Regulatory framework to incentivise Smart Grids deployment - EURELECTRIC views

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eurelectric
ELECTRICITY FOR EUROPE

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EURELECTRIC represents the whole value chain of the European electricity industry

Generation > Trading/ Wholesale > Retail > End-customers

Generation > Transmission > Distribution > End-customers

MoU with TSOs

Only internal advisory role in EURELECTRIC

FOCUS:

- Regulation & Policy
- Customers & Operation
- Smart Grids
- Electric Vehicles
- Standardisation

Highlights

1. DSOs have a new mission – The regulatory framework must adopt to this

2. Not all technology related activities must be regulated – regulation must also facilitate a market development

3. Adding “smartness” to the regulatory framework

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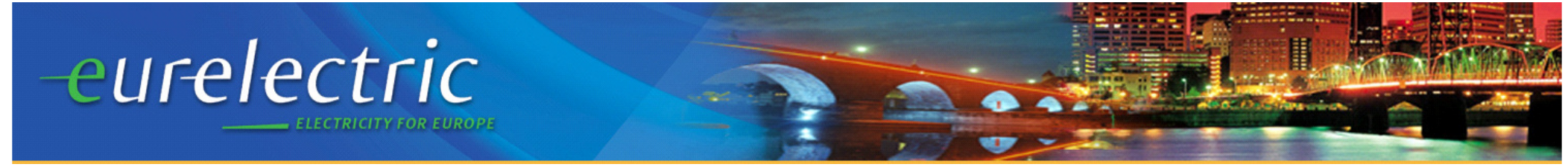
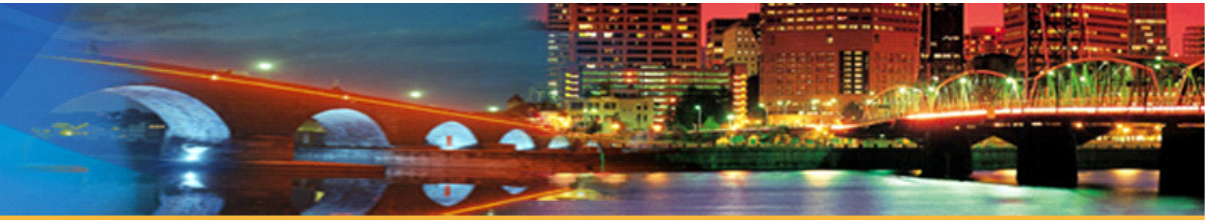


Network operators face enormous challenges that need to be addressed in an innovative way

- **Policy makers** want to use smart grids to achieve energy and environmental goals
  - Energy efficiency
  - CO2 reduction
  - Renewables integration
- **Consumers** want more convenience and control over their consumption *)
- **Generators** need a grid that can be flexible and reliable
- **Consumers and generators** need to communicate with the network
- **Retailers** want to make use of networks to transform their business
- **Stable Systems** need new balancing options due to intermittent supply

*) mainly linked to smart meters as one element of a Smart Grid

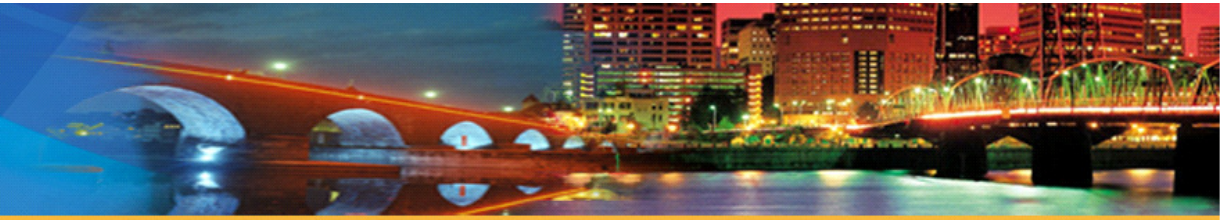


The main traditional rationale behind regulation is to prevent the abuse of a monopoly position and will have to be extended…

Utility	Customer/ Network user
Cost compensation Investment incentive Cover capital cost	Low prices Quality

