# Infrastructure convergence:
## *Tapping smart grids for renewing growth in the India telecom sector*

**CPRSouth 5, X'ian, China**
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# Key Takeaways

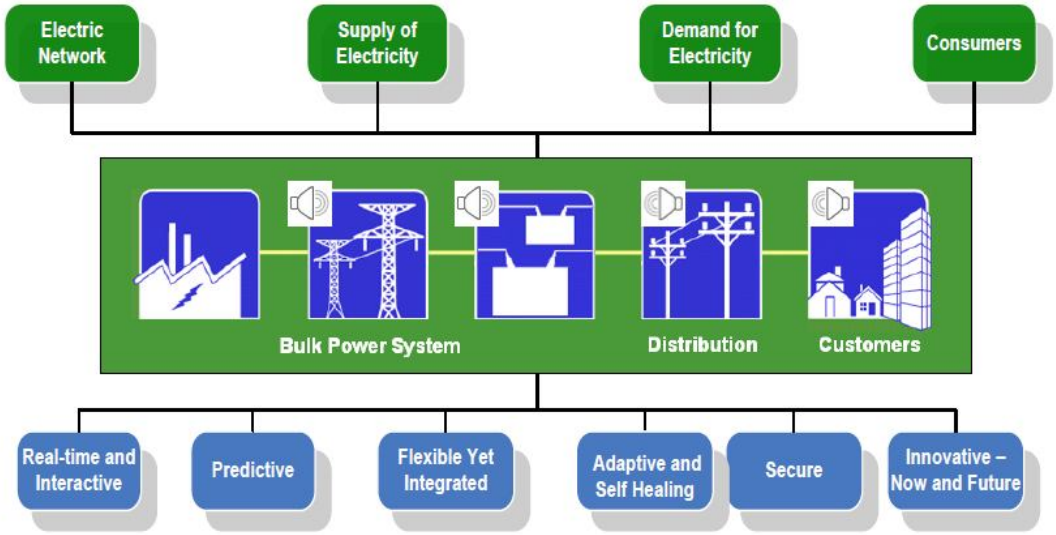
- Inefficiencies in the electricity industry exacerbate demand-supply gaps and carbon emissions
- Intense competition in the telecom industry and significant debt poses challenge for growth
- Smart grids can:
  - cut transmission losses
  - reduce carbon emissions
  - renew growth for the telecom industry
- Regulatory reform necessary to enable deployment of smart grids

# Smart grids are a convergence of telecom infrastructure and electricity distribution grid

•A smart grid can be defined as a collection of applications or technologies that make the electricity distribution grid more observable, controllable, automated, responsive and resilient

•Transforms the way power is generated, delivered, consumed and accounted for

•Enables better energy distribution and gives end-users the ability to monitor and control their energy usage




**Source: Deloitte(2010,October). Deriving Value from Smart Grid Investments.pp.1**

# The problem: Inefficiencies in the electricity industry exacerbate demand-supply gaps and carbon emissions

**Demand-Supply Gap**

- India is likely to face a capacity shortfall of 95-140GW by 2017
- The demand supply gap has resulted in losses of Rs 43,205 due to power outages in 2008-09; gap expected to widen in the future

**High Transmission Losses**

- Nearly, 33 percent of generated power in India is lost due to aggregate technical and commercial (AT&C) losses
- Significantly higher than China (8%), South Korea (4%) and the United States (10%)

**High Carbon Emissions**

- India's Green House Gas (GHG) emissions are estimated to be 2,209 MtCO2e by 2020
- The power sector currently contributes 57 percent of Indian's GHG emission.

**Although the government and the private sector plan to add more capacity, if the existing grid is not upgraded we can continue to see significant losses in transmission and increased green house gas emissions in the future**

# The problem: Intense competition in the telecom industry and significant debt poses challenge for growth

**Declining revenues from voice**

- Nine out of 14 telecom providers witnessed declines in their 1Q 2009-10 revenues
- Average Revenue Per User (ARPU) for GSM services declined 8.6 percent and for CDMA service 7.4 percent from December 2009 to March 2010

**Significant debt**

- Carriers incurred significant debt from recent auction bid of Rs1.07 lakh crore ($23 billion) for 3G and Broadband Wireless Access (BWA) spectrum

