

# Renewable Energy in Transport until 2020 and Beyond / Finland

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**LVM** MINISTRY OF TRANSPORT  
AND COMMUNICATIONS

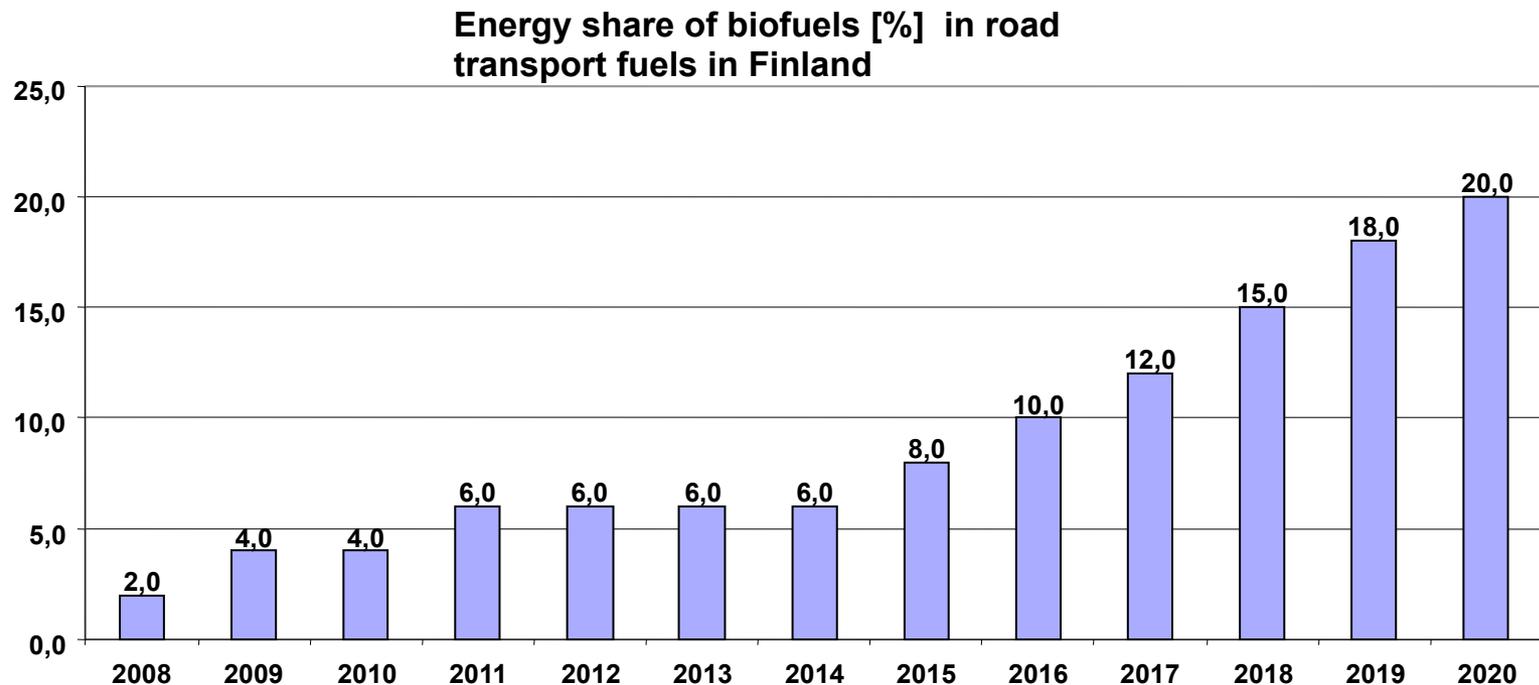


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# Current market and biofuel target in Finland

- Biofuel obligation in Finland
  - Came into force in January 2008
  - Including the double counting for advanced biofuels



# Current market -2

- According to the calculation method currently used in the European Union, the energy content of biofuels produced from wastes and residues, non-food cellulose and lignocellulose is multiplied by two. **The majority of all biofuels used in Finland already qualified for the double credit in 2014.** Taking the double credit scheme into account, the calculated share of biofuels in Finland was approximately 24 % in 2015.
- The real share of biofuels was approximately 13.5% in 2015.
- Biofuels are used in Finland not only blended with fossil fuels without a specific distribution infrastructure or dedicated vehicle fleet but also as higher-concentration blends that require separate distribution.
- Finland introduced E10 grade petrol as the first EU Member State in January 2011, on which date this became the dominant grade in the entire distribution system. The share of E10 grade petrol is currently some 65% of petrol sales.
- Today, renewable diesel is blended with fossil diesel and distributed together with it. HVO can be used in blends with concentrations of up to 30–50% by volume, depending on the properties of the fossil diesel.
- Neste, a Finnish fuel sector operator has, however, bring 100% renewable diesel into the market at selected fuel stations in Finland in 2017.

# Current market -3

- The renewable biofuels in Finland is mainly made from waste fats, residues and vegetable oils, or from pine oil that is a residue from pulp production. Under EU directives, hydrotreated vegetable oil (HVO) is not biodiesel but a synthetic fuel, or paraffinic diesel. In the interest of clarity and to keep it separate from biodiesel, this fuel is called **“Renewable Diesel”** in Europe and Northern America.
- **The volumes of conventional biodiesel (FAME) manufactured or used in Finland are almost non-existent.**
- From a global perspective, Finland is a pioneer in the production of high-quality biofuels. Biofuels are currently some of Finland's top exports, which brings much-needed export revenues strengthening the national economy.

# Implementation of iLUC directive

- We are just finishing a legislation for implementation of the iLUC directive
- The new law puts 7 % ceiling for the conventional biofuels, and 0,5 % sub-target for advanced biofuels in 2020

# Target for 2030

- The Finnish Government adopted a new National Energy and Climate Strategy towards 2030 on 24 November 2016
- According to this strategy, the share of biofuels in road transport energy consumption measured as the physical share of the energy content will be increased to 30% (without double-counting) by 2030.
- The starting point is that any additional demand will be covered by advanced biofuels produced in Finland. The need for additional production capacity would be approximately 7 TWh per year in 2030.
- The additional production could be based on several different technologies, and the raw materials would mainly consist of different wastes and residues as well as lignocellulose from forestry and forest industry. The biofuel production could be partly based on imported raw materials.
- Biofuels with the largest production volumes, which would account for some 80% of the production, would consist of so-called drop-in biofuels, such as renewable diesel and biogasoline. These fuels can be used in the existing fleet without restrictions, and no new distribution infrastructure need be constructed for them. To complement them, bioethanol and biogas (biomethane) will be produced.

# Target for 2030 -2

- However, meeting the entire energy needs of transport with a single alternative power source or fuel will not be possible. The suitability of various alternative power sources for different modes of transport also differs. In aviation, liquid biofuels currently appear to be the only realistic alternative to fossil oil. The number of options for shipping, heavy-duty vehicles and cars is increasing. The largest number of alternatives is available for cars.
- **The goal for Finland is to have a minimum of 250,000 electric vehicles** in total (fully electric vehicles, hydrogen-powered vehicles and rechargeable hybrids) **and a minimum of 50,000 gas-fuelled vehicles in 2030.** This is approximately **10 % from the whole vehicle fleet.**