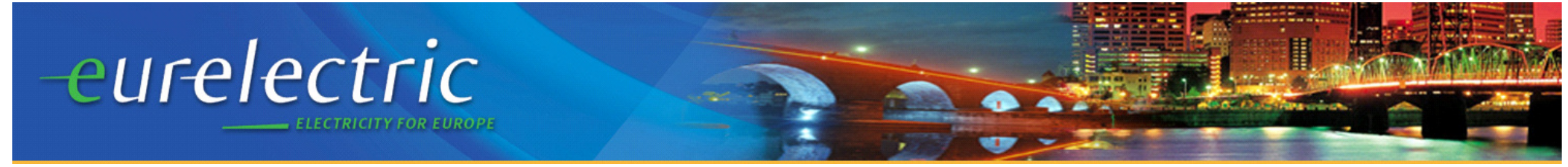
…the climate package and the evolving retail market adds elements to the regulatory scope

Utility	Customer/ Network user
Cost compensation Investment incentive Cover capital cost	Low prices Quality
New Mission (EU market and climate packages):	
Supplier	**Society / Environment**
New products Processes (Customer switching)	Reduce emissions Renewables integration Increase energy efficiency



Regulatory framework must consider the new mission of DSOs

- Integrating environmental goals on distribution level
- Incentivising smart grids that enable the creation of a better functioning retail market place
- Removing barriers for investing in technological innovation



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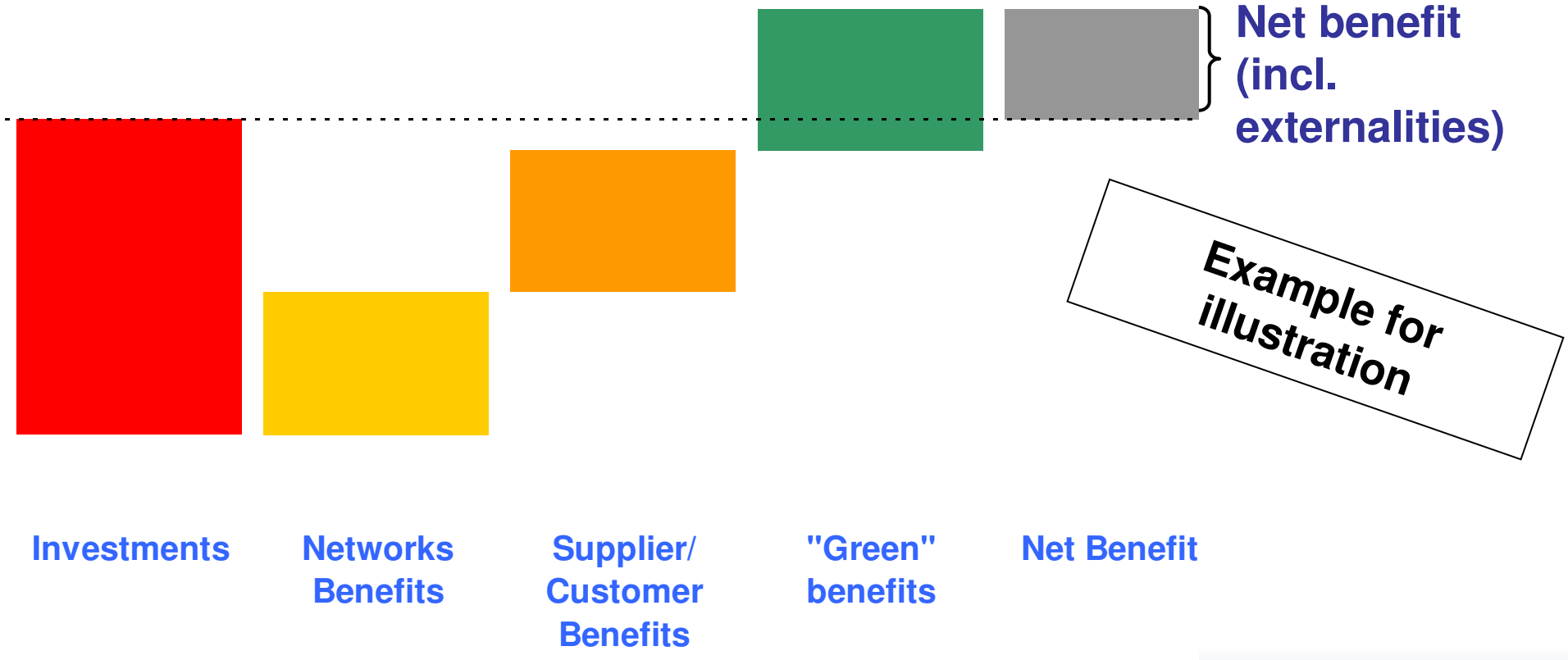
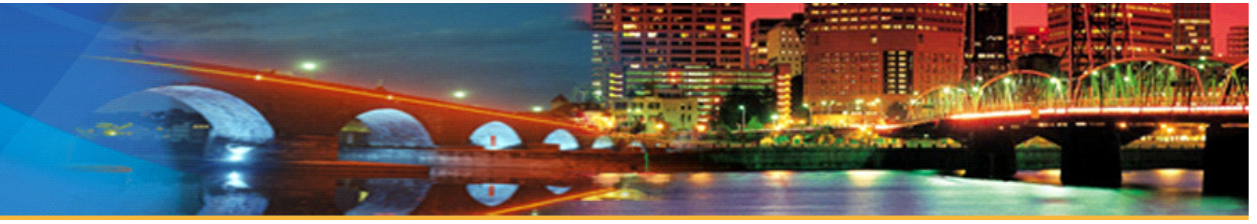
3. Adding “smartness” to the regulatory framework

