



ENERGY POLICY OF FINLAND

To secure supply, competitive price, and meet environmental targets

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Trends in the European Energy Industry
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The main drivers of Finland's energy policy

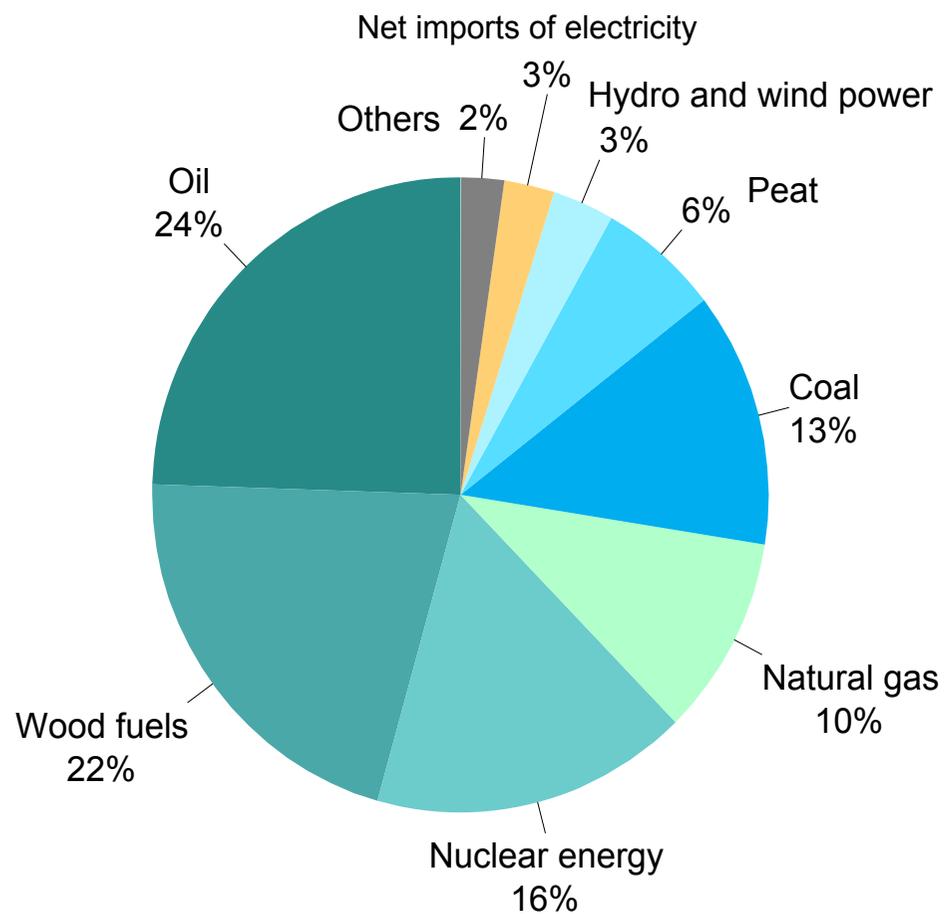
- Security of supply, self-reliance, competitiveness (important because of geography, climate and energy intensive industries)
- European 20 – 20 – 20 targets by 2020
- Reduction of green house gases by 80 % in 2050



Additional targets of the Finnish government

- Increase of self-sufficiency in electricity supply -> means more renewables and nuclear (now power imports is some 15 % and 1500-2000 MW during peaking hours)
- Access from present single source to multiple natural gas sources and European gas networks, as part of the EU's infrastructure package

Total energy consumption by energy source 2010





Finland has ambitious renewable targets

- Share of renewable energy will be grown to 38 % by 2020
- More than 50 % of the renewable energy comes from sustainable forestry and is produced in CHP plants
- Finland will double to 20 % the EU bio fuel target of 10 % - bio diesel coming also from wood
- Additional renewable power with wind 6 TWh and additional heating with heat pumps 5 MWth

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Tax Structure (1)

Energy taxes are based on three components and take into account:

- energy content of the product → **energy content tax** (€/MJ)
- CO₂ emissions of the product by setting a price on CO₂ → **CO₂ tax** (€/MJ)
- emissions detrimental to health (= local emissions) → **tax reduction from energy content tax**
- solid and gaseous biomass are not taxed

Tax Structure (2)

