

### Demand Response Resources (IEA)

### **Nordic Regulatory Aspects**

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### **Agenda**

- The Norwegian regulator's view
  - Automatic meter reading (AMR)
  - Two-way communication (TWC) demand control/load shedding
  - What regulations are adequate and necessary?
- Development in other Nordic countries
  - Sweden
  - Denmark
  - Finland



## **Terminology**

- AMR: Automatic meter reading: Meter reading from a terminal via established communication
  - GSM, GPRS, radio, broadband, high/low voltage grid etc.
  - Hourly, daily, weekly or monthly metering, depending on what the purpose is
- TWC: Two-way communication
  - Opens more possibilities for demand control, remote load shedding/disconnection



# AMR and TWC – the Current Situation in Norway

- Hourly metering mandatory from January 2005 for customers with annual consumption over 100.000 kWh
- Else wise not widespread in terms of metering points:
  - 4-5 % of Norway's 2,5 million metering points have AMR
  - But 60 % of the total consumption
- Grid company may install hourly metering in any case if it wants to
  - Must cover the costs
- Customer may require hourly metering
  - Must cover excess costs
    - no standard prices
- Customers without AMR have to read the meter 4 or 6 times a year.
  4 29. apr.



## Why is AMR/TWC not Installed in Large Scale Today?

- Too costly for most of the grid companies' point of view
  - Uncertainty with regards to the benefits
- Problems with technology
  - Improvements are being made
- Coordination problems
  - Large transactions costs between the various partners involved benefiting from AMR



## Proposed Regulations from NVE – ref. NVE report nr.18, 2004

- Current suggestion: Setting a maximum price for AMR/hourly metering
  - Make AMR/TWC a more explicit offer for the customers
  - Easier to assess willingness to pay
- May impose further requirements on other functionalities, information on benefits etc.





#### **Possible Costs**

- Investments costs ca. NOK 2500 per metering point
- Operation and maintenance costs: NOK 250-300 per point per year
- Depreciation time: 10 years
- Discount rate: 8 %
- Annual net cost for grid company:
  - NOK 500-600

#### **Possible Benefits**

- Exact metering values
- Benefits for suppliers
  - Reduction of volume risks
  - New products
- TSO
- Customers
- Quality of supply

Will benefits be achieved to a larger extent by imposing investments in AMR?

Do we have new key issues in the present and coming situation?



## Obligatory Full Scale AMR/TWC in Norway?

Use of AMR/TWC will only increase in the future, but now...



- Not appropriate to impose full scale investments in AMR/TWC on the grid companies now
- Too costly in a socioeconomic perspective
  - Major increase in tariffs would be the result
- Too many unsolved questions and challenges



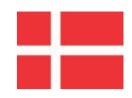
#### A Brief Look to Sweden



- From July 2009 meters have to be read on a monthly basis
  - Ca. 5 mil. Consumers/metering points
  - The obligation is on the function and not on the technology
  - Installing automatically metering
    - 500 000 meters per April 2005
  - Almost all the metering systems can manage two-way communication
  - No requirement of to-way communication
- According to the legislation, customers with main fuses higher than 63 A are hourly metered (July 2006)



#### A Brief Look to Denmark



- Ca. 3 mil. consumers/metering points
- January 2005: Hourly metering is mandatory for metering points with an annual consumption > 100 000 kWh/year
  - > 50 % of total consumption
  - 29 000 consumers have hourly metering
- All consumers have free access to hourly metering for at a pro rata charge to the grid company
  - Charge is larger than the potential benefits at the moment
- In the long term all metering points may be subject to hourly metering



#### A Brief Look to Finland



- 3 mil. consumers
  - About 600 000 consumers with hourly metering
- All consumers with main fuses higher than 63 A have hourly metering
  - The costs are covered through the customers tariffs



#### **Common Nordic End User Market**

- Impacts on AMR and TWC installation
- Common guidelines for handling the end user market
- Special products require AMR
- Harmonization between the Nordic Regulators?



#### The Road Ahead...

Possibility for other utility services and commercial interests

Water, security systems etc.

Development of new dynamic electricity end use contracts

Combination of fixed and dynamic

Security of supply

Grid tariff development

Direct compensation after disconnection

Direct access to relevant energy information for consumers

- Individual Web page
- Energy efficiency
- QA Quality assurance

