



# *Task XX and its Relevance to Smart Grids*

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## *Agenda for the Presentation*

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- **What is 'Smart Grid' for consumer?**
- **What is Task XX?**
- **Relevance of Task XX for Smart Grid Evolution?**





# *What is Smart Grid for Consumer?*



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# What is Smart Grid?

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- US DOE

- *A Smart Grid uses digital technology to modernize the electric system – from large generation, through the delivery systems to electricity consumption – and is defined by seven performance based functionalities: customer participation, integration of all generation and storage options, new markets and operations, power quality for the 21<sup>st</sup> century, asset optimization and operational efficiency, self healing from disturbances, and resiliency against attacks and disasters*

- EPRI

- *The term ‘Smart Grid’ refers to a modernization of the electricity delivery system so it monitors, protects, and automatically optimizes the operation of its interconnected elements – from the central and distributed generator through the high voltage network and distribution system, to industrial users and building automation systems, to energy storage installations, and to end-use consumers and their thermostats, electric vehicles, appliances and other household devices.*



# *Benefits of Smart Grids*

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- Grid loss reduction
- System performance & asset utilization improvement
- Integration of renewable energy sources
- Active demand response
- Energy efficiency
- Prevention of power theft
- Reduction in power outages
- Reduction in GHG emissions



# *Major Smart Grid Technologies*

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- Active Demand Response & Integration with Smart Homes
- Smart Metering Infrastructure and Data Processing
- Integration of Small and Large Scale Renewable & Storage
- Infrastructure to Support Electric Vehicles
- Embedded Sensing, Automation, Protection and Control
- Integrated, Distributed Communication & Data Processing
- Advanced System Operation
- Advanced System Management
- Innovative System Planning
- Innovative Power Technologies



# *Key Implementation Challenges*

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- Policy and Regulation
- Financing
- Technology and Standards
- Cyber Security and Data Privacy
- Skills and Knowledge
- Consumer Engagement





# *Role of Consumer*

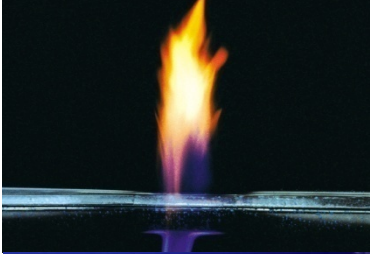
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- Smart Grid technologies demand behavioral changes in power consumption due to:
  - Demand response would result in consumer ceding control over appliances to DR Operator or Utility
  - Modification to homes
- Smart Grids could also cause increase in rates due to:
  - Investments in network elements
  - Investment in technology development
  - Investment in renewable energy (though not directly responsible, concomitant nature would make these investments appear together)
- Consumers may not appreciate need to implement Smart Grids.
  - Significant efforts would be required on part of the Governments and Industry to convince these consumers.





# *What is Task XX?*



## *Motivation for Task XX*

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- Energy Efficiency has huge potential in the areas of energy security, keeping in check energy prices and reducing GHG emissions
- This potential exists in small quantities in several areas with large number of users
- Government driven efforts will never be sufficient to target and achieve this potential
- Significant market based efforts are required to achieve potential for EE
- Branding by its very nature creates 'Pull' in the market which would assist in wide scale deployment of energy efficiency



## *Objectives for Task XX*

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- Task XX is expected to develop understanding of the needs and barriers associated with branding of energy efficiency and strategies to overcome those barriers
- The primary objective of the task is:
  - *To understand reasons for absence of energy efficiency brands; and*
  - *To develop appropriate strategies for the Governments to direct their efforts so as to create marketplace suitable for energy efficiency brands thereby evolving 'Comprehensive framework for Market Transformation'*



