

4th International Conference on
Integration of Renewable and Distributed Energy Resources
December 6-10, 2010
Albuquerque, NM, USA

EEGI
European Electricity Grid Initiative

Anh VU
EDSO-SG
ERDF – SmartGrid Program Manager

Outline

- **European Strategic Energy Technology Plan (SET Plan)**

- **European Electricity Grid Initiative (EEGI)**
 - **Objectives and Expected Benefits**
 - **Governance**
 - **Smart Grid model**
 - **RD&D roadmap : DSOs, TSOs, TSOs/DSOs**
 - **Financing**
 - **Knowledge sharing**

European Strategic Energy Technology Plan

EU 20-20-20 targets

- A reduction GHG emissions of at least 20% (below 1990 levels)
- 20% of EU energy consumption
- 20% reduction in primary energy



The European CO2 Capture, Transport and Storage Initiative

The Fuel Cells and Hydrogen (FCH) Joint Technology Initiative

Energy Efficiency : The Smart Cities Initiative

The European Wind Initiative

The Sustainable Nuclear Initiative

The Solar Europe Initiative



EEGI
European Electricity Grid Initiative

The European Industrial Bioenergy Initiative

European Electricity Grid Initiative (EEGI)

A single, stronger and smarter European electricity grid will have a central role to accommodate the resulting massive deployment of renewable and decentralized energy sources.



European Technology Platform

The European Electricity Grid Initiative (EEGI)

A 9-year, €2bn European (RD&D) programme initiated by electricity transmission and distribution network operators to accelerate innovation and the development of the electricity networks of the future in Europe into a Smart Grid

EEGI objectives

- The EEGI has been launched to accelerate the development of the electricity networks of the future in Europe, the **Smart Grids**
- The EEGI will conduct the **extra RD&D efforts needed** to develop new solutions to overcome the following barriers:
 - **Technology barriers** including standards, interoperability, cyber security and data privacy
 - **RD&D organization barriers** including the fragmentation and duplication of efforts
 - **Market failures and distortions:** present incentives are not sufficient for network operators to invest
 - **Public barriers** including customer engagement and public acceptance

EEGI expected benefits :

The deployment of the solutions will start progressively over the period from 2010 to 2030 and result in benefits such as:

- The integration of national networks into a market-based, truly **pan-European network**
- **Increased hosting capacity** for renewable and distributed sources of electricity
- The **active participation of users** in markets and energy efficiency
- A **high level of quality** of electricity supply to all customers
- The **anticipation of new developments** such as a progressive electrification of transport
- The opening of **business opportunities and markets for new players** in the smart grids area
- An **economically efficient deployment** of future networks, for the benefit of grid users

The EU governance structure to run the EEGI RD&D projects

Reach the EU
2020 targets
Strategy and
Policy Level

STEERING GROUP
EC- Chair
Member States
European Investment Bank



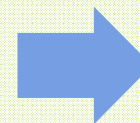
EEGI Program
Monitoring,
Implementation
and Revision
Level

