

How we do it – best practises from abroad



Swedish case study

Smart metering roll-out in Sweden

eFOCUS



Energimarknadsinspektionen
Swedish Energy Markets Inspectorate

Experiences and way forward

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Background

- **The Swedish and Nordic electricity market**
 - Norway, Denmark, Finland and Iceland
 - NordREG
 - NordPoolSpot



High consumption



Long cold winters

- High consumption of electricity per capita – 15000 kWh due to extensive electric intensive industry, large penetration of electrical heating and limited gas market
- Typical consumption per household: single family buildings with electrical heating 15 000 kWh, small houses 5 000 kWh, apartments 2000 kWh
- Market actors and market activities 120 + electricity suppliers,
- High customer activity, rate of switching 10%/year last five years

Structure of the network utilities



- **National Grid, Svenska kraftnät - 400-220 kV**
- **Regional networks - 4 operators - 40-130 kV**
- **Local networks - 170 operators < 40 kV, 5.3 million customers, three companies have 50 % of the customers**

Roll-out of smart meters and smart metering systems; experiences



Regulation on meter reading

From July 1, 2006; Mandatory hourly meter reading for all customers above 63 A; before above 200 A

Mandatory monthly meter reading for all customers (5,2 million) was introduced July 1, 2009

Since October 1, 2012 network companies are obliged to deliver hourly meter reading data for free to customers who demand it and have supplier contract based on hourly data

Main drivers

Billing was considered to be a major problem by customers and also the number one complaint

No more yearly estimates – customer should receive bill based on actual consumption

Main driver for the new legislation was to provide customers with regular feed back on their electricity consumption to increase awareness and promote energy efficiency

Result of regulation...

- The new legal demands lead to a major roll-out of remotely read electricity meters
- 99 % of all meters was replaced by 1st of July 2009
- No actual legal demands on minimal functionalities
- No legal demands on
 - communication systems/interfaces
 - Two way communication, displays etc

Functionalities in meters installed

- About 90% of the meters are capable of hourly meter reading
- Majority of the meters are connected to communication systems that can transfer hourly meter values
- Majority of systems capable of two way communication
- Majority of the meters do not comply with the recommendations on functionalities specified by the EU Commission (2012/148/EU)
- Very few meters are equipped with a port for Home Area Network (HAN)

