



# 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.**

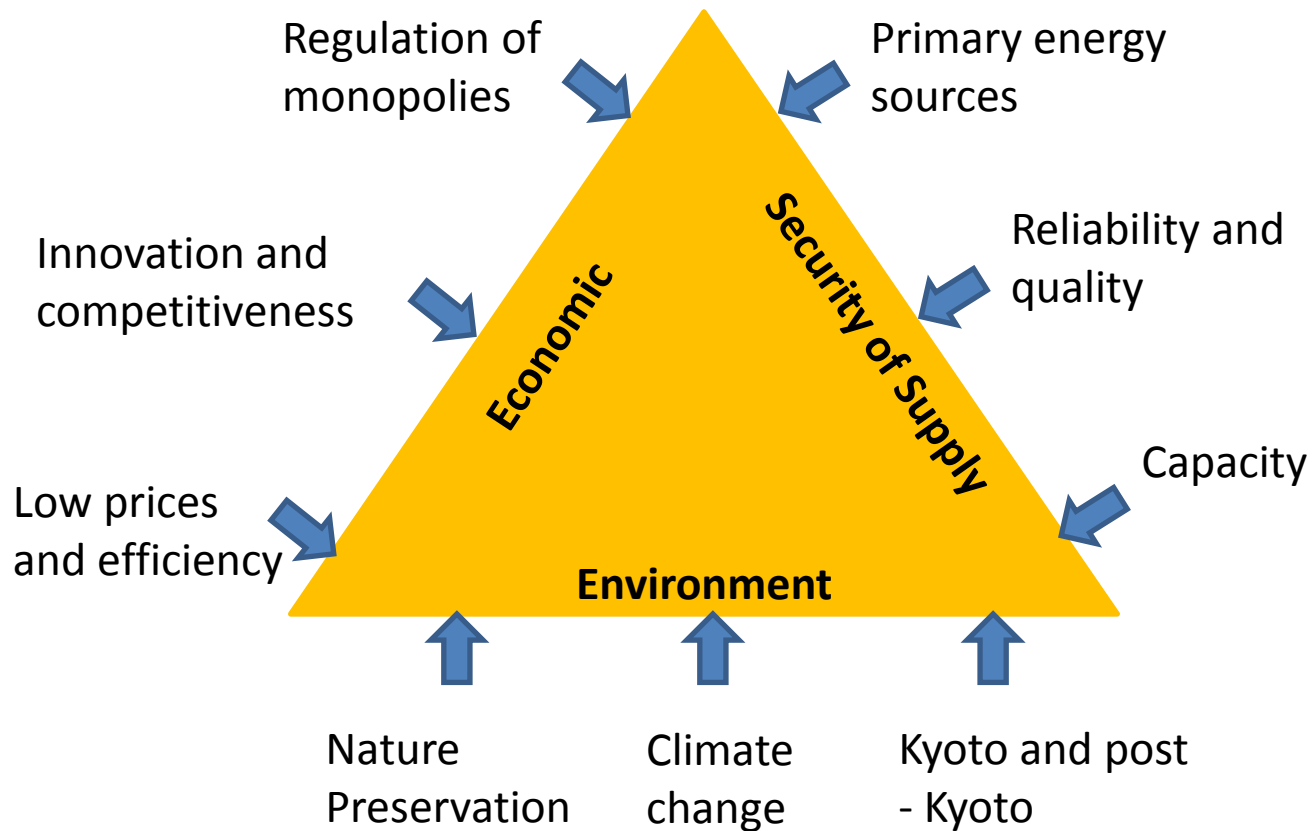
**Establish a reasonably agreed upon understanding for the purpose of the workshop**

**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



# Detailed drivers<sup>1</sup>

- 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



# 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

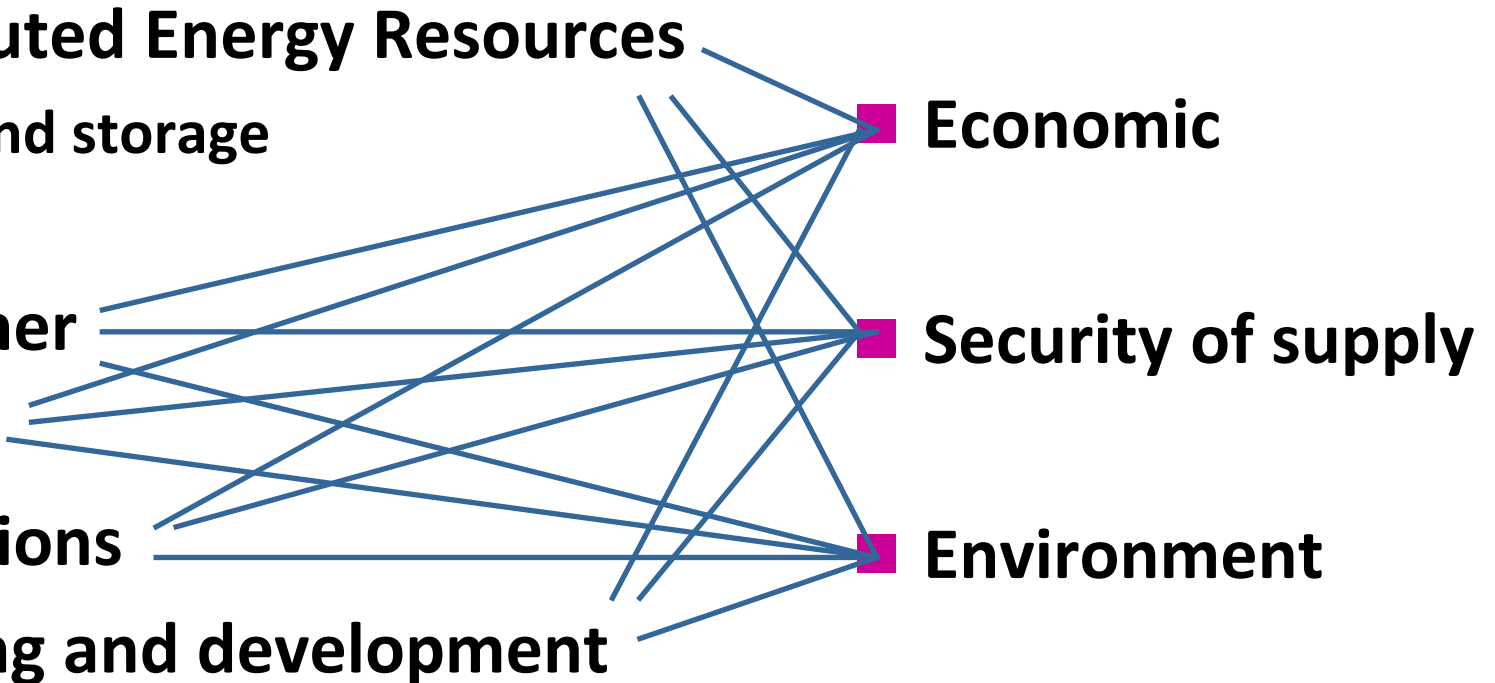
## ■ Operations

## ■ Planning and development

## ■ Economic

## ■ Security of supply

## ■ Environment



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## ■ 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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  - ◆ Choice and participation
  - ◆ New products and services

# Questions for discussion?

- What approach resonates with you?
- What is missing?
- Suggestions for improvement.

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**For more information:**

**[www.iea.org/roadmaps](http://www.iea.org/roadmaps)**

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**Thank you**