EEGI Team
DSOs – TSOs
European Commission
Member States
RTD Community



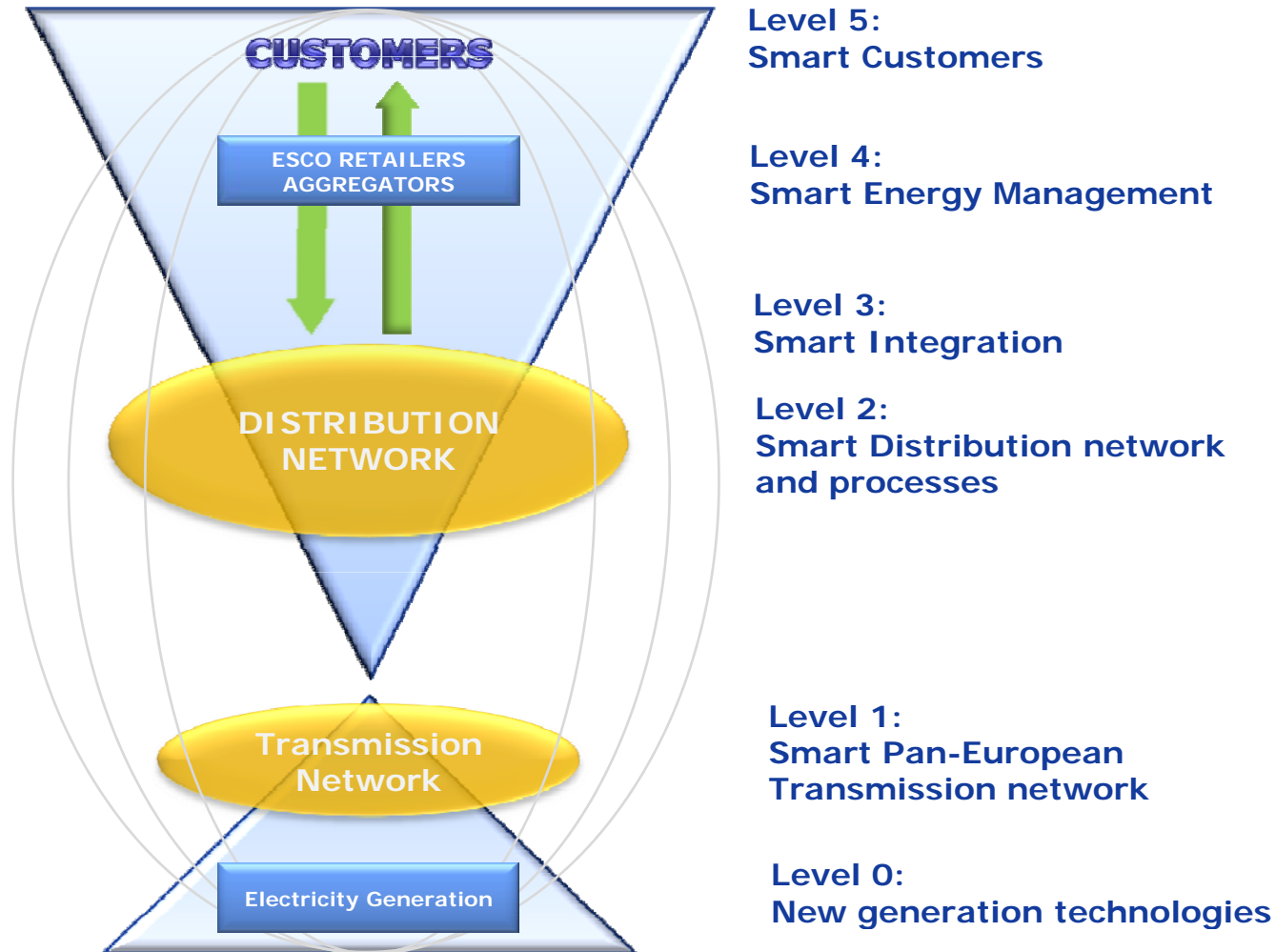
Demonstration
projects
contribution to
EEGI
Operational Level

