Study Tour to Denmark and Sweden, May 2013
In the framework of
"Engaging Citizens in Sustainable Energy to improve environment and local Economy”
ECSE Project in 2012-14.

Danish Energy Situation and Policies
By
Gunnar Boye Olesen, INFORSE Europe

More about the Project:
http://www.inforse.org/europe/ECSE.htm
http://inforse.org/europe/ECSE_RU.htm
Danish Energy Situation and Policies

Gunnar Boye Olesen
21st May 2013
Danish among the highest CO2 emitters (but plan to reduce)

Tons CO₂ per capita per year, all energy:

10.9  Estonia
8.5   Denmark
7.2   EU
6.3   Belarus
6     China
4.5   Sweden
0.4   Senegal

[Image: INFORSE International Network for Sustainable Energy]
Danish Energy Supply Structure
Danish Energy Supply

Primary energy Supply: 792 PJ (2011)
- Oil: 38%
- Natural gas: 17%
- Coal: 18%
- Waste: 2%
- Biomass: 5%
- Wind, sun, geothermal: 2%

For Power & Distr. Heat Supply: 332 PJ
- Oil: 20%
- Natural gas: 23%
- Coal: 5%
- Waste: 11%
- Biomass: 39%
- Wind, sun, geothermal: 2%
Final energy demand in PJ (2011)
Efficient Electricity & Heat Supply

Electricity & Heat System Flows (332 PJ)

Input
- Wind etc.; 35
- Biomass; 78
- Waste; 16
- Coal; 130
- Natural gas; 65
- Oil; 7

Output
- Heat; 105
- Electricity; 113

DK 2011

Electricity & Heat System Flows (622 PJ)

Input
- Wind etc.; 1
- Biomass; 20
- Coal; 6

Output
- Grid loss; 35
- Plant loss; 79
- Natural gas; 561
- Heat; 280
- Oil; 34

Output
- Electricity; 113

Belarus, 2010
New Danish Energy Strategy

- By 2020: 49½% windpower in power supply
- CO₂ reduction 34% 1990 – 2020 agreed, aim 40%
- Support for windpower with feed-in bonus (pool price + 3 €c/kWh, ca. 8 €c/kWh)
- Increased energy efficiency by power companies
- Support for renewables & efficiency in companies
- High tariffs for biogas, to use half of manure
- Change coal to biomass
- Smart grid strategy
Danish Energy Strategy, cont.

Aim of 2000 MW new windpower till 2020

Aim of 100% renewable energy inl 2050

News energy taxes etc. of 1300 DKK/family in 2020, but cheaper energy for households

Electricity and gas in transport,

Continued R&D, 1 bill. DKK/year

A large number of analyses on strategic energy planning, revision of energy taxes, and much more.
CO₂-Emmissions w. energy strategy
mill. ton CO₂-equivalent

2009                Basis'20    Agreement'20      Aim'2020      Aim'2050
Renewables

Renewable energy in Primary Energy Demand (PJ)
Primary Energy Demand (PJ)

- Business as Usual
- Strategy
The EU Plans

• 20% renewable energy by 2020 (or more), 1% more renewables every year

• 20-30% less greenhouse gases by 2020 (or less), 2% less every year (or buying of credits)

• Stable or decreasing energy consumption, energy efficiency is key.
Danish and EU Energy Strategies

EU: Ecodesign = energy efficient products
EU: Near Zero Energy Buildings by 2020
DK: Higher energy requirements for buildings  
   2015 (40 kWh/m2) and 2020 (20-30 kWh/m2)
EU: Renewable energy directive with targets
DK: Higher targets for renewables
EU: Energy Efficiency Directive
DK: Energy efficiency by energy companies etc.
EU: several nuclear countries, DK: no nuclear
Our vision for DK power production

- Biomass, solid
- Biogas
- Wave
- Wind
- Solar PV
- Waste
- Fossils

Statistics
Government plan
NGO proposal

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