

The role of biofuels in Finland

Brussels 10 April 2018

Päivi Janka

Deputy Director General, Energy Department



Ministry of Economic Affairs
and Employment of Finland

Energy and climate targets



Government Programme of Prime Minister Juha Sipilä

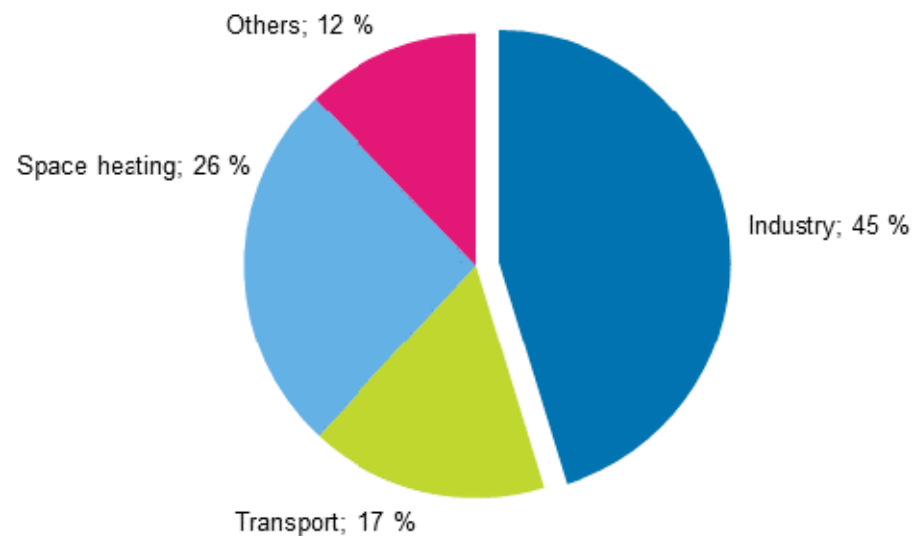
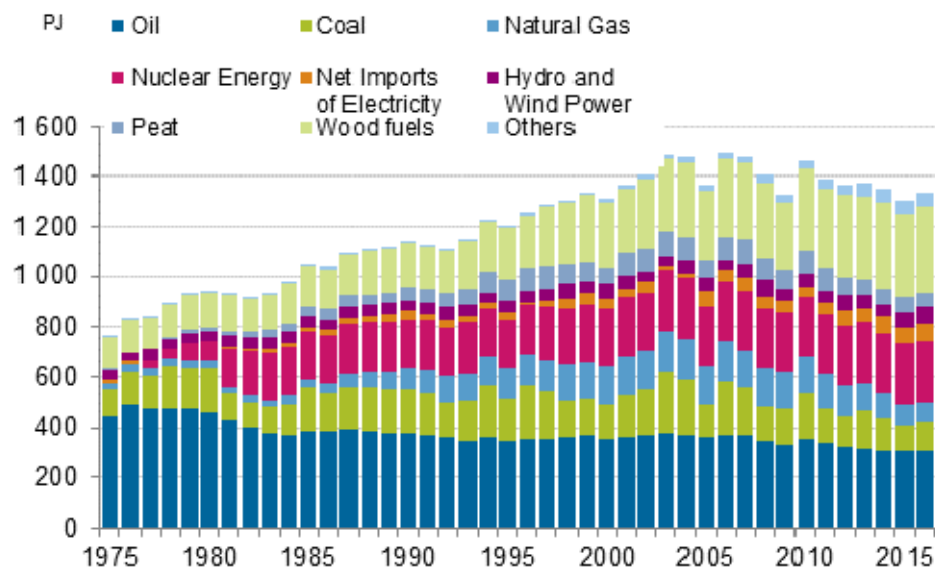
- Use of **renewable energy** will be increased in a sustainable way so that its share will rise to more than **50 per cent during the 2020s**.
- The use of imported **oil** for the domestic needs will be **cut by half during the 2020s**.
- **Coal** will no longer be used in energy production.

