Smart Thai EU Dialogues

4 November 2011
Representing the electricity industry at expert, strategic and policymaking levels.

- 33 FULL MEMBERS
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- 7 INTERNATIONAL AFFILIATE MEMBERS
- 9 EI ASSOCIATE MEMBERS
- 25 BUSINESS ASSOCIATE MEMBERS
EURELECTRIC represents the EU electricity industry, across the whole electricity value chain

The voice of the European Electricity Industry in Brussels, the heart of Europe
EURELECTRIC Networks Working Groups

- WG Distribution Regulation & Policy
- WG Customers & Operation
- WG Smart Grids
- WG Standardisation (plus sub groups)

- TF Electric Vehicles
- WG Transmission-Distribution Interface
- WG Transmission Technology
- DSO Coordination for Smart Grids Deployment
EURELECTRIC DSO main messages...

1. DSOs are independent neutral market facilitators
2. Ensuring security and reliability of supply by fair regulation
3. The technological shift in networks must be done in the right way
4. Electricity as a solution: Electricity drives cleaner!
How?...

• By designing an active network to cater efficiently for the higher level of renewables and distributed generation and if possible by using network storage potential;

• By optimising losses, maximizing operational efficiency and enhancing supply and service delivery to customers;

• By moving towards an economically sound smart metering system for all customers, facilitating customer and utility Demand Side Management and enhancing customer service;

• By setting up the infrastructure and market support for full electric / hybrid vehicles;

• By preparing for the penetration of Distributed Generation on the distribution networks.
Agenda

- EURELECTRIC’s Smart Grid vision
- A smarter regulation
- We need standards
- Present European Smart Grids panorama
- Customer involvement?
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Smart Grid Services & Functionalities

**Smart Network Management**
- Conventional grid development combined with...
- Faster fault identification and self-healing capabilities via grid automation
- Advanced network operation and control
- Smart metering

**Smart Integrated Generation**
- Balancing the power grid with a large share of variable renewables, including distributed generation
- Integrating electric vehicles and heating & cooling systems
- Intelligent storage solutions

**Smart Markets & Customers**
- Developing demand response programmes & load control
- Aggregating distributed energy sources including e-mobility
WHO? DSOs as enablers & facilitators

"Building & Connecting"

"Connecting & Managing"
10 Steps to Smart Grids in 10 years

- 10: Moving to real customer participation in the power market
- 9: Integrating large-scale e-mobility, heating, cooling and storage
- 8: Aggregating distributed energy sources
- 7: Moving to integrated local & central balancing of all generation
- 6: Monitoring and controlling the grid & distributed generation
- 5: Rolling out smart metering - informed customers
- 4: Testing through demonstration projects & sharing knowledge
- 3: Setting standards and ensuring data protection & privacy
- 2: Developing market models
- 1: Providing regulatory incentives for innovative grid investments
Facilitation at both national & EU level

1. Providing Regulatory Incentives for Innovative Grid Investments
2. Developing Market Models
3. Setting Standards and Ensuring Data Protection & Privacy
4. Testing Through Demonstration Projects & Sharing Knowledge

• With rising share of distributed RES generation, not only power, but also information to flow in both directions to enable DSOs to operate the grid safely
- With the high penetration of EVs, customer participation in the market will become necessary
- Customers will actively control their consumption through display/feedback technologies and automated signals
The EURELECTRIC “10 Steps to Smart Grids Roadmap” provides a common guidance to policy makers and the industry, as a sound basis for Member States action plans.

Available on our website:

www.eurelectric.org/10StepsToSmartGrids
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Tomorrow’s smart system will be characterised by large-scale integration of often intermittent decentralised generation and new types of loads connected by and large to the distribution grid.
The main traditional rationale behind regulation is to prevent the abuse of a monopoly position and will have to be extended...

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<th>Utility</th>
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...the **climate package** and the evolving **retail market** adds elements to the regulatory scope.

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**New Mission (EU market and climate packages):**

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<th>Supplier</th>
<th>Society / Environment</th>
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<td>New products</td>
<td>Reduce emissions</td>
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<td>Processes (Customer switching)</td>
<td>Renewables integration</td>
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<td>Increase energy efficiency</td>
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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
Investments for smart grids might benefits several parties but are often only done by DSOs.
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Source: EC Joint Research Centre
Only 3 countries offer DSOs strong incentives to investments.

