The Danish Model – how energy efficiency works

Rasmus Tengvad, Economist, rte@danskenergi.dk, +45 22 750 429



Danish Energy Association Who are we?



- A commercial and professional organisation for Danish energy companies.
 - Utility operators (DSO) (69 companies)
 - Traders (27 companies)
 - Production companies (14 companies)
- Aim: Works to secure for them the freest and most favourable conditions for competition and development in order to ensure development, growth and well-being in Denmark.
- Location: Copenhagen Denmark

Why do we need an energy efficiency scheme?

Common obstacles for the companies

- Limited resources
- Lack of technical competence
- Low awareness of the real potentials
- Not a focused objective
- Far away from core business
- Financial challenges

Therefore it will not happen by it self

- From a social point this is not optimal
- From a business point: Opportunities



The Danish Energy Efficiency obligation system







Improving energy efficiency is The best, fastest and cheapest way to:

- 1. Reduce the energy costs and improve the competitiveness of the economy
- 2. Ensure a future production in EU
- 3. Improve the security of supply
- 4. Protect the environment

Improving energy efficiency is improving the competitiveness of the industry





Increasing importance of the Energy Efficiency Obligation in Danish energy policy





Total energy consumption in Denmark 807 PJ (241TWh)

 2015 saving target is around 1,45% of total energy consumption incl. transport

Energy Efficiency Obligations is one the most cost effective policy instruments



danishenergyassociation

ENERGY

FOR MORE

Basically a market for energy savings





20/02/2013 page 9 Rasmus Tengvad

danishenergyassociation

Regulatory setup - Background



- DSO's as been engaged in energy efficiency since the early 1990.
- Voluntary agreement between authorities and DSO's but implemented in Danish legislation
- The agreements involves 4 sectors: Electricity, district heating, gas and oil
- A new agreement running from 2010 2020



Annual savings target on the DSOs and the oil companies



Basics on the how the demand is set in the Danish Obligation scheme



- Obligation on DSO
- Cost recovery in distribution tariff with benchmarking on Energy Regulator's website
- Total target is distributed according to the energy DSO distribute (3y average) 3 years at a time (2006-2010, 2011-2013, etc.)
- Internal and external audit every other year and evaluation procedure every third year
- Compliance: Financial sanctions and the possibility to loose the license to operate as a distribution company

Basics on the how the demand is set in the Danish Obligation scheme



- The distribution companies are not allowed to do very much by themselves
- Regulated monopoly companies
- Have to involve a 3rd party
 - Can be another company in the same group
 - But also a private engineering company or craftsmen, installers etc.
- There can be several links from the utility to the consumers



How to measure and verify the savings?





danishenergyassociation

What kind of savings can be accounted towards the target?



- First year savings not cumulative.
- Savings in final energy consumption in all sectors also transport from 2013
- Loses in grids especial district heating
- No efficiency improvement in generation (thermal solar is allowed)
- Simple weighting factor are introduced from 2011
 - 1,5 multiplication if LT > 15 y in non-ETS energy
- DSO can only count savings where they are direct or indirect involved in the implementation

How are savings realised?



- Advice/consulting to the industry -> industrial processes, cooling, ventilation etc.
- Advice/information to households -> Technical installations, isolation etc.
- Financing of efficiency projects without direct involvement
- ...in all cases, an agreement that states that the savings belongs to the service/utility comapaines must be made!

How to measure or calculate the savings?



- 1. Deemed Savings Catalogue
 - Average saving are calculated for standard activities
 - Primarily used in households
- 2. Specific calculation engineering methods
 - Used for all big project
 - Especially industries, public sector etc.
- 3. Behavioral change, information and market transformation have (almost) disappeared from 2010

Why do we do it?





20/02/2013 page 19

Why do we do it?



- "We are selling energy not saving it?"
- We see an increasing bundling of selling energy and delivering energy efficiency services in partnership with installers and others
- Retailers are developing niche markets focusing on:
 - Energy savings in public buildings
 - Climate Partnership with a strong CSR element,
 - ESCO projects and energy performance contracting etc.
- "We want to service our customers and to capture more of the value in related to energy usage"





High costumer satisfaction

- Interview with 300 businesses that have received EE-services



Source: Epinion Research, August 2011.

danishenergyassociation

Energy Efficiency projects in industries - cases from SE Big Blue



- NPV = 111,7 mill. DKK (for every 1 DKK invested the owners received 3,89 DKK in return)
- IRR = 57,46%
- Avg. payback time = 1 Year 9 Months
- SE Big Blue: Jes Christensen, jbch@se.dk



Heat recovery: Heat consumption is reduced from index 100 to index 82

Savings of 18 GWh a year by improving efficiency of dry ovens







danishenergyassociation

Key figures and results (2010)





danishenergyassociation



Almost half of the savings are implemented in industry

ENERGY

FOR MORE



20/02/2013

26 Rasmus Tengvad

Procent af energibranchens besparelser 2010



Why the Danish focus on Energy efficiency? - Because it is the cheapest way



Why is obligations for energy providers a good option?



- Help to implementation
 - Are close to the consumers
 - Cover all part of a country
- A secure and stable way to <u>finance</u> energy savings activities
 - Difficult to get money over the state budget
- Transformation of the utilities to energy service providers
 - Deliver the consumers need for energy services in the cheapest way

Conclusion: Energy Efficiency obligations has kick started the market for energy services in DK



- We see an increasing bundling of selling energy and delivering energy efficiency services in partnership with installers and others
- The energy efficiency obligation has transformed parts of the retail market
- The cost recovery element is crucial in order to remove risk for kick starting the energy service market
- Energy efficiency is just as much about innovation in business models and in ways to approach the customer as new technologies.

Thank you

0

Rasmus Tengvad, rte@danskenergi.dk

danishenergyassociation

ENERGY FOR MORE