Total and final energy consumption



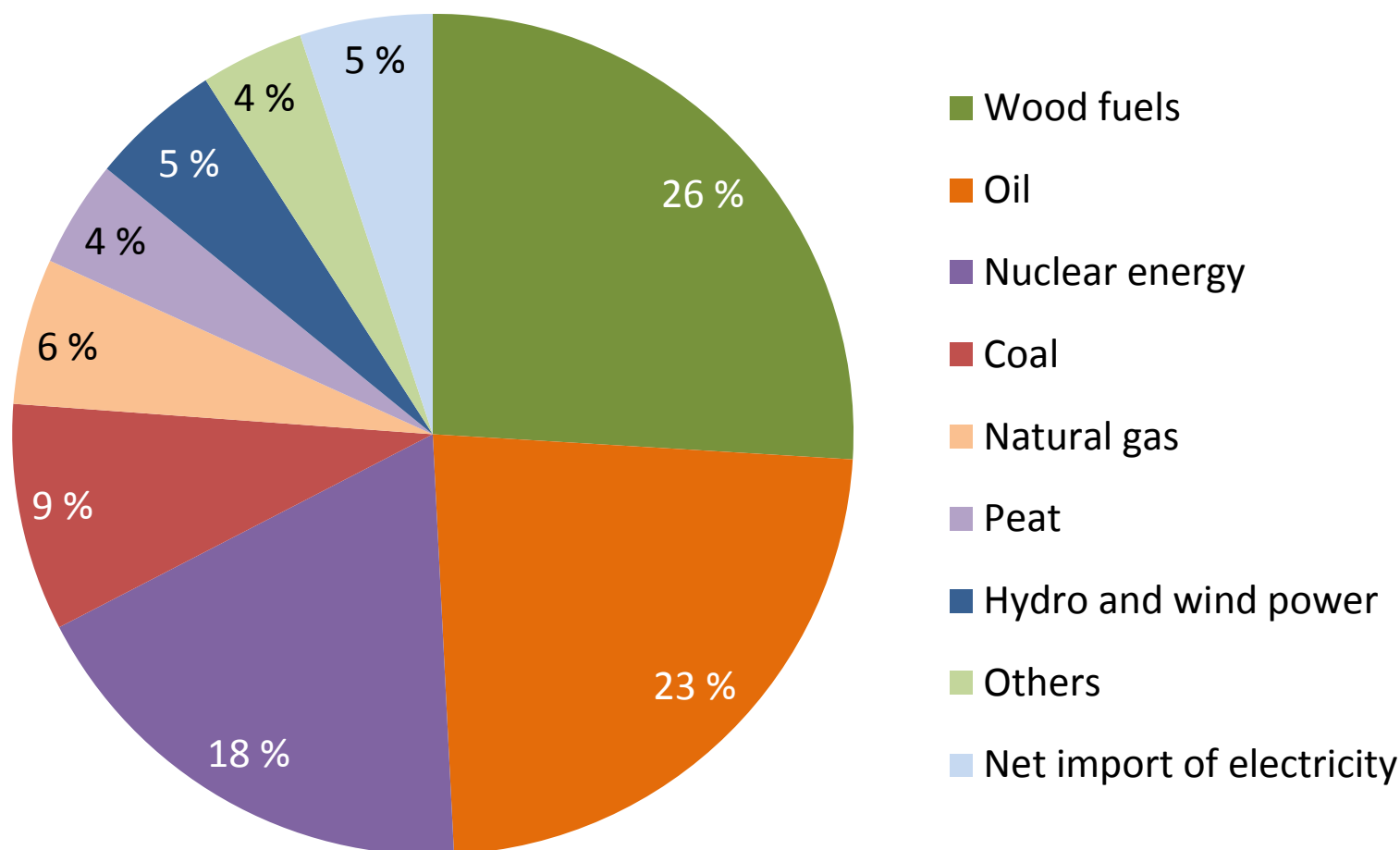
Total energy consumption 1975–2016

