



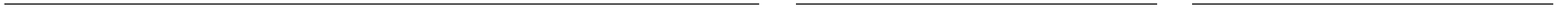
Danish Energy
Agency

The Danish Energy Efficiency Obligation System

Chief Advisor Peter Bach

Workshop on annual energy savings under EED Article 7
Brussels, 16 November, 2016

The Danish System



Background

- Establish before EED
 - Introduced in 2006
 - Increased in policy agreement from Marts 2012
- Designed to deliver on the Danish energy objective
 - Be independent of fossil fuels in 2050
- Energy efficiency improvements – both
 - Reduction of end-use consumption, and
 - Conversion from fossil fuels to RES and electrification
- Have been running in 3-4 year cycles
 - Voluntary agreement
 - Independent evaluation
 - Updating based on the experiences

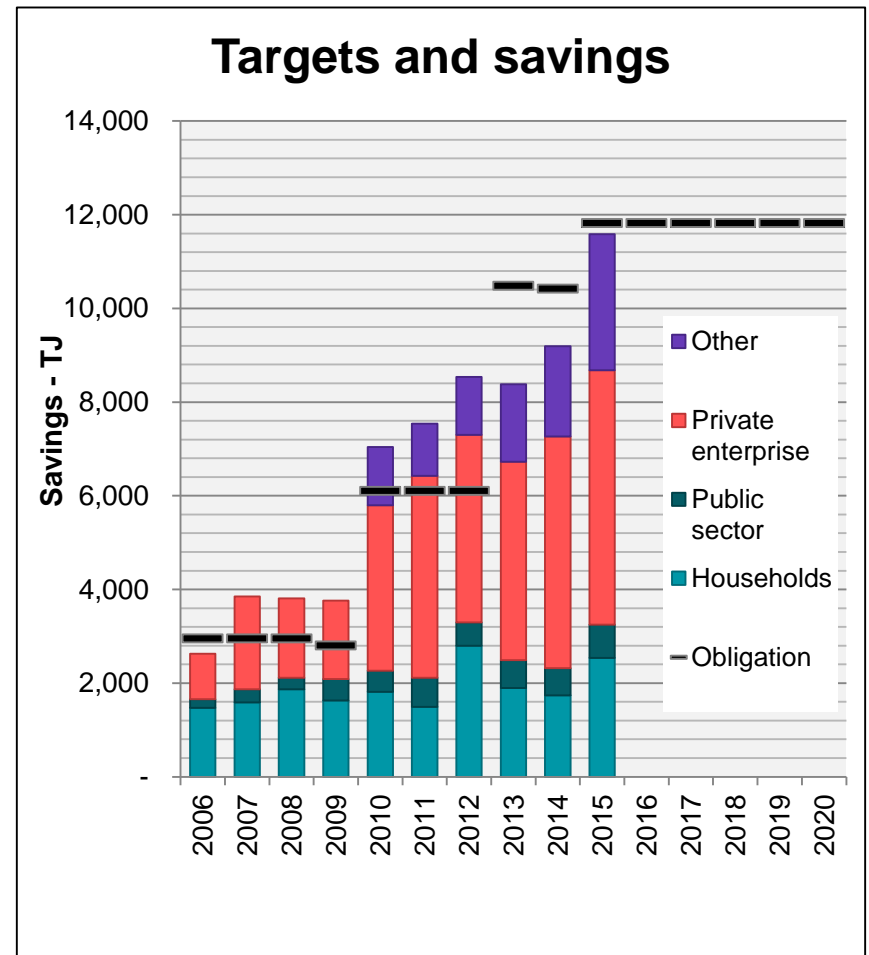
Main principles and increased target

Who?

- Distributors,
- Electricity, Natural gas, District Heating, Oil

Annual saving target

- Large freedom to deliver savings
- Involved before project implementation
- Clear rules for documentation of all projects
- Target has been increased
- 60% of savings in private enterprises



Target

Target is set for final energy

	PJ	% of final*
2006-2009	2,95	0,7
2010-2012	6,1	1,5
2013-2014	10,7	2,6
2015-2020	12,2	3,0

