

Promoting biofuels in Finland

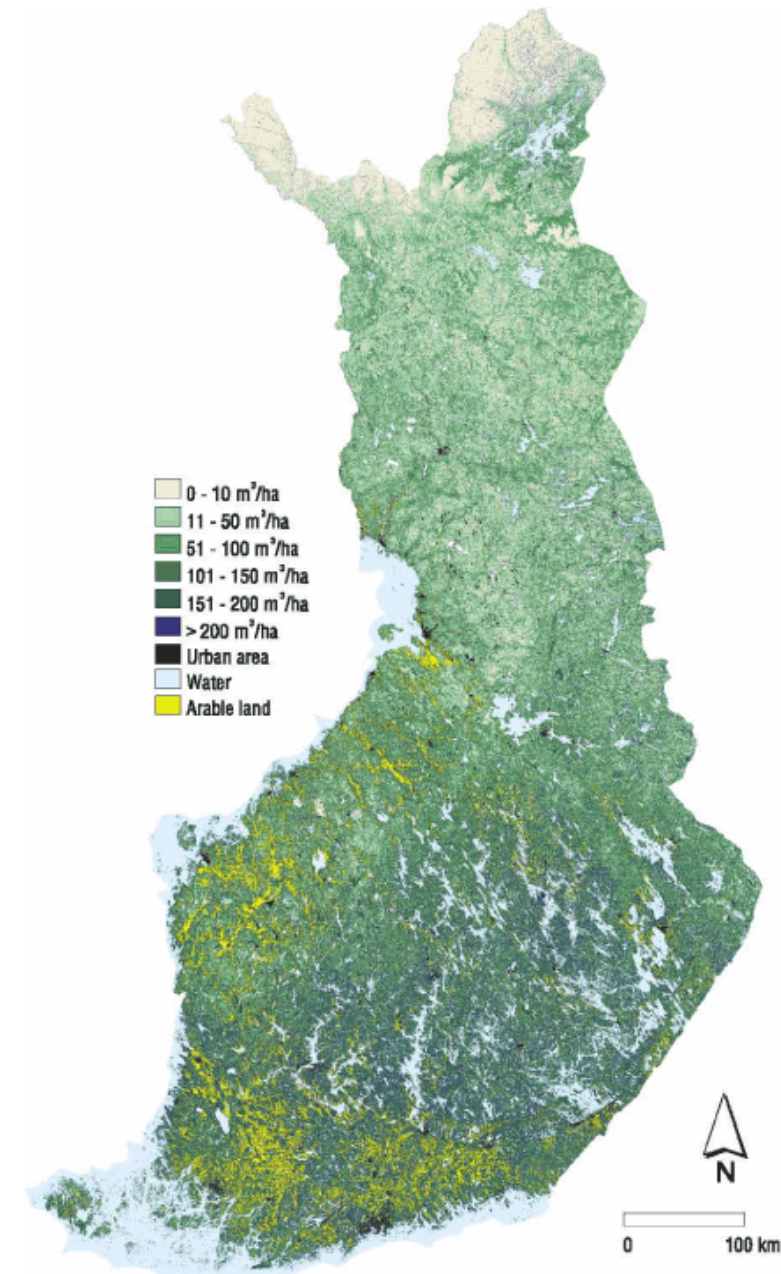
EU-India Conference on Advanced Biofuels
New Delhi, 11th - 13th March 2019



Työ- ja elinkeinoministeriö
Arbets- och näringsministeriet

Facts about Finland

- **Area 338 000 km² (5th in EU 27, comparable to Germany) and 5.5 million inhabitants (17th in EU27)**
 - With average density of 18 persons per square kilometer
 - More than two-thirds of the population live in the southern third of the country
 - One of the most forested EU countries with 72 % of forest coverage
- **GDP in 2016 totaled € 214.1 bil.**
 - Per capita € 38.959
- **High energy consumption per capita**
 - High share of energy-intensive industry (forest, steel, chemical)
 - European Union's coldest Member State
 - Long distances within the country and to the EU and other markets
- **High energy efficiency**

