The Energy Regulatory Office

The Energy Regulatory Office

The Idea of Intelligent Metering System in Poland. Regulatory point of view

outline remarks

PhD EE Tomasz Kowalak,
Director of the Tariff Department

Smart Metering Central ad Eastern Europe 2009, Warsaw, April 7 - 8 , 2009

The Energy Regulatory Office

The Idea of Intelligent Metering System in Poland. Regulatory point of view

Part 1: assumptions

The Energy Regulatory Office

1. Current situation and the nearest future of the Polish energy sector from technical point of view

- - Structure of power plants (geographical distribution and coal dominance)
- - Average age of power plants
- - Reduction of current margin of power dynamic reserve in the system
- - Unsteady generation diffusion inside the network (on the medium and low voltage levels) – massive investment as a condition of connection, increase of dispatching problems
- - Increasing of imbalance between geographical distribution of load and generation
- - Unsufficient transmission and distribution capability

According to traditional manner, we must build (or rebuild) massive structures in generation and network areas

All above mentioned kinds of investment have to be realised during a very short time because of expected power imbalance, with all negative price cosequences

This picture is not too optimistic already,
but
legal influence on the future will make it much more complex

The Energy Regulatory Office

2. Current situation and the nearest future of the Polish energy sector from legal point of view

- **- The III Liberalisation Package of EC:**
  - **- necessity to switch off a big part of generation (fit jet) in 2016, due to emission limits (deep decreasing of power system balance)**
  - **- necessity of development of renewable generation, specially wind farms on-shore and off-shore**
- **- Legal (bureaucratic) obstacles against new infrastructure investment (many year process of all permission obtaining procedure)**
- **- Social (political in local scale) obstacles against new generation localisations (NIMBY syndrome)**

The Energy Regulatory Office

3. Risks related to possible solutions in the traditional manner

Coal:

- economical risk of continuity of current technologies and locations for generation (new kind of stranded costs)
- social risk regarding the reduction of coal mining
- according to EU law – necessity to CCT development (CCS for example)

Natural gas:

- political risk regarding increased dependency of power production from gas due to one-direction supplies

Nuclear:

- social risk because of the Czernobyl trauma

Biomass:

- risk of competition to the food market
- risk of environment degradation (overload of forest biomass exploitation and total uneffectiveness of reduction of deposit of CO_2 according to current legal rules, focused on co-burning in large power plants)

Wind:

- risk of overinvestment on network
- risk of system disturbances because of unstability of wind power

Other renewable sources:

- limited possibility to solve system problems because of small scale of applications

The Energy Regulatory Office

The Idea of Intelligent Metering System in Poland. Regulatory point of view

Part 2: conclusions

The Energy Regulatory Office

1. General assumptions for the grid of the future

We need the grid as an efficient tool for delivery:

- **- Energy (as a commodity)**
- **- System services (to achieve sufficient quality of supply)**
- **- Market information (as a basis for market oriented customer decisions)**
- **- Technical information (as a basis for system defence oriented operator decisions)**
- **- Technical information (as a basis for better system planning and maintenance)**

We need the grid as an efficient tool for harmonised dispatching of distributed (disseminated) generation and load

We should use the network as an additional channel for transmission and exchange of many other pieces of information between the system users

The Energy Regulatory Office

2. Intelligent Metering as the first step to a smart grid

Measurement gives power

Intelligent metering:

- dual side flow of information
- real time of measuring and information collecting
- three levels of meters deploying :
  - inside a grid
  - at the delivery points (the border of a grid)
  - all customers and other system users

Common collection and maintenance of measuring information is necessary

The Energy Regulatory Office

3. Introduction for distributed anti-blackout methodology

Improvement of load flow control

Improvement of reactive power maintenance

Passive load curve maintenance (answer of customer is determined by price signals)

Active load curve maintenance (limitation of useful power level, due by system operator without disconnection, according to previous determined contractual conditions)

Including distributed generation into power system defence schedule

The Energy Regulatory Office

4. Means for energy and environment conservation

Short billing period as a good signal for optimising customer behaviour

TOU tariffs as a way for general reduction of energy consumption

Reduction of rotating reserve level (according to n-1 criterion)

Reduction of technical losses level

Reduction of theft of energy and infrastructure parts

The Energy Regulatory Office

5. The role of the Regulator in the implementation process

Leading initiative

Adjustment of legal framework

Improving of standardisation process

Agreeing development plans

Tariff approval as a tool of investment financing

Supervising and coordination of the implementation process

Thank you for your attention

The Energy Regulatory Office

tomasz.kowalak@ure.gov.pl

phone: +48 (22) 661 62 10
fax: +48 (22) 661 62 19