* Final energy in 2014. Energy used for transport are excluded

Targets until now only set at branch level

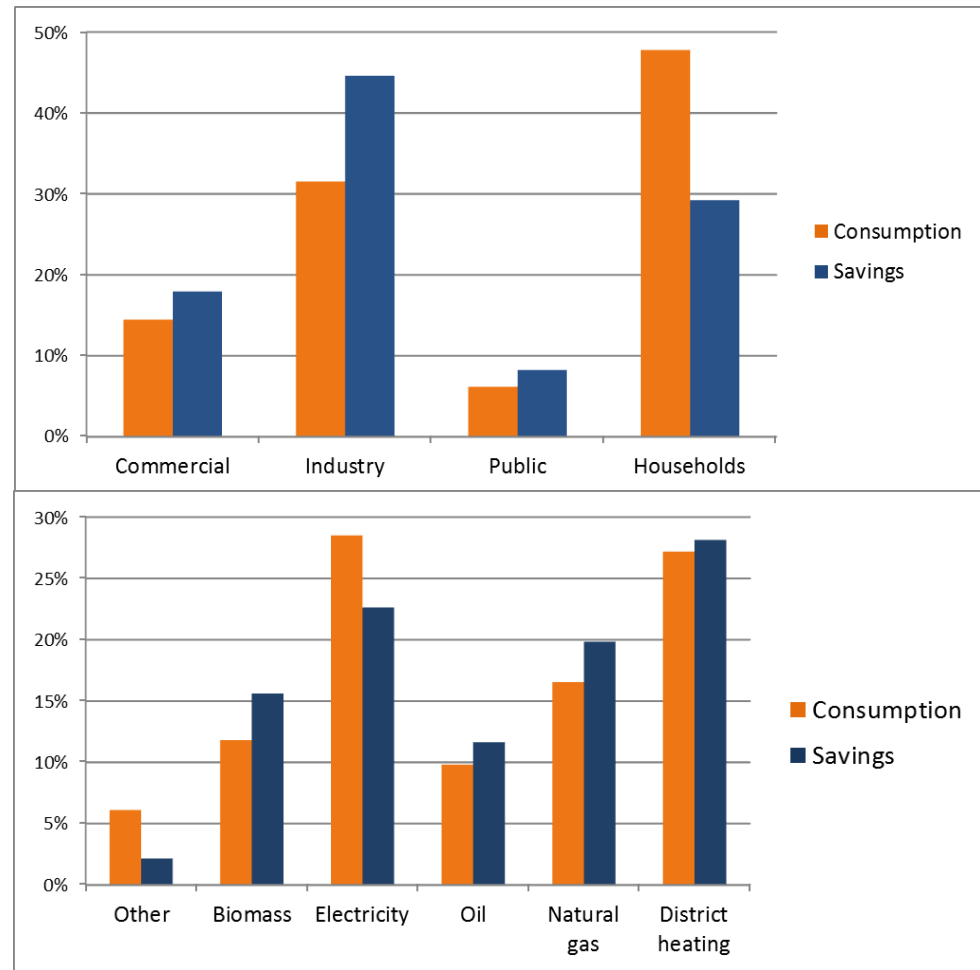
– Not sub-targets for sectors (households etc.)

Savings – Where?

- Final energy consumption in all sectors
 - In principle all end-uses and sectors
 - CFL's and most households appliances are not accepted
 - Also local boilers, heat pumps, etc. including conversion
 - Not biomass, not PV, but local solar collectors
 - Some savings in transport included from 2013
 - Also consumers covered by ETS
 - Some savings are reduced (additionality)
 - Also savings in (district heating) grids and from thermal solar plants for district heating counts
 - Savings not all eligible under EED
 - Ecodesign requirements especial for heat pumps and boilers
-

Distribution of savings 2015

- Between sectors
 - More in private entities
 - More in public sector
 - Less in households
 - SME maybe a problem
- Between fuels
 - Very good distribution
 - More natural gas and biomass
 - Less electricity