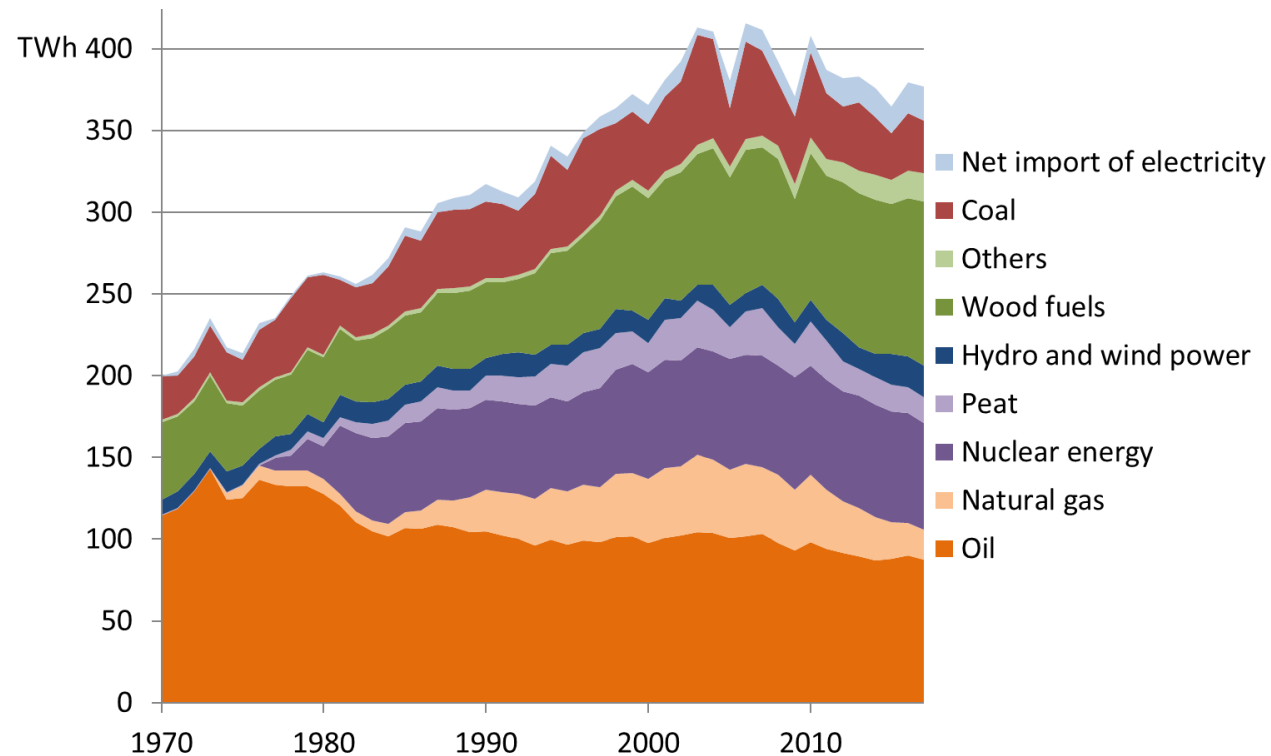


Total energy consumption



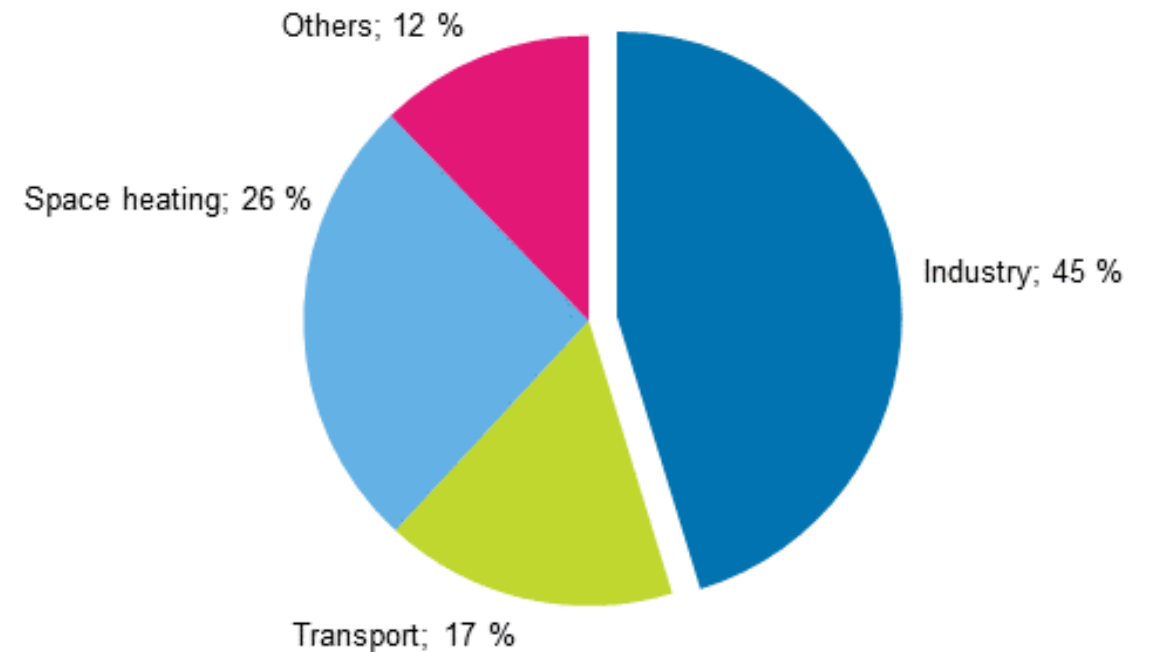
Total energy consumption 1975–2017

- Fossil fuels losing ground
- Renewables and nuclear growing; wood-based fuels the most important energy source!



Final energy consumption by sector 2016

- High seasonality in heating & lighting





Energy and climate targets

Long-term objective to be **a carbon-neutral society**

- 80 - 95 % reduction of greenhouse gas emissions from 1990 level by 2050

Government Programme of Prime Minister Juha Sipilä

By 2030:

- **renewable energy** to be increased to more than **50 per cent**
- **self-sufficiency** in energy to be increased to more than **55 per cent**
- use of **fossil oil** for the domestic needs will be **cut by half**
- **coal no longer to be used** in energy production
- share of **renewable transport fuels** increased to **30 per cent**

Policy instruments in transportation (1/2)



- **Quota obligation for biofuels in transportation**
 - 20 % by 2020 (including double counting for advanced biofuels)
 - 30 % by 2030 (no double counting)
 - 10 % sub-target for advanced biofuels
 - The sustainability and GHG-emission reduction criteria from the renewable energy directive
- **Fuel taxation**
 - Taxes for all fuels in transportation
 - Based on energy content and CO₂ (except for peat) emissions of fuel
 - Lower taxes for sustainable biofuels
- **Investment aid**
 - New technology biorefineries
 - Biogas installations producing biomethane from waste and residues

Policy instruments in transportation (2/2)



- **Production capacity 535 ktoe (~6 TWh) in Finland**
 - Neste refinery in Porvoo (renewable diesel: mainly wastes and residues, e.g. vegetable oil, animal fats)
 - UPM Kymmene refinery in Lappeenranta (renewable diesel: tall oil)
 - St1 small scale refineries (bioethanol: sawdust and wastes)
- + Neste refineries in Rotterdam and Singapore total 2300 ktoe
- **Extensive R&D in wood based biofuels**
 - Demonstration plants expected in near future
- **In addition increasing biogas capacity + electric vehicles and charging capacity**

Renewable energy in transportation