Source: EURELECTRIC, Regulation for Smart Grids
In most of the surveyed European countries the smart meter penetration is still relatively low.

EU target: at least 80 %

Source: EURELECTRIC, Regulation for Smart Grids
A clear mandate and the possibility to recover associated costs are main drivers for the smart meter implementation.

Source: EURELECTRIC, Regulation for Smart Grids
EURELECTRIC Recommendations to regulators/Member States

• 1 > Rewarding and Incentivising Capital Expenditures (CAPEX) in Smart Grids
• 2 > Improving the evaluation of Operational Expenditures (OPEX)
• 3 > Incentivising innovation and R&D funding
• 4 > Clarifying roles and responsibilities
• 5 > Safeguarding regulatory stability
A Smart Regulation...

- ...puts a stronger focus on long term overall benefits of DSO investments rather than narrow, short term cost optimization
- ...encourages innovation, R,D&D expenditures and the use of new technologies with a new risk-reward balance
- ...encourages capital expenditure on Smart grids in the areas where this approach is preferable to a business as usual approach
- ...is stable in terms of the principles that underlie it but is capable of adapting to changing circumstances
The EURELECTRIC Report Regulation for Smart Grids has been published and is now available on our website under www.eurelectric.org
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The present Smart Grids Panorama...

- Presentation Joint Research Centre
- www.smartgridsprojects.eu
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Demand Side Participation covers both Demand Response and Demand Side Management

- Demand Response

- Demand Side Management

Demand Response is a tool, which will be used for wider goals (energy efficiency and intermittent RES) and where customers will play a crucial role.
Our vision: bringing customers on board

- Customers will increasingly manage and adjust their consumption throughout the day, responding to more dynamic price signals. They will rely on several feedback devices (e.g. displays, internet).

- But it should be up to consumers and suppliers to agree - on a contractual basis - on the communication channels preferred by customers.

- Don’t regulate the customers, don’t restrict business models!
Regulation and market design are key to raise customer confidence in market-based demand response solutions

• **Customers need to have confidence** and trust the market, otherwise the market won’t take off and customers won’t be able to play their role in demand response markets

• **End-user regulated prices** – currently present in 19 out of 27 EU Member States – hamper customers to increase their awareness of the economic value of (shifting) their electricity consumption

• **Simple customer interface should facilitate customer awareness and active participation**
• Supplier as major point of contact → makes all (major) retail market processes simpler from a customer perspective

• Suppliers will ‘package’ new products / services based on customers’ preferences, e.g.:
  - Dynamic pricing
  - Critical peak pricing

• Suppliers will optimize their balancing opportunities and will provide ancillary services to system operators
Manage the synchronisation between wholesale and retail markets

- Smart Meters should be technically able to perform readings on the basis of the same interval as applied in the wholesale market.

- **15 minutes meter reading should be recommended for system reasons** once this can be implemented in a cost-effective way (though the actual use of this service being left to market dynamics).

- Well-functioning and integrated wholesale markets will lead to a level playing field on the retail markets.
• Provide information to market actors in a transparent, non-discriminatory and efficient way

• As responsible actors for system stability at the distribution level, DSOs should be given the tools to perform demand side management (only) when grid stability is at risk and before system security is jeopardized

• These actions should however be regulated and supervised (to make them compatible with market rules) and should not reduce business opportunities on demand response markets
Recommendations (1/2)

• Develop a clear market model for Smart Grids and Demand-Side Participation that clarifies the roles and responsibilities as well as the interactions between suppliers and DSOs: EURELECTRIC has made a first proposal

• Adopt an interface model with supplier as major point of contact to enhance customers’ awareness and participation

• Support a market-driven approach based on customer preferences

• A new set of agreements between suppliers and DSOs to ensure the core competencies of both are put to best use
Recommendations (2/2)

- Remove regulated prices for customers (or make them market-reflective) and ensure grid tariffs reflect actual costs

- Design regulatory incentives that encourage DSOs to invest in a smarter distribution grid, including innovative and ICT-based investments and define who is responsible for the roll-out of smart meters and how the costs of this roll-out should be recovered

- Improve the functioning and interconnection of wholesale markets

- Access to information (technical and commercial) by market and system actors is crucial, regardless of the ‘data hub’ model chosen
The customer on board

The Report “EURELECTRIC Views on Demand Side Participation: Involving Customers, Improving Markets, Enhancing Network Operation” is now available on our website under www.eurelectric.org