Measurement of saving

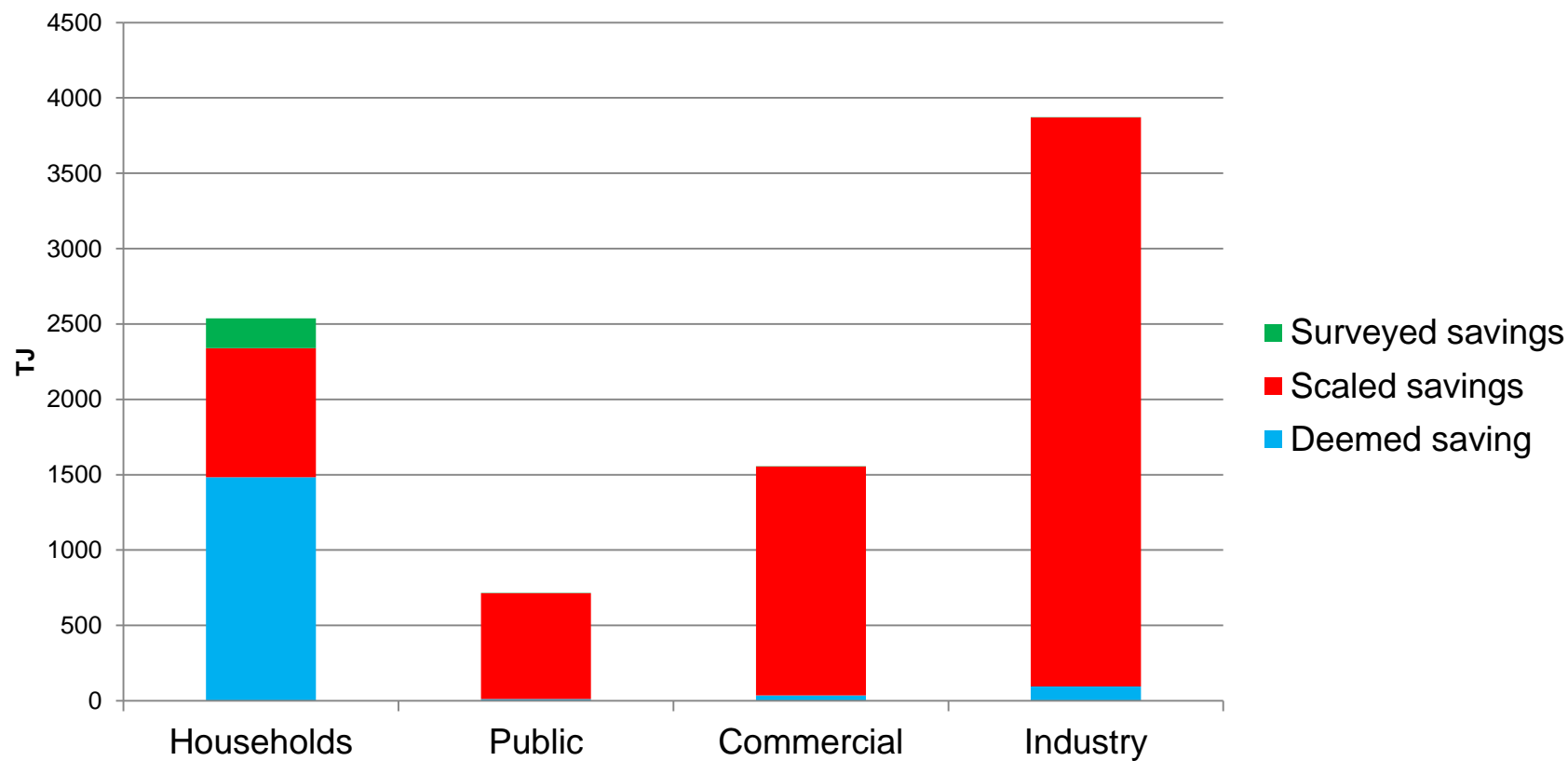
The main principle

- First year savings – not cumulative
- Difference between consumption before and after
- Simple weighting factor was introduced from 2011
 - Reflect lifetime, primary energy, non-ETS

Methods:

- Standard values – deemed savings (200)
 - Average saving for standard activities
 - Developed by experts. Approved by DEA
- Specific calculation – scaled savings
 - Used for all big project, Especially industries, public sector etc.
 - Utilities are responsible for specific calculations
- Market transformation – surveyed savings

Scaled savings very important



Special rules

- New installations and new buildings
 - Only saving in relation to current standard for new installations
- Increased production volume
- Closure and merger of production sites and installations
- Maintenance
- Use of waste heat
- More standard methods

Who do the job?

- The distribution companies are not allowed to do very much by themselves
 - Regulated monopoly companies
 - Have to involve an actor
 - Can be another company in the same group
 - But is very often a private engineering company or a plumber, construction company, etc.
 - There can be several links from the utility to the consumer
 - Agreement from the consumer to the obligated company before implementation start
-