- CO₂ tax for fossil fuels used in CHP is halved
 - to avoid overlapping with ETS and CO₂ taxation
 - to improve the competitiveness of CHP compared versus separate heat production
- Competitiveness of (energy intensive) industry: in EU and referred to third countries
 - lower tax level for **industry** (tax on electricity)
 - partial energy tax refund for **energy intensive industry**
 - partial tax refund for agriculture (political decision)



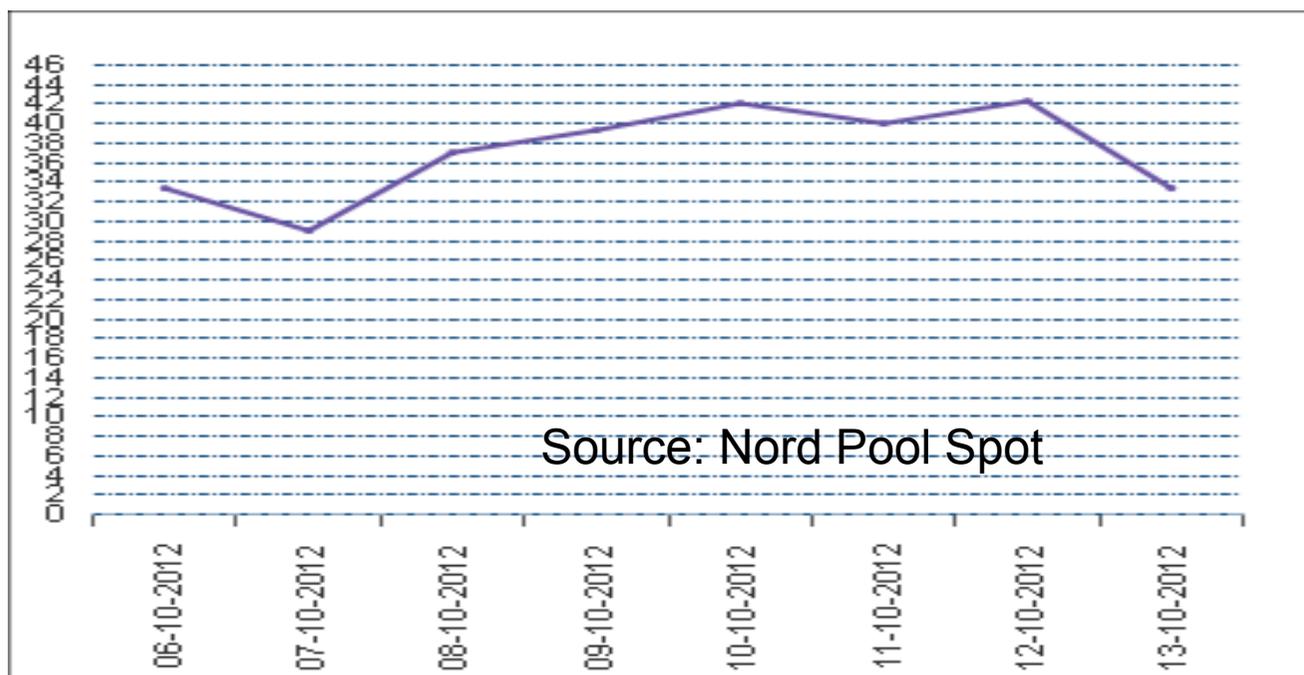
Open Nordic power markets

Electricity market:

- Open electricity market
- Electricity market model: “energy only”, no capacity fee
- Only nuclear and hydro production need licenses/permits
- Network fees controlled, not power/energy

Nordic power market as business environment

- Power spot prices (Finland) in early October 2012: (EUR/MWh):



- The electricity forward price in Nord Pool for 2013 is around EUR 38/MWh and for 2014 around EUR 39 per MWh



Some other features of the Finnish energy policy

CHP or district heating competing on commercial basis

- Only limited amount of subsidies for CHP's
- Not any price control (ordinary competition rules valid)
- CHP or renewables not favored in network access or in dispatching

Ambitious nuclear energy targets:

- 4 reactors operating, 5th under way
- positive decisions in principle by the Parliament for 2 more reactors; both are private industrial initiatives
- If all realized, nuclear units will produce 60 % of electricity
- Renewable sources and nuclear power combined leading to very low CO2 emissions



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