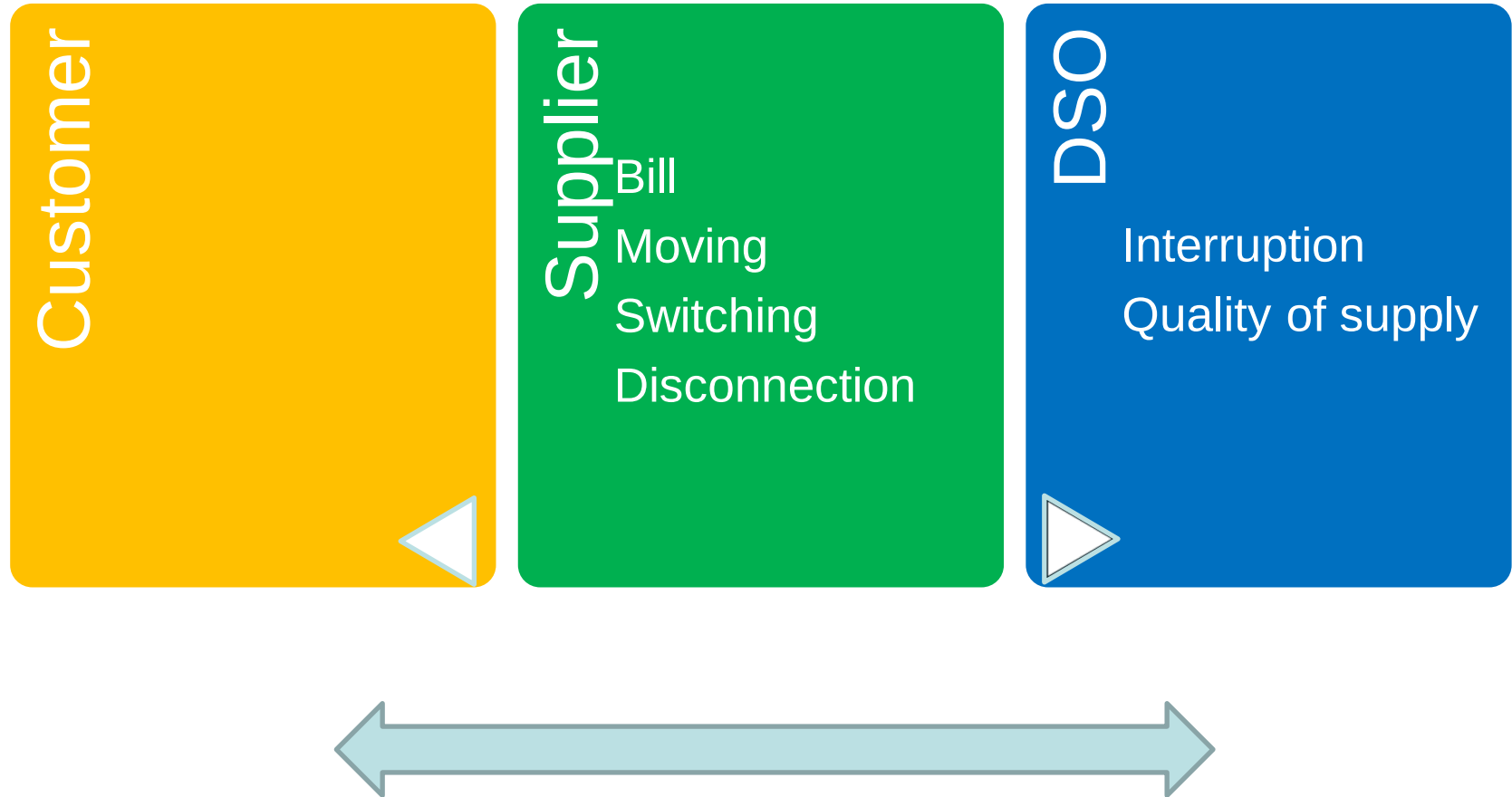
Supplier centric model



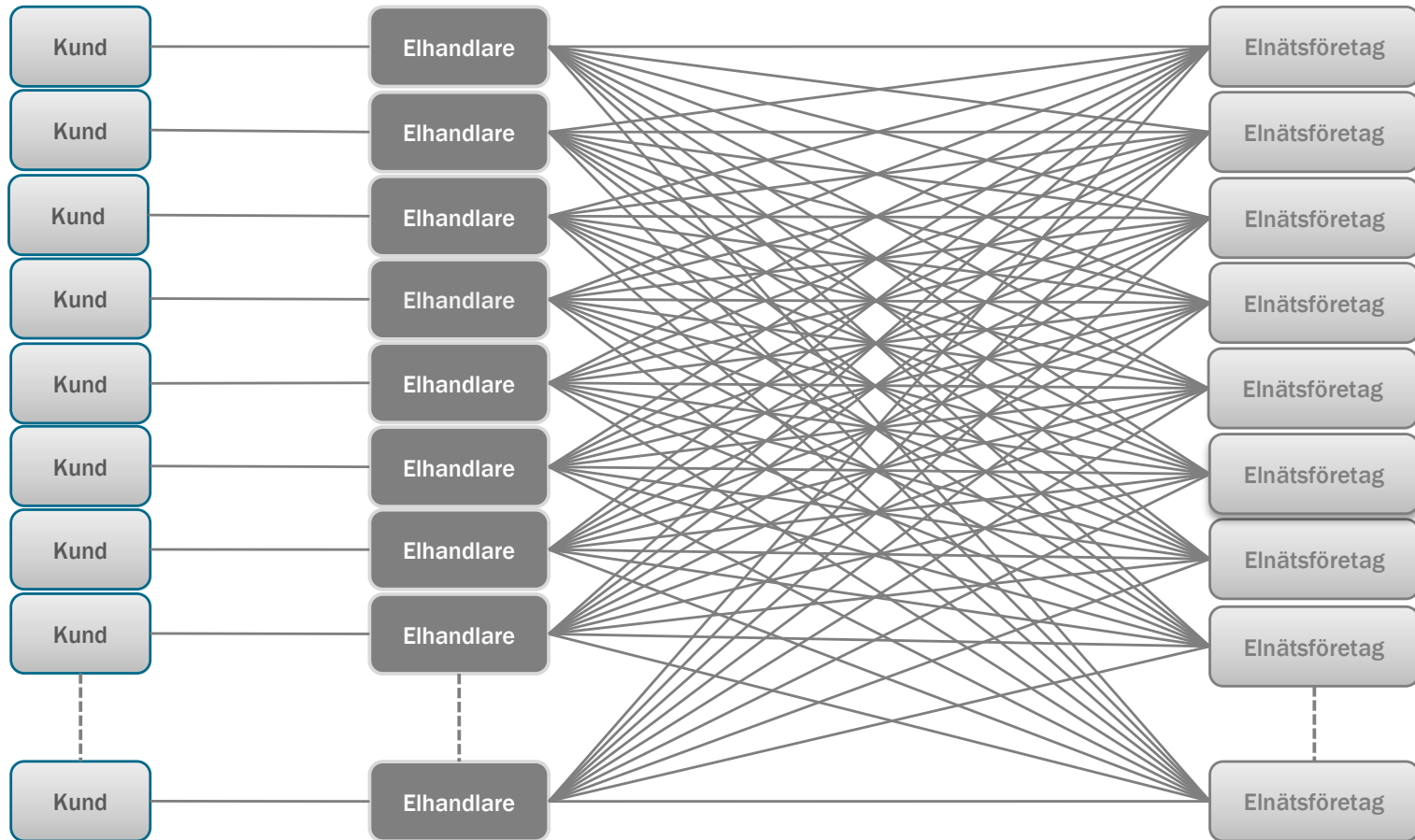
Supplier centric model

- **Nordic och European recommendation**
 - Supplier centric market model
- **Government - implement Nordic recommendations into Swedish law**
 - Ei delivered proposals in June 2013
- **Key processes identified**
 - Billing
 - Moving
 - Switching
 - Information exchange

Ei's proposals: Roles and responsibilities



Ei's proposals: Informationexchange



Next steps



Next steps

- Market developments in the Nordic region:
 - **Sweden; proposals for a supplier centric model, smart meters rolled out and no hub-decision yet**
 - **Denmark; wholesale market model, preparing roll-out and decision on hub**
 - **Finland; no decision on market model, decided that Fingrid, the TSO, responsible for information exchange issues smart meters being rolled out**
 - **Norway; no decision on market model, smart metering roll-out decided together with decision on hub run by Statnet, the TSO**
 - **Nordic regulation for balance settlement for suppliers in place through Nordic Balance Settlement project**

Next steps

- **Customer research**
- **European initiatives**
 - **Smart Grids TF**
 - **Mandate 441, 490**
- **Energy Efficiency directive**
 - **Swedish meters not quite as smart as required in EED**
 - **New demands on information and billing based on consumption**
 - **DSO, incentive in tariff-regulation to develop new services**

Thank you for your attention