There are areas where regulation is essential

- Economies of scale
- Externalities
- Setting standards enabling interoperability

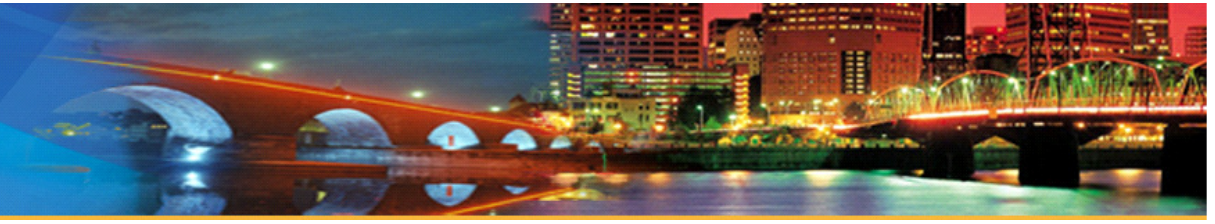
Investments for smart grids might benefits several parties but are often only done by DSOs





Unbundling poses a challenge to the development of smart grids and has to be dealt with

- Existing unbundling rules pose a challenge for synchronisation of network investments and the creation of new services.
- Interoperability standards enable the market to compensate for lack of synchronisation due to existing functional and information unbundling
- Not everything must be regulated but regulation is needed to create the right environment for a market to be developed



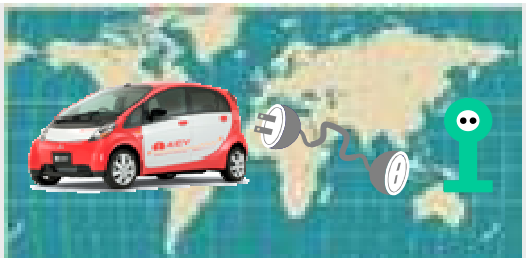
A stable and predictable regulatory framework ensures market development and avoid stranded investments

- Danger of stranded investments (smart meters)
- For customers to put trust in new technologies data protection issues must be addressed in a credible and predictable manner
- In order to give equal access to new players in the new market interoperability of technology is key for success.

Example Electric Vehicles: Standardization benefits customers, utilities and car manufacturers

Benefits from standardization

For customers



- **High convenience**
  - **One single solution worldwide**
  - **No adapters** or different cables needed
- **Faster** electric vehicle **run-up/market success**
- **No retrofit costs** for adopting to new charging systems

For Utilities/ Automobile Manufacturers *)

- **Cost benefits**
  - **No sunk costs** for proprietary interim solutions
  - **Shared** development and standardization **costs**
  - **Economies of scale**

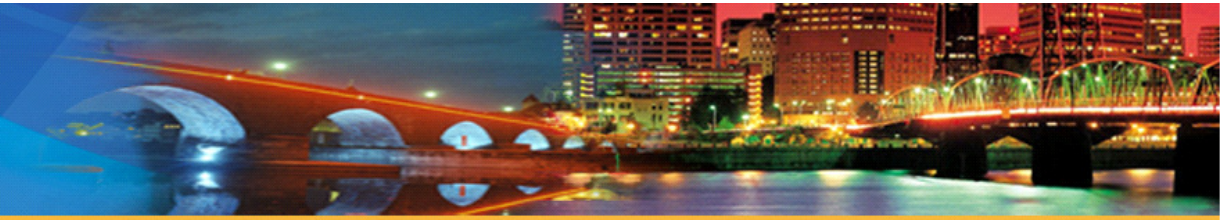
*) in particular OEMs (original equipment manufactures)

