Drivers for Smart Grids in Distribution Networks
26 March 2012, Mexico City, Mexico
Objectives of this session

Seek feedback on considered drivers for smart grids in the distribution network.

Establish a reasonably agreed upon understanding for the purpose of the workshop

Discuss the priority of drivers for your country or region and compare with others.
Smart Grid Drivers: IEA Smart Grid Roadmap

- Demand is increasing
- Variable renewable deployment is increasing
- New types of demand are coming on line (eg: EV/PHEV’s)
- Peak demand reduction
- Ageing infrastructure

- A more refined approach is needed to address system specifics when creating deployable roadmaps
Electricity system drivers

- Regulation of monopolies
- Primary energy sources
- Reliability and quality
- Capacity
- Innovation and competitiveness
- Low prices and efficiency
- Economic
- Security of Supply
- Environment
- Nature Preservation
- Climate change
- Kyoto and post-Kyoto
Detailed drivers

- Reliability improvements
- Manage power quality
- Power restoration improvements
- Distribution adequacy
- Efficiency improvements
- Optimising asset utilisation
- Enabling new products, services and markets
- Enabling customer choice and participations
- Revenue collection and assurance
- Managing O&M costs
- RE standards or targets
- Regulatory compliance
- Enhanced system resiliency
- Safety improvements
- Ageing workforce
- Job creation
- Financability

1: Adapted from: ISGAN Annex 1 draft framework for technology and drivers
Driver frameworks

- ISGAN Annex 1 (draft):
  - Reliability
  - Economic
  - Environmental
  - Security
  - Safety
  - Crosscutting

- Workshop:
  - DER
  - Customer
  - Losses
  - Operations
  - Planning
  - Macro
    - Environment
    - Economic
    - Security

- Time based:
  - Operations
  - Planning and development
  - Macro
    - Environment
    - Economic
    - Security
Macro driver relationships

- Distributed Energy Resources
  - DG and storage
  - DR
- Customer
- Losses
- Operations
- Planning and development

- Economic
- Security of supply
- Environment
Driver frameworks

- **ISGAN Annex 1 (draft):**
  - Reliability
  - Economic
  - Environmental
  - Security
  - Safety
  - Crosscutting

- **Workshop:**
  - DER
  - Customer
  - Losses
  - Operations
  - Planning
  - Macro
    - Environment
    - Economic
    - Security

- **Alternative:**
  - Operations
  - Planning and development
  - Macro
    - Environment
    - Economic
    - Security
Categorised drivers (non-exhaustive):

- **Planning and development**
  - System adequacy
    - Growth in demand
  - Ageing infrastructure
  - Reliability and resiliency
  - Optimising asset utilisation
  - **Losses**
    - Technical and commercial
    - Efficiency improvements
  - **DER**
    - DER standards or targets
    - New products and services
  - **Customer**
    - Revenue collection and assurance
    - Choice and participation
    - New products and services

- **Operations**
  - Reliability and resiliency
  - Power quality
  - Managing O&M
    - Costs
    - Workforce and safety
    - Optimising asset utilisation
  - **Losses**
    - Technical and commercial
    - Efficiency improvements
  - **DER**
    - DER standards or targets
    - New products and services
  - **Customer**
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Questions for discussion?

- What approach resonates with you?
- What is missing?
- Suggestions for improvement.
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- Alternative:
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For more information:

www.iea.org/roadmaps

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Thank you