Final energy consumption by sector 2016



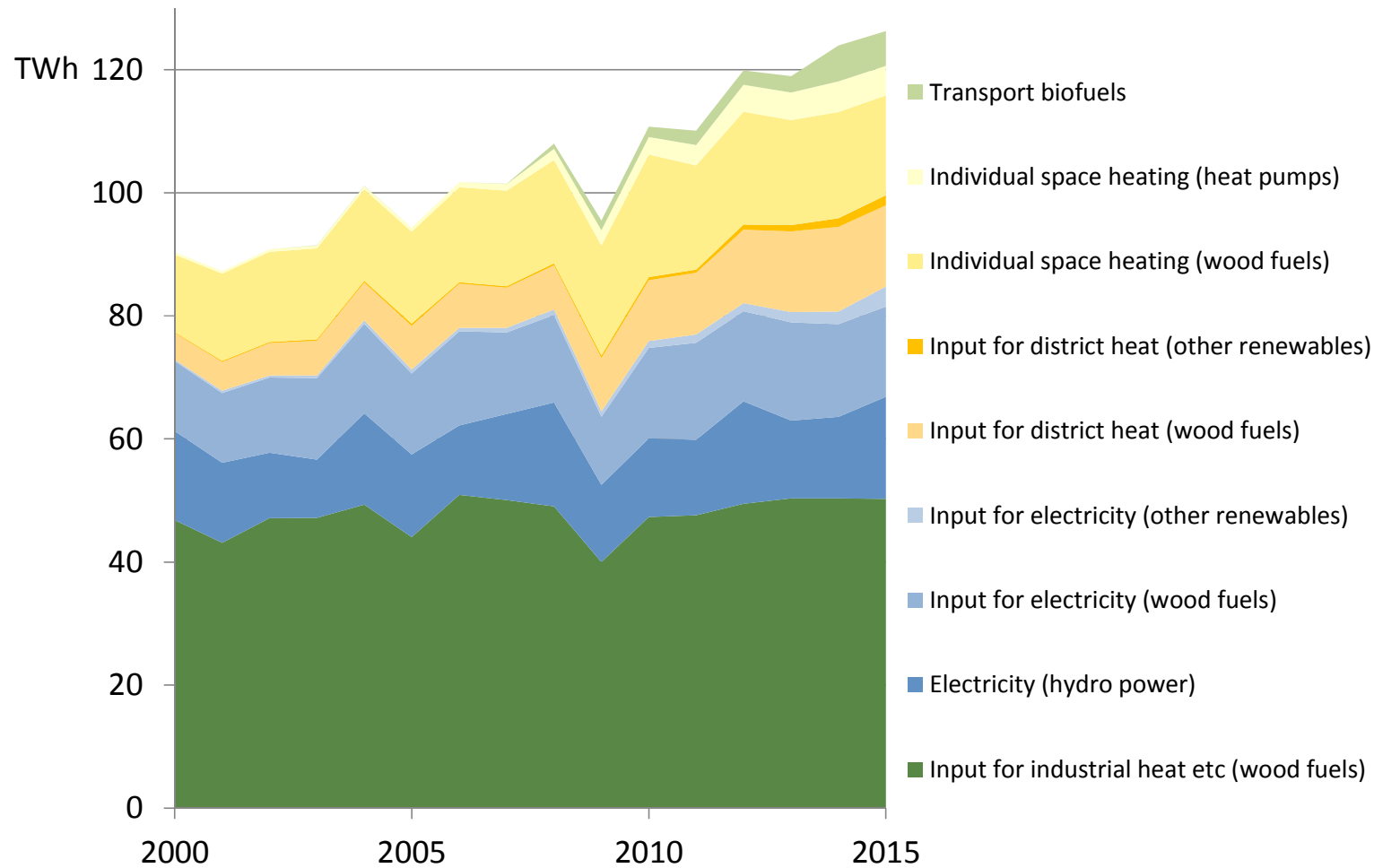
Big picture: Renewables progressing nicely