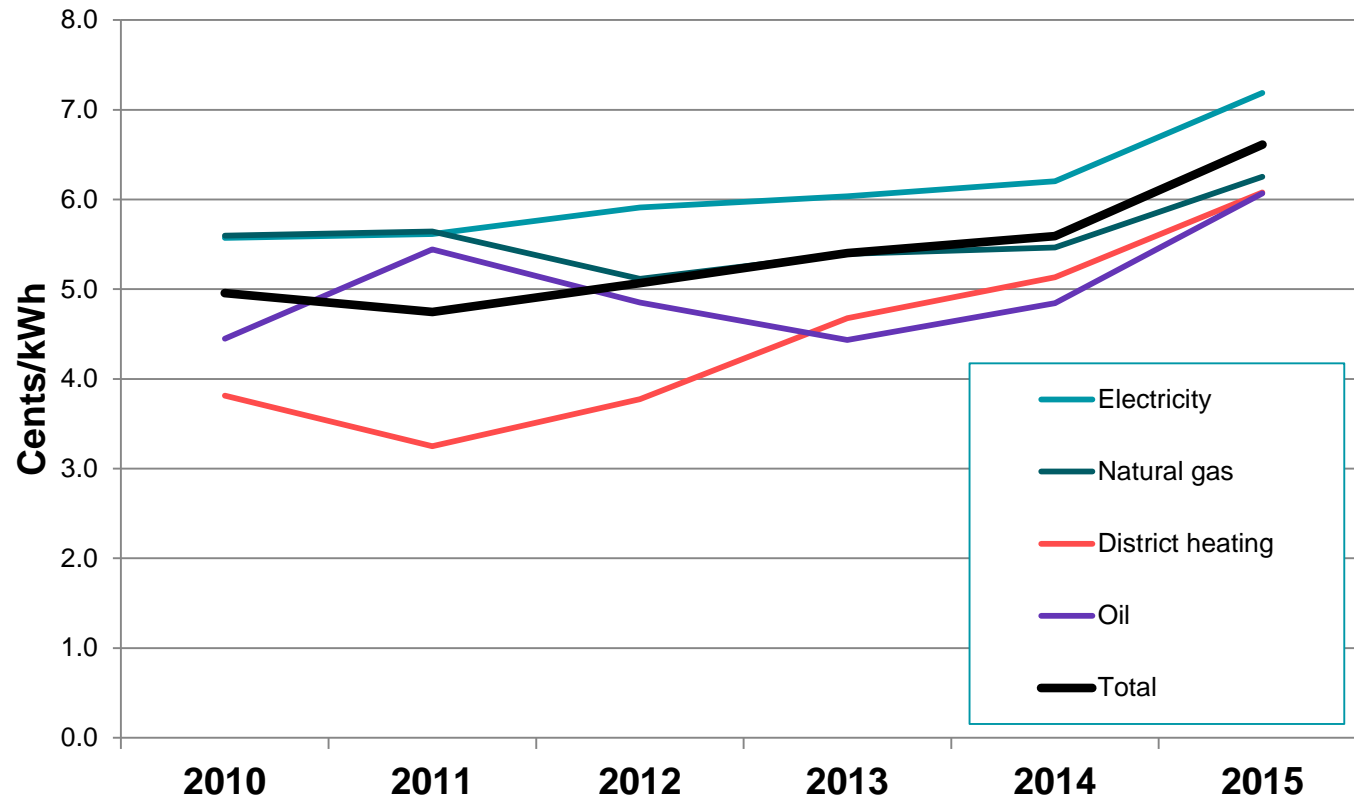
Documentation

- All projects/savings have to be documented
 - By the obligated parties
- Identification - address
- The savings
 - Consumption before
 - Consumption after
- The involvement
 - Agreement before and realisation

Verification

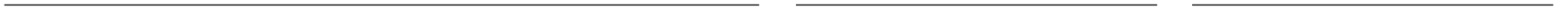
1. The obligated parties are responsible for
 - Verification, documentation and reporting
 - Quality control systems and independent annual audits
2. Annual random control by DEA
 - Quality control systems
 - Documentation of actual cases/projects
 - Small sample – but different every year
 - Only very small correction of savings (3-6%)
3. Independent evaluation every third year
 - Big sample, Not only verification

Utility costs



- 6-7 Eurocents per kWh first year savings
- 0,6-0,7 Eurocent per kWh with an average lifetime on 10 years

Relation to EED requirements



Relation to EED target

- The basis has been final energy – not sales to final customers
- Not all savings are eligible
 - Weighting factor – lifetime
 - Boilers and heat pumps – both a new boiler and conversion to an other heating system
 - Other ecodesign requirements
- Supply side savings under 7(2)
 - Savings in grids/networks
 - Thermal solar plants for district heating

Material to the achievement

- The obligated company have to be active involved in the implementation by consulting, subsidy or combination
- Agreement before implementation starts
- What level of subsidy is “material”?
 - In households are the subsidy often 10% or less

Additionality

- Would the action be implemented now (1-3 years) without the measure?
- Can't be secured in contact with the consumer about the actual project
 - **Have to be part of the rules!**
- Difficult to measure
- Evaluation shows
 - **High in industry**
 - **Low in households**
- Additionality is only a part of the net effect
- What is the requirement in EED?

Summary

- A strong cost-effective measure for 10 years
 - Updates of rules based on evaluation
- Verification and control are getting more important
- A balance between accuracy and cost
 - Keep the rules as simple as possible

- Thank you for your attention