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Maximizing your resources base on past experiences and success of Finland

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Finland's National Energy and Climate Strategy – Key Points

The Government's energy policy goals for 2030

- Renewable energy share over 50% in the 2020's with the self-sufficiency in energy to 55 %.
- To cut the amount of imported oil to half.
- To increase the share of renewables in the transport sector to 40% by 2030
- To abandon coal from energy production.
- The minimum aim is to have 250,000 electric and 50,000 gas powered vehicles on the roads.

FORESTS ARE NOT growing for a energy, side products and residues can be utilized for a energy.



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Finland vs. EU

Finland:
target by 2030:
40%
of transport fuel from
renewable sources

