of households who do not have access to electricity



*Nine out of the ten states (except Arunachal Pradesh) with % access to electricity below national average also have a per-capita income below the national average*



# How much can Average Cost to Serve of Discoms be reduced by?

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- Cost to Serve for a Discom can be reduced by 13% on an average by focus on just two parameters
- Further reduction possible by Demand side management, better metering, etc.

Parameter	Current cost (Rs/kWh)	Target cost (Rs./kWh)	Reduction
T&D Loss	0.94	0.54	42%
O&M	0.62	0.44	28%
Other expenses	2.84	2.84	0%
Total	4.40	3.82	13%

Note: T&D Loss currently is 21% and Target is 12%

# Summary

- ❑ Power sector faces acute short term challenges
  - Fuel shortage, clarity on coal policy, poor financial health of Discoms
  
- ❑ Long term challenges need a radical change in some fronts
  - Regulatory process needs to be strengthened – more teeth and better capabilities
  - More competition needs to be induced in the sector – Open access; Wires and supply separation
  - RPO process needs to be made more effective
  - Transmission should not be a constraint
  - Universal access can only happen if there is reduction in CoS, Distributed generation;
  
- ❑ **Good economics is not likely to make for good politics in this sector; we will need to find solutions within this truth of our political economy**

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# Thank You

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