2016 total primary consumption 371 TWh



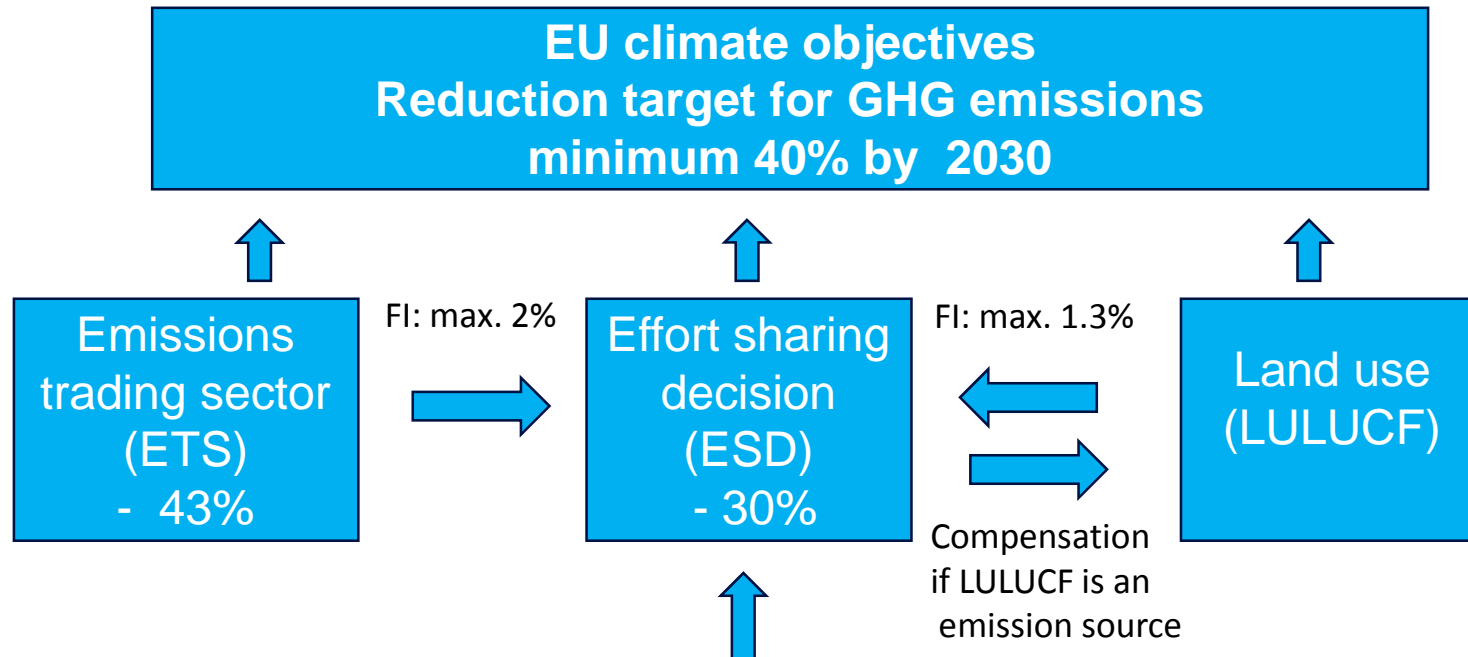
Source: Statistics Finland

Renewable primary energy by end use 2000 - 2015



Source: Statistics Finland

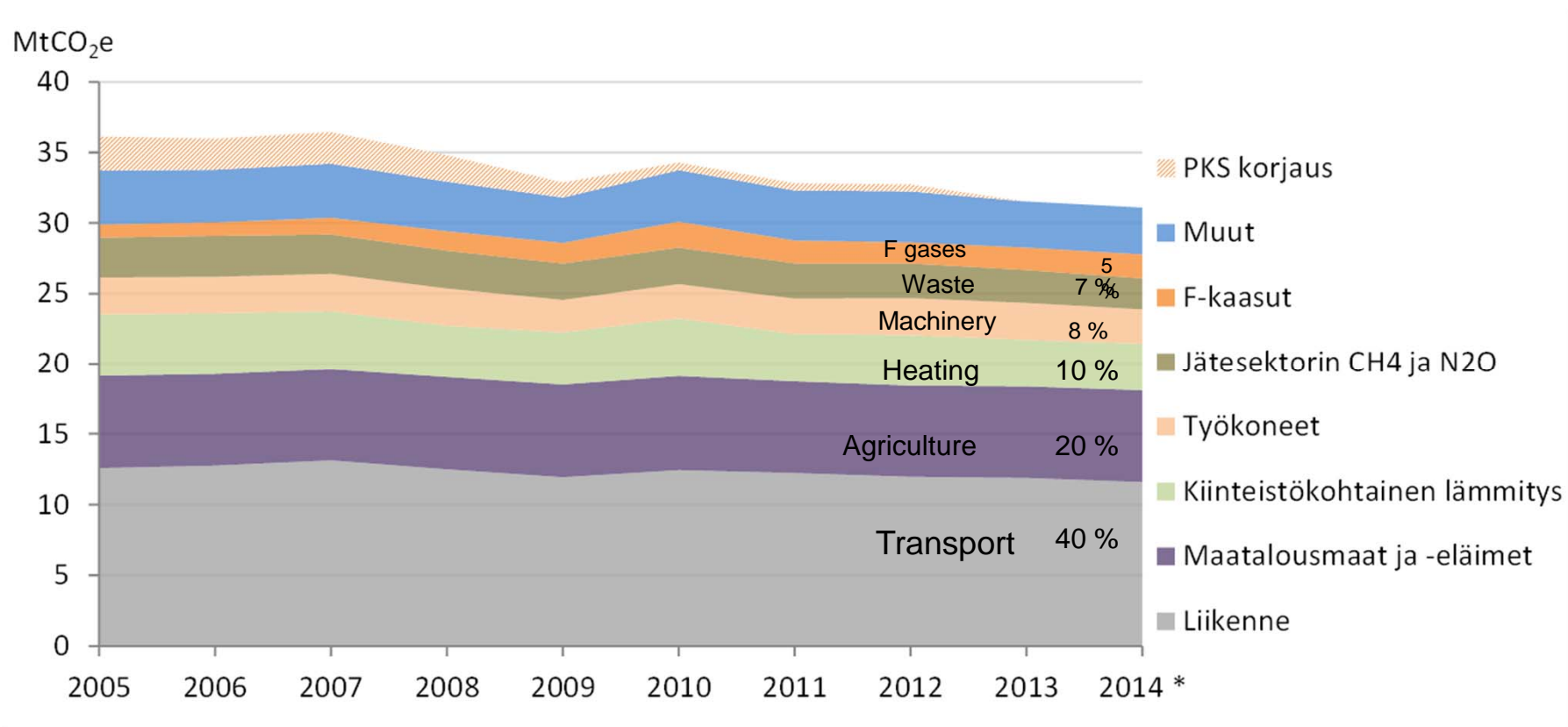
Emission reduction targets from EU legislation