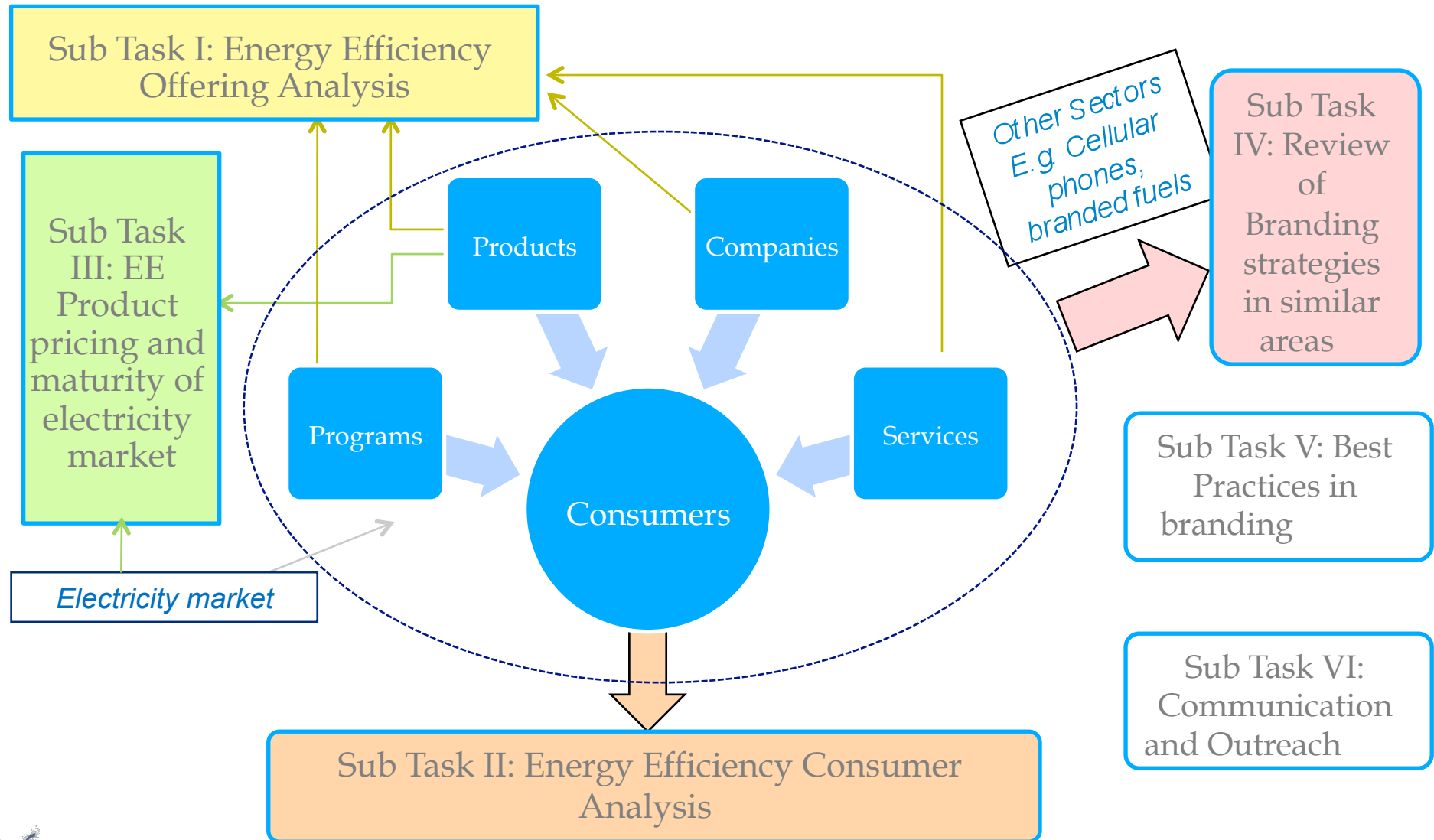
# *Research Areas*

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- To identify and analyze various offerings in EE marketplace and their successes and failures;
- To understand knowledge and attitude of consumers towards energy efficiency;
- To understand issues associated with energy efficiency in developing countries;
- To identify best practices in definition of suppliers of energy efficiency products and services;
- To identify the potential for programmatic approach towards energy efficiency;
- To identify the barriers to branding of energy efficiency;
- Government's role in promoting comprehensive framework for market transformation.



# How Task XX perceives Energy Efficiency Marketplace?



## *Sub Tasks*

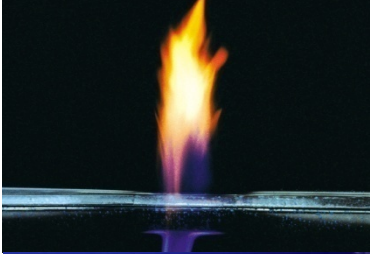
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- The task will be undertaken under following six sub-tasks:
  - *Sub-task I: Energy Efficiency Offerings Analysis*
  - *Sub-task II: Energy Efficiency Consumer Analysis*
  - *Sub-task III: Assessment of Relations between market for EE products and maturity of electricity market*
  - *Sub-task IV: Review of Branding Strategies in similar areas;*
  - *Sub-task V: Identification of Best Practice in Branding of EE*
  - *Sub-task VI: Communication and Outreach*





# *Relevance of Task XX for Smart Grid Evolution*



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## *Task XX and Smart Grids*

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- Both Smart Grids and Energy Efficiency have similar business drivers.
- Both would require the Governments to take significant efforts for their promotion.
- Task XX addresses Smart Grid issues in following manner:
  - Offering Analysis would look into Smart Grid related offerings
  - Consumer Analysis would seek consumer response to Smart Grids
  - Review of branding strategies in other areas would look into success stories in other sectors such as ICT, etc



*Thank You*



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