

EEGI

European Electricity Grid Initiative

Hubert Lemmens – ENTSO-E R&D Committee Chairman

Outline

- **Origins of EEGI**
- **Objectives and Expected Benefits**
- **EEGI Smart Grid model & Projects**
- **Financing**
- **Status and update**
- **Conclusions**

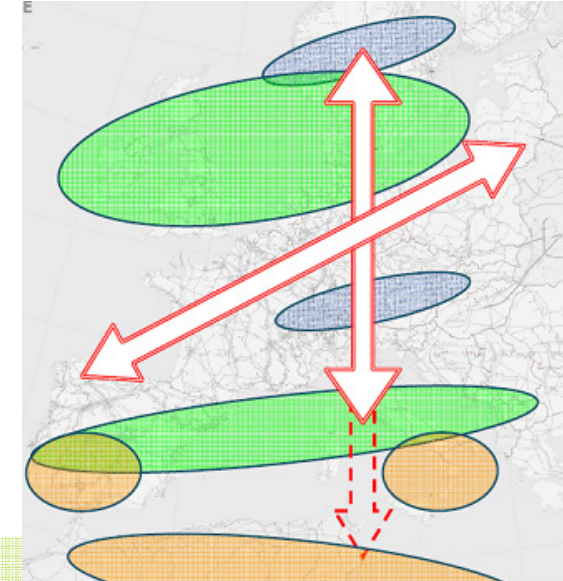
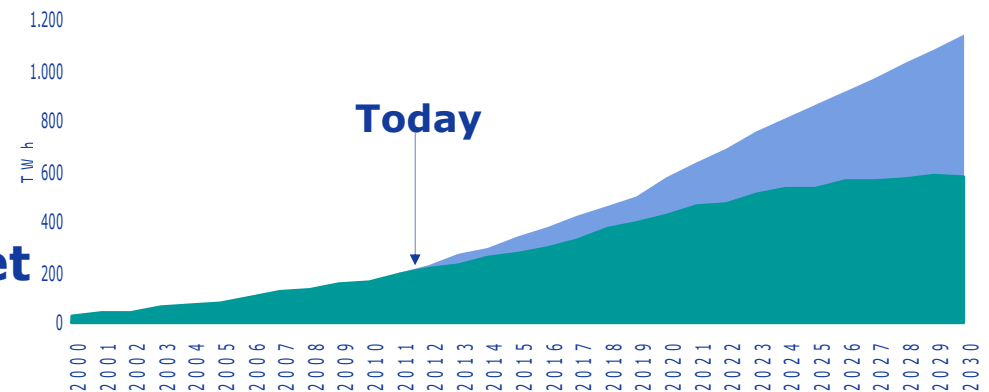
EU climate & energy policy

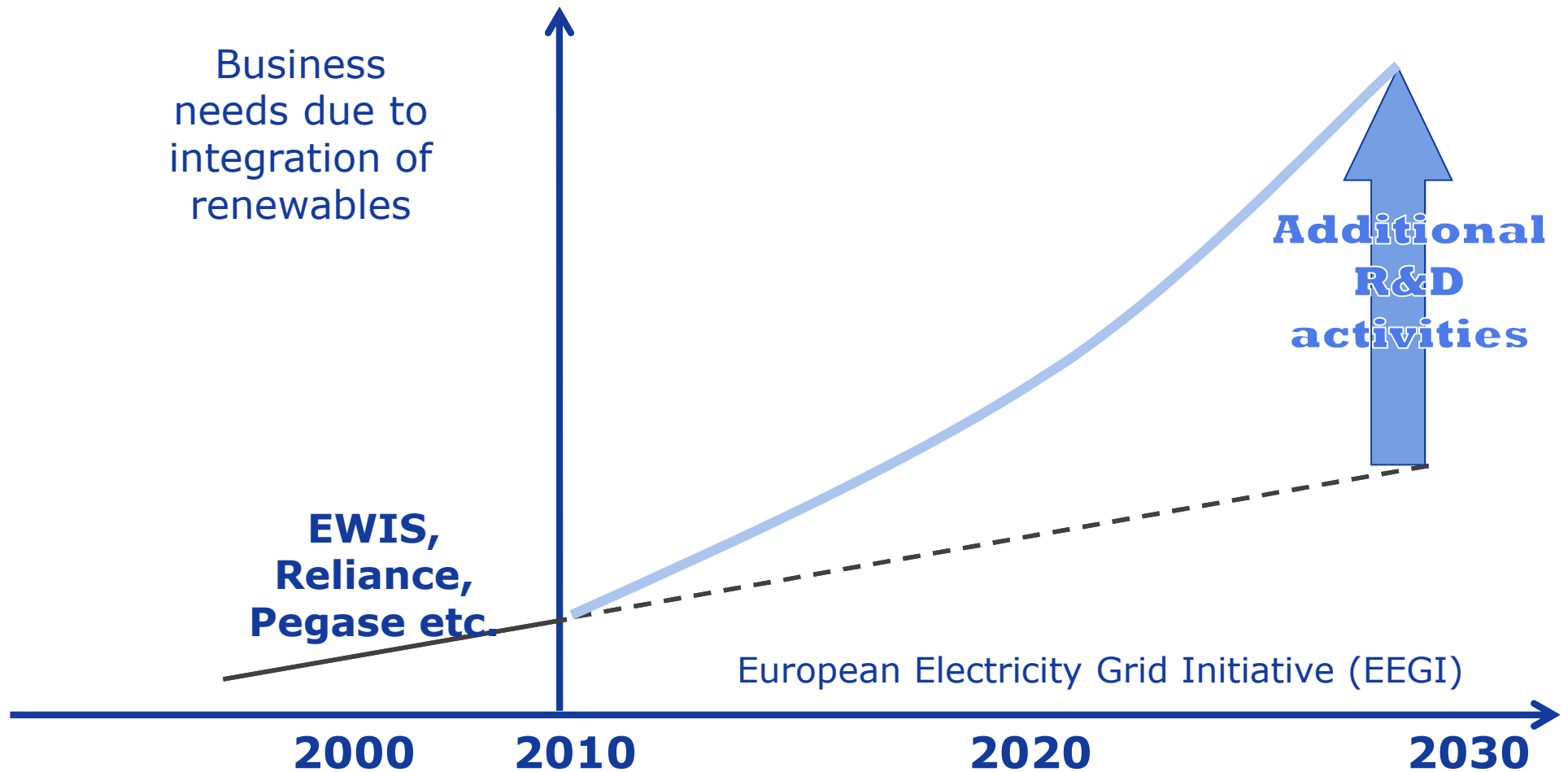
Implementing the EU policies for

- Security of supply
- Internal electricity market
- Sustainability

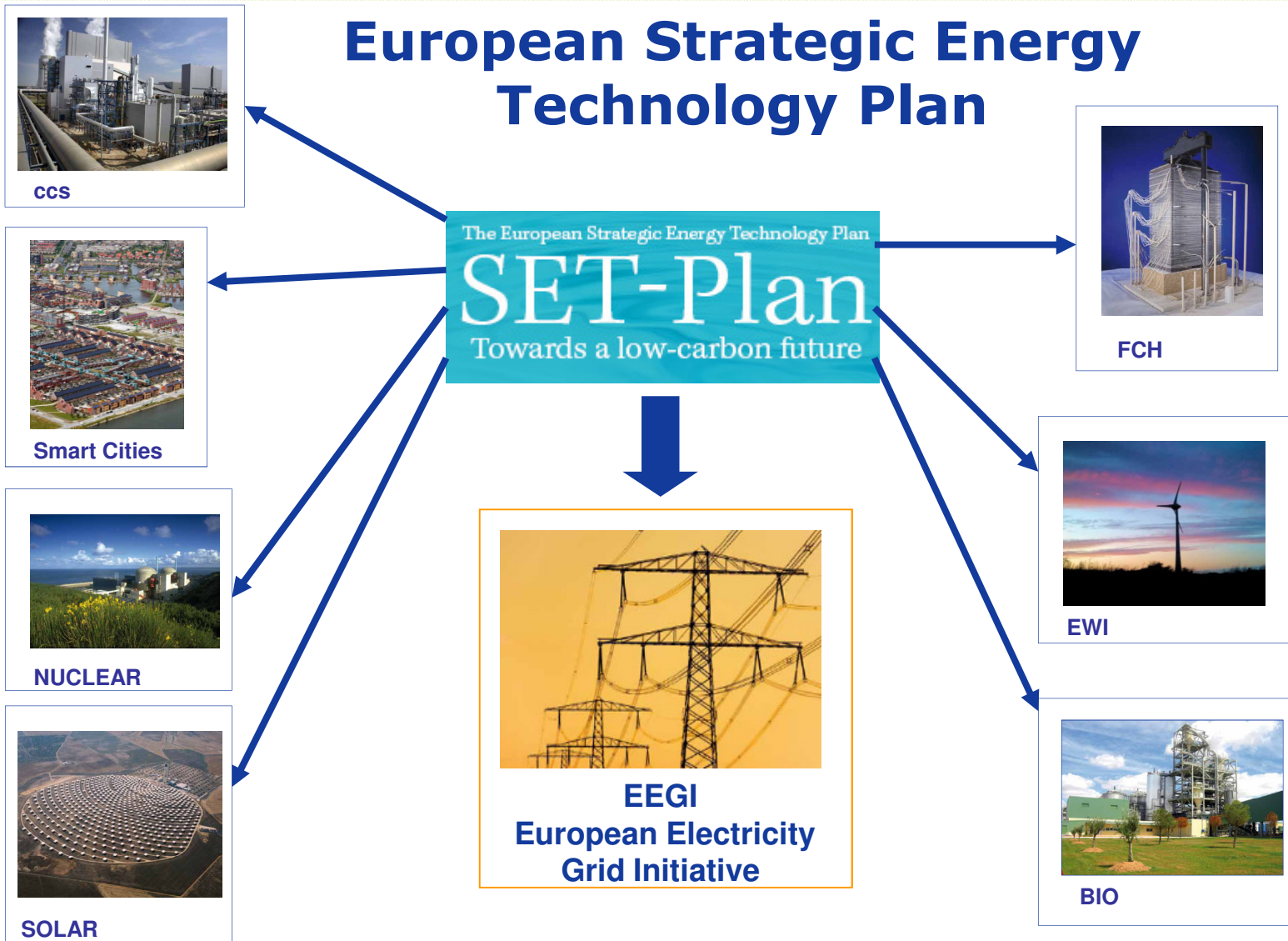
Implies

- More transmission capacities
- Smarter network operation
- Better coordination among TSOs





European Strategic Energy Technology Plan



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

Electricity Networks in the 21st century: towards 2020



The European Electricity Grid Initiative (EEGI)

Networks are the enabling factor of a sustainable development

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

Objectives

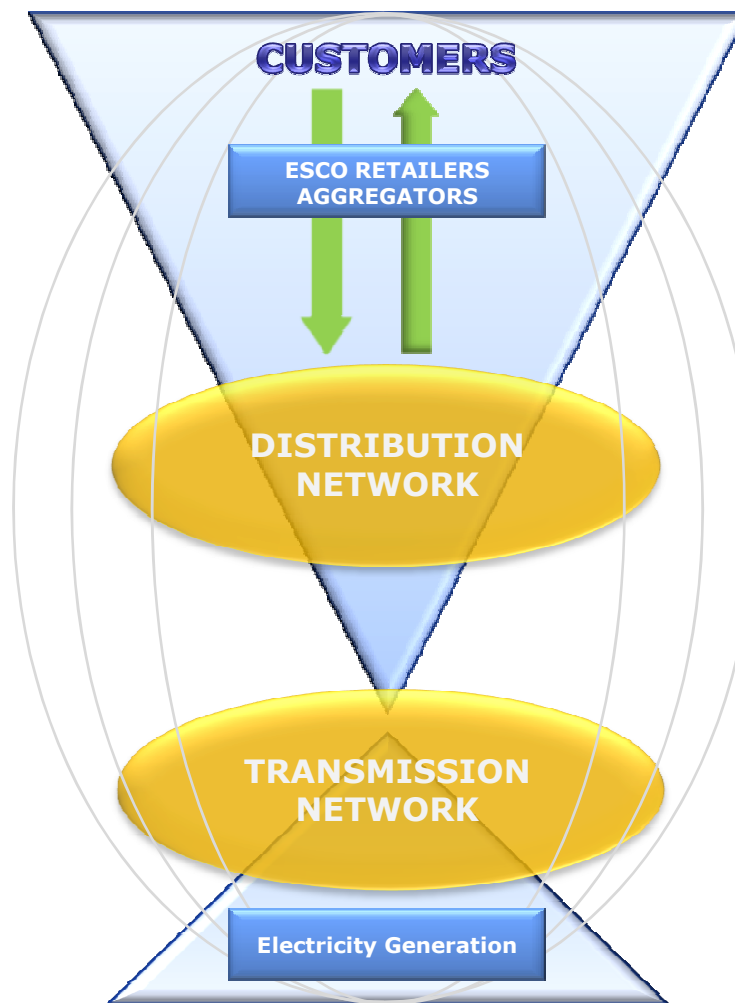
- The EEGI has been created to accelerate the development of the electricity networks of the future in Europe, the **Smart Grids**
- The EEGI will conduct the **extra RD&D efforts needed** to develop new solutions to overcome the following barriers:
 - **Technology barriers** including standards, interoperability,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

The expected benefits from the program

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 arena
- An **economically efficient deployment** of future networks, for the benefit of grid users

A Smart Grid model to define needed projects



Level 5:
Smart Customers

Level 4:
Smart Energy Management

Level 3:
Smart Integration

Level 2:
Smart Distribution network
and processes

Level 1:
Smart Pan-European
Transmission network

Level 0:
New generation technologies

The 14 Functional Projects on transmission networks

SMART GRIDS
Functional level

Level 1: Smart pan-European

Cluster 1: Pan-European Grid architecture

Novel approaches to develop a pan-European Grid

Cluster 2: Power technologies

Affordable technologies to make the transmission system more clever and flexible

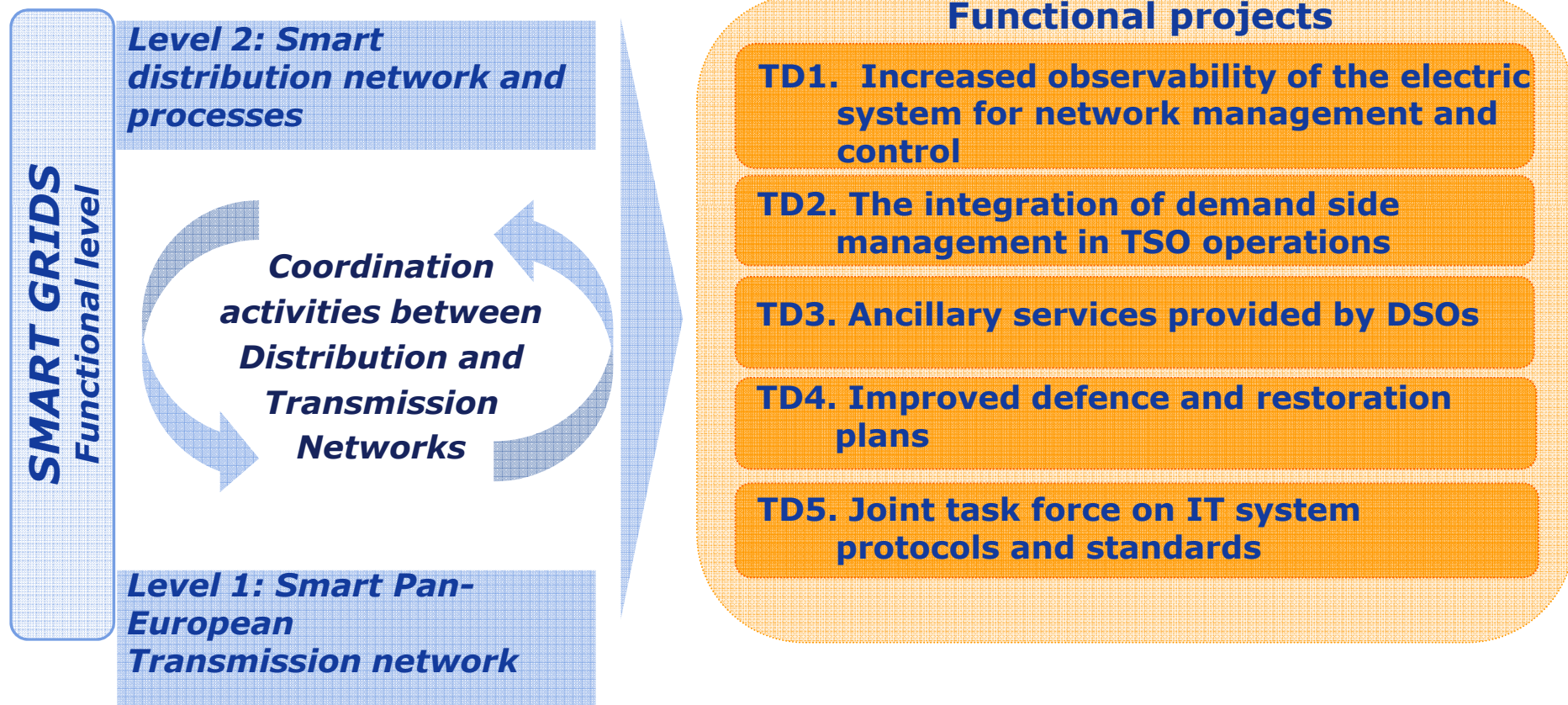
Cluster 3: Network management and control

Critical building blocks to operate the interconnected transmission system in real-time and reliably

Cluster 4: Market rules

Market simulation techniques to develop a single European electricity market

The 5 Functional Projects on transmission/distribution networks coordination



The 12 Functional Projects on distribution networks

SMART GRIDS
Functional level

Level 5: Smart Customers

Customers aware and actively participating

Level 4: Smart Energy Management

Management of end-use energy efficiency, aggregation, retail

Level 3: Smart Integration

Renewable energy, DG, electric vehicles, electricity storage and aggregation

Level 2: Smart Distribution network

More automated MV distribution networks with self healing capabilities.
Monitored and controlled LV networks
ICT supported processes

EEGI Program budget - summary

- Total program cost estimation is around **€ 2 bn in 9 years (2010 – 2018)**
- The cost estimation of the **priority actions** that need to **start in 2010-2012** is around **€ 1 bn**

Roadmap	Priority projects costs (€M)	Other projects costs (€M)	Total costs (€M)
	Start 2010-12	Start 2013-	
Transm./distrib. coordination	68	162	230
Transmission networks	108	452	560
Distribution networks	830	370	1,200
Total	1,006	984	1,990

- The results are beneficial for the whole European energy value chain, requiring a comprehensive funding **that must involve EC, the Member States, the regulators and industry.**

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**.
- ENTSO-E position paper: **A new regulatory framework for TSO R&D in ENTSO-E countries 1 % of tariffs** to be allowed for R&D.
- 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

Conclusions

- The implementation of EEGI program is a **key element to reach the 20/20/20 goals and beyond**
- **Grid operators are fully committed** to lead the EEGI based on a strong cooperation between Transmission and Distribution.
Suitable involvement of relevant stakeholders is a must for the EEGI success.
- **Financing the program is still an issue**
- **The coordination process** with other initiatives and stakeholders, especially Wind and Solar will continue in order to guarantee coherence and avoid RD&D activity overlaps.