The target for Finland in the Commission Proposal for the Effort Sharing Regulation is **-39% from the 2005 emissions**



ESD sector emissions in Finland 2005-2014



Emission reduction about 9 % according to preliminary figures

Source: Vtt

Measures in the transport sector



- improved **energy efficiency** of the transport system (e.g. developing new transport services, influencing modes of travel and transport, utilising intelligent transport methods)
- **vehicle stock renewal** will be accelerated considerably
- a minimum of 250,000 **electric vehicles** and 50,000 **gas fuelled vehicles** in 2030
- **share of biofuels** of all fuels sold to road transport to be increased to **30 per cent by 2030**

Policy instruments for increasing renewables; transport



• Regulation

- Quota obligation for transport biofuels
 - 20 % by 2020 (double counting for advanced biofuels)
 - 30 % by 2030 (no double counting); the bill is being drafted

• Taxation

- Energy taxation (taxes for fossil fuels in transport, lower taxes for biofuels, no tax for biogas)

• Investment aid

- Biogas installations producing biomethane from waste and residues
- New technology biorefineries

The EU regulatory framework beyond 2020 (RED II)?

- Incentives and restrictions, implementation

Biofuels and their supply



- Starting point is that additional biofuel demand will be based on **advanced biofuels produced domestically**
- **Today's capacity around 0.5 Mtoe/a**
 - Hydrotreated oils/wastes (HVO): Neste
 - Pulp industry residue (HVO): UPM
 - Bioethanol from sawdust and waste : ST1
 - Co-processing of tall oil pitch in existing oil refinery: Neste
- The required total amount of biofuels by 2030 would be around 1.1 Mtoe/a. This would mean **0.6 Mtoe/a additional new capacity**
- There are many options for production technologies and feedstocks:
 - HVO (hydrotreated vegetable oil) plants
 - Co-processing of biofeedstocks in existing oil refineries
 - BTL (biomass to liquids) plants using gasification > FT (Fischer-Tropsch) diesel
 - Bioethanol from wood fuels and straw
 - Also biogas production for transport is promoted and estimated to increase

Conclusions



- Transport is the key reducing CO2 emission outside the EU Emissions Trading Scheme
- In Finland, biofuels are a cost-effective way to reduce CO2, due to
 - Domestic production (replacing fossil fuel imports)
 - High knowledge and advanced production technologies
 - Raw materials (e.g. wastes and residues from forest industries)
- **Requirements for new investments**
 - **Stable and long-term policies** (national, EU, global?)
 - EU legislation changes every few years
 - **Investment aid and other financial instruments**
 - To cover new technology risks
 - Advance biofuels are more expensive than fossil fuels