EU Research Program
Member States National program
Industry co- financing

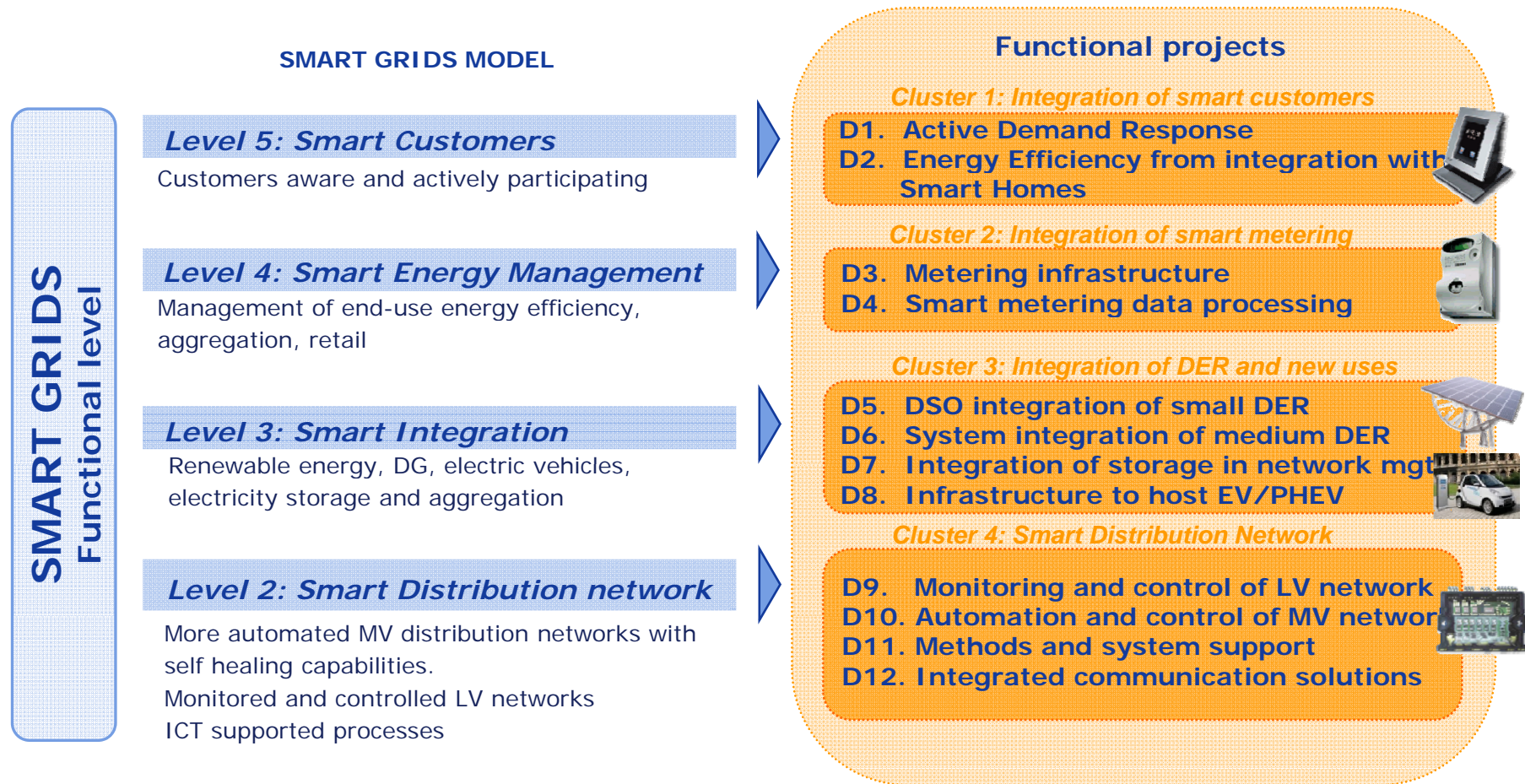


*Large Scale
RD&D Projects
2 billion €*

A Smart Grid model to define needed projects



The 12 Functional Projects on distribution networks



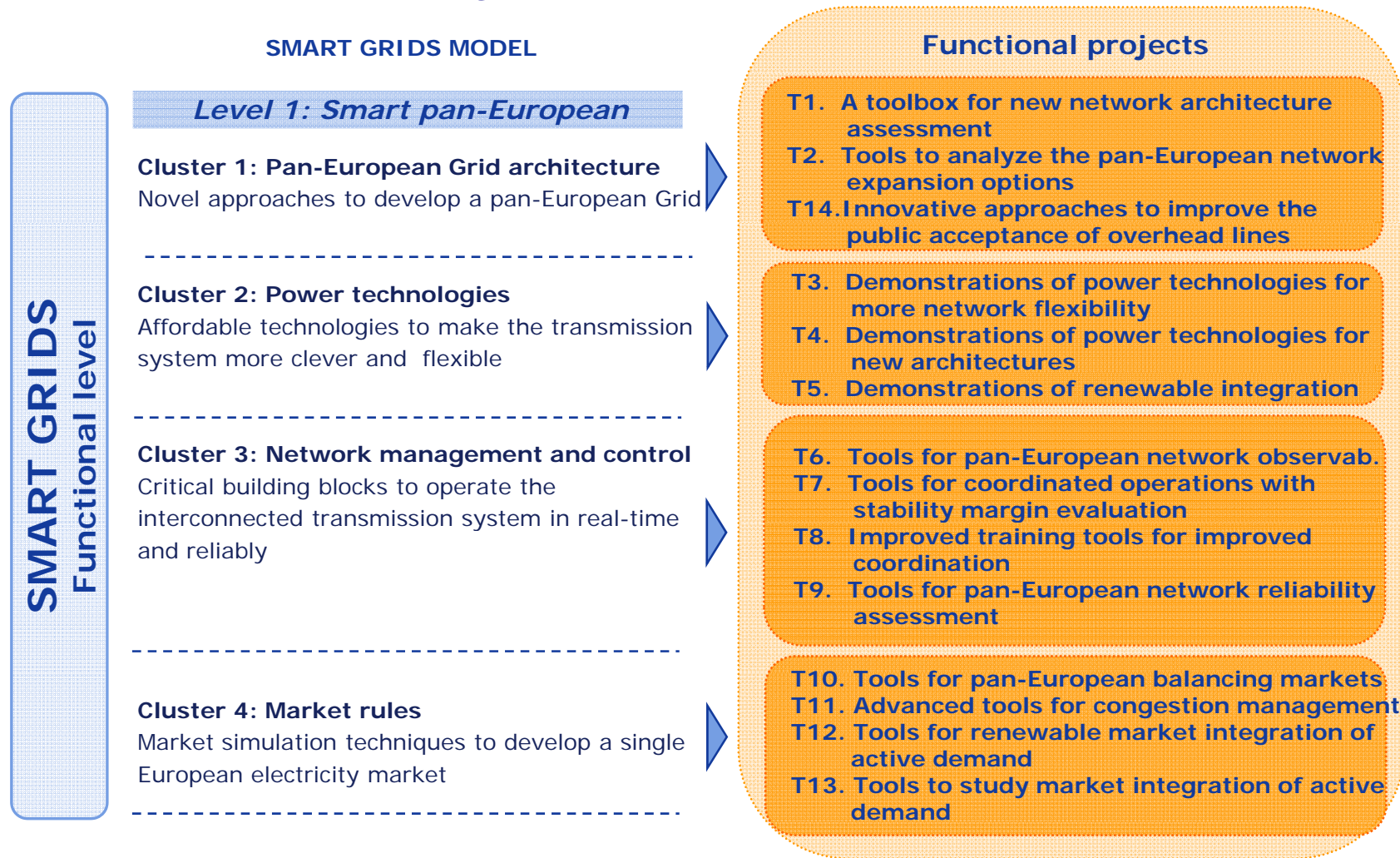
Distribution activities

RD&D Roadmap

Mill EUR

Smart Grids Functionalities	Project	YEAR										Total Costs	2010-2012
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Active Demand Response and integration with Smart Homes	D1	ADDRESS			Active Demand Response							190	--
	D2	BEWARE Smart Homes/Smart Grids			Integration with Smart Homes							120	--
Smart Metering Infrastructure & Data Processing	D3	OPEN METER Existing Deployment		Smart Metering Infrastructure							150	150	
	D4	Existing Deployment	Smart Metering Data Processing								20	20	
Integration of RES, storage and EV	D5	Active Distribution Network		Integration of small DER							90	90	
	D6	Active Distribution Network	Integration of medium DER							150	150		
	D7	STORAGE TECHNOLOGY			Integration of storage technologies							60	--
	D8	ELECTRIC VEHICLES		Integration of Electric Vehicles							100	100	
Planning, monitoring and control	D9	Active Distribution Network		Monitoring and control of LV networks							100	100	
	D10	Active Distribution Network	Automation and Control of MV networks							90	90		
	D11		New methods and systems support							80	80		
Integrated communication Infrastructure	D12	Active Distribution Network		Integrated Communications Solution							50	50	
Total											1,200	830	

The 14 Functional Projects on transmission networks



Transmission activities

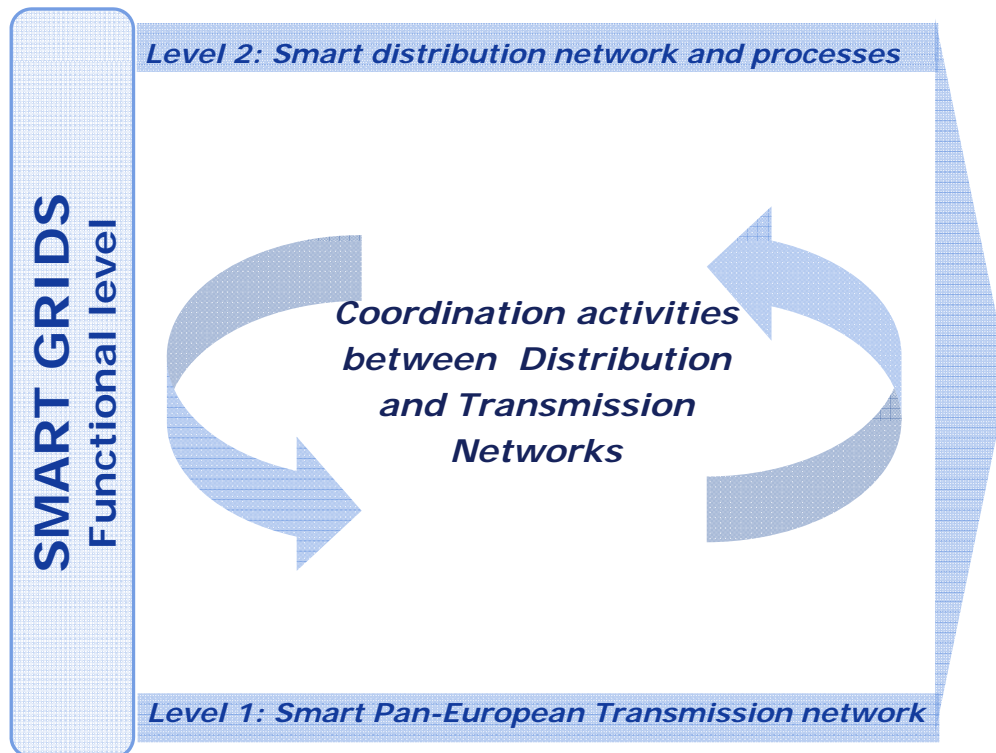
RD&D Roadmap

Mill EUR

Smart Grids Functionalities	Project	YEAR										Total Costs	2010-2012	
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019			
Pan-European Grid Architectures(R&D)	T1	A tool box for new network architecture assessment											19	19
	T2	REALISEGRID		Tools to analyze the pan European network expansion options									21	21
Power Technologies (Demonstration)	T3	Demonstr.of Power technologies for more network flexibility											80	--
	T4	Demonstrations of Power technologies for new architectures											120	--
	T5	SAFEWIND, WINGRID, IS-POWER, TWENTIES			Demonstration of renewable integration (ct'd)								130	--
Network management and control (R&D)	T6	PEGASE			Tools for a Pan European network observability								12	--
	T7	Tools for coordinated operations with stability margin evaluation											24	24
	T8	Improved training tools for improved coordination											25	--
	T9	Tools for Pan European network reliability assessment											14	14
New market design options (R&D)	T10	Tools for Pan European balancing markets											18	--
	T11	Advanced tools for congestion management											21	--
	T12	OPTIMATE			Tools for renewable market integration								14	--
	T13	Tools to study market integration of active demand											12	--
Pan-European Grid Architectures(R&D)	T14	Innovative approaches to improve the public acceptance of overhead lines											50	30
Total											560	108		

The 5 Functional Projects on transmission/distribution networks coordination

SMART GRIDS MODEL



Functional projects

- TD1. Increased observability of the electric system for network management and control
- TD2. The integration of demand side management in TSO operations
- TD3. Ancillary services provided by DSOs
- TD4. Improved defence and restoration plans
- TD5. Joint task force on IT system protocols and standards

Transmission/distribution networks coordination *RD&D Roadmap*

Mill EUR

Project	YEAR										Total Costs	2010-2012
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
TD1		Increased observability of the electric system for network management and control									45	18
TD2			The integration of demand side management in TSO operations							70	7	
TD3		Ancillary services provided by DSOs									50	10
TD4		Improved defense and restoration plans									45	14
TD5		Joint Task force on IT system protocols and standards									20	19
Total										230	68	

Financing the program

- According to the **Third Internal Energy Market package**, **tariffs** should ensure that **network operators are granted appropriate incentives**, including support to related **research activities**.

- New appropriate **tariff schemes are not expected** to be active in a majority of Member States **in the period 2010-2012**.

- **A significant share of public funding would be needed** from
 - **European sources** to
 - encourage the European-level planning and cooperation
 - to avoid unnecessary duplication of efforts
 - supporting European standardization and interoperability
 - **National support** to
 - encourage substantial benefits at national level
 - cover costs of the market players to encourage knowledge sharing related to new activities and opportunities

Knowledge Sharing – Which Channels ?

- **Dissemination Plans** within each EEGI RD&D Project
- **Grid Operators associations : ENTSO-E, EDSO-SG**
 - » facilitate the dissemination of results based on the packaging and the publications prepared in the frame of the RD&D demonstration projects.
 - » Specific Workshops for non-participating TSOs & DSOS
 - » Specific Workshops for EC and ACER
 - » Etc.
- **EURELECTRIC :**
 - Manufacturers and other Stakeholders
- **ISGAN**, and other international collaborative initiatives....etc.



Thank You for Your Attention