Electric vehicles

EURELECTRIC supports an OEM/Utility standardisation initiative started end of 2008 to accelerate and improve standards definition

- Draft Proposal accepted as pre-standard
- Initiative will be converted into official ISO/ IEC standardisation groups

Within the Framework of the Task Force Electric Vehicles EURELECTRIC participates in this initiative.



Principals of electric vehicle/ grid standards can be transferred to smart grids components

- Open communication standard (TCP / IP)
- All market stakeholders can use protocol to communicate
- Several software provider can be used ensuring competitive prices that keep cost and tariffs low
- Standards offer investment security and give market opportunities to new players

Example: DSM requires the "right" smart devices

Conventional meter	Simple Smart Meters (AMR)	Advanced Smart Meter SmartGrids / DSM
• Deferred information on consumption •Annual billing	• Accurate and timely consumption Information • Peak pricing •More frequent billing	• Real time metering ▪Bi-directional flow of information; contribution to energy balance ▪ Highly flexible pricing models connected to the availability of energy
• Energy efficiency actions not directly effective on bill	• Consumer needs to actively response to info to reduce bill	• Permanent reduction of bill without permanent consumer decisions

Energy suppliers can use meters to extend their services

- meters according to legal requirements as pre-requisite for new services
- system is modular and extendable

EXAMPLE

regulated

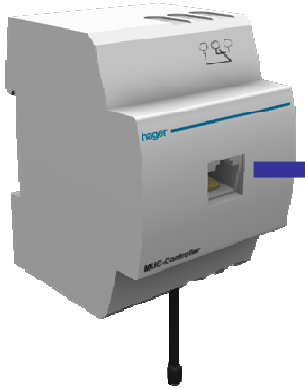
Non-regulated (but based on standards)

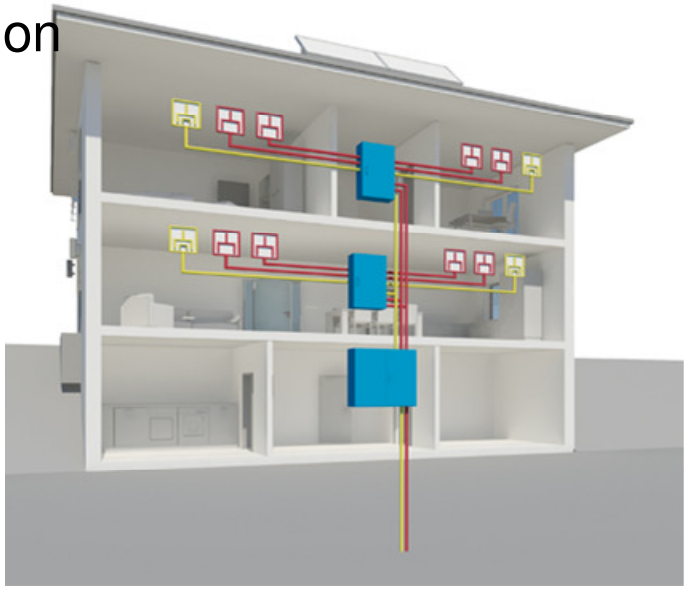
Electricity meter

Gas meter

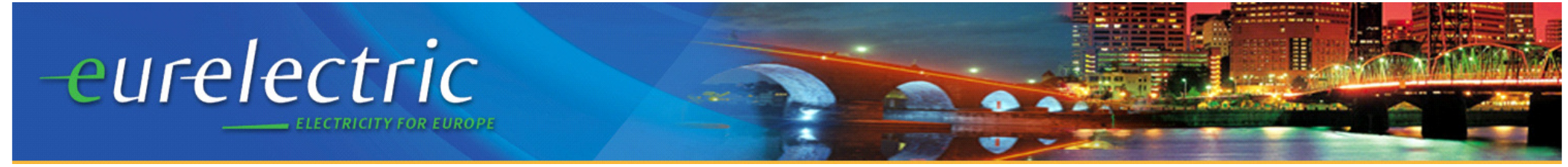
Water, Heat
(not included in directive)