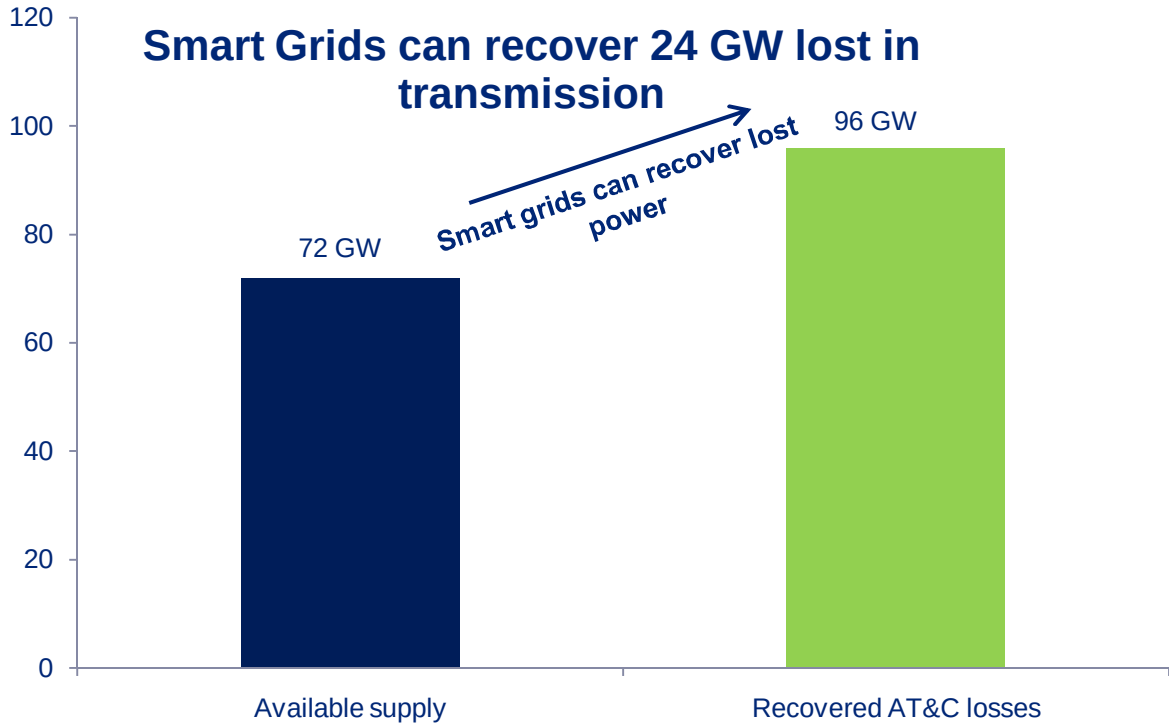
**Indian telecom industry needs to look beyond voice -- to innovative applications and business models -- to grow profitably**

# Solution: Smart grids can cut AT&C losses

•Every percentage reduction in AT&C losses circumvents generation to the tune of 1,400 MW

•Smart grid systems can manage electricity distribution more efficiently, and could trim India's AT&C losses from 33 percent to 15 percent

•This is effectively 24,000 MW of generation that is currently being wasted that can be brought into usage



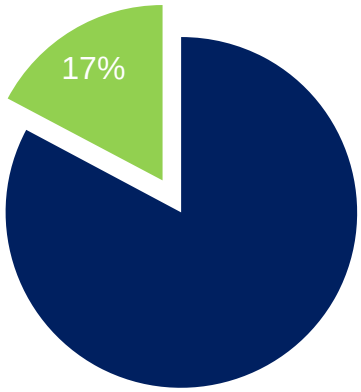
# Solution: Smart grids can reduce carbon emissions

•Smart grids enable power from alternative renewable energy sources to be integrated efficiently into the grid

•Dynamic pricing made possible with smart metering can shape consumer behavior and lower investments utilities need to make to meet peak demand

•Mass deployment of smart grids can help India reduce its T&D losses by 30 percent which would in turn reduce carbon emission by 95 MtCO2e

**Smart grids can cut green house gas emissions**




**India's Copenhagen Commitment: 552 Metric tons of CO2 reduction in emissions by 2020**

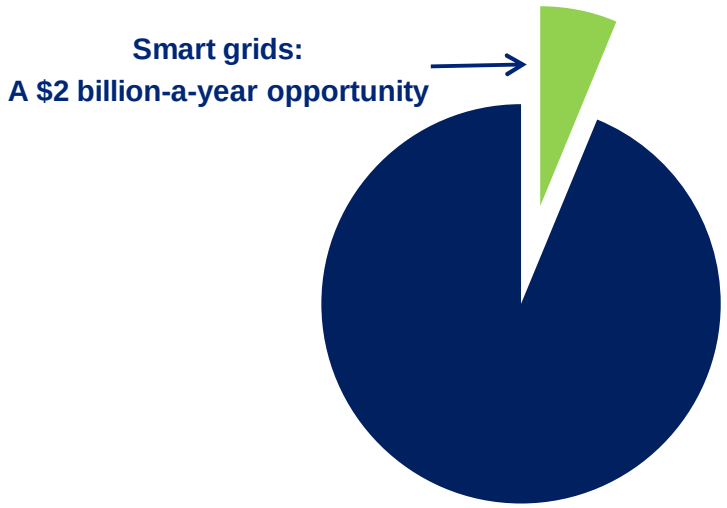
**Smart grids can reduce emissions by 95 Metric tons or 17 percent of India's target**

# Solution: Smart grids can renew growth for the telecom industry

•Nationwide deployment of smart meters for electricity consumers alone should present telecoms operators an opportunity to carry up to 8715TB of data per annum on their network

• This translates into a revenue opportunity of Rs87 billion per annum ($1.9 bn)

**Smart grids can grow the Indian telecom revenue pie**



# Policy recommendation

•Portugal has been able to deploy smart grids by restructuring and privatizing former state utilities:

- Created a separate company that owns all transmission lines
- Lured private investment by offering long-term fixed contracts
- Offered viability funding when necessary

•India would need legislation to enable coordination by a regulatory authority of:

- transmission planning
- transmission cost recovery and allocation,
- grid modernization
- smart grid development across states

•At the very least, a streamlined process is needed to enable public-private partnerships to allow telecom firms to participate in smart grids deployment

Thank you!