Multi **U**tility **C**ommunication Controller



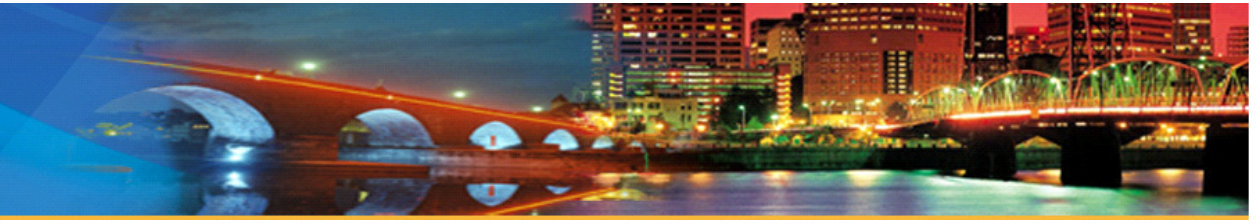


Smart Home



Suppliers' and new service providers' roles should be defined and let the market work

- The roles of the meter operation and metering service have to be defined and assigned
- As soon as smart meters play a physical role with respect to system stability this also has to be reflected in the regulatory framework
- Concerning costs it should be defined who pays for customer information, more frequent billing or energy balancing
- New roles like (data) exchange agent have to be defined



Not all technology related activities must be regulated – regulation must also facilitate a market development…

- When geographical or coordinated roll out of smart grids elements offers cost advantages it should be done by one company e.g. the DSO
- Interoperability standards enable the market to compensate for lack of synchronisation due to existing functional and information unbundling
- Not everything must be regulated but regulation is needed to create the right environment for a market to be developed

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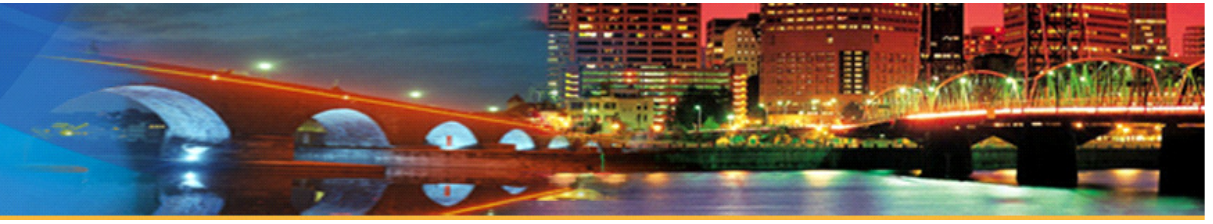
The cost and risks incurred cannot all be covered by the market or existing recovery mechanisms

- Risk ↑
- Capital cost ↑
- Operating cost ↓

} expected effects

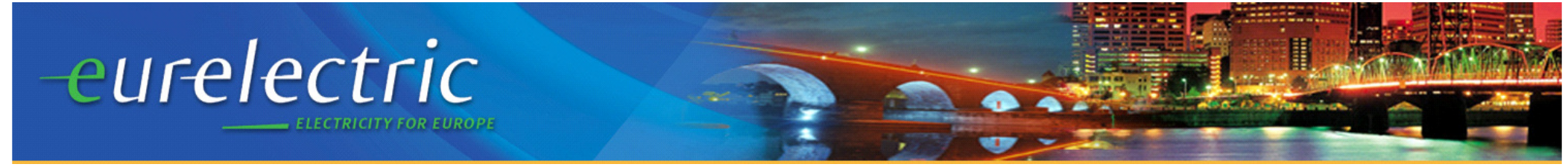
Ideas for adding "smartness" to the regulatory framework (1/2)

- Internalise positive externalities
- Foster collaboration projects among stakeholders
- Tariff of use – reallocate network tariffs among stakeholders



Ideas for adding "smartness" to the regulatory framework (2/2)

- **Performance based ratemaking** (guaranteed/overall standards)
- **Smart Grids factor** in regulation formula (direct effect on DSOs revenues)
- **Load revenues** – charge customers for actual load (capacity tariff €/kW)



Conclusion

Regulation must…

- **Open new market opportunities for existing suppliers and new players**
- **Empower the customers to make use of new possibilities**
- **Contribute to define the right market model**
- **Incentivise investments in new technologies with positive externalities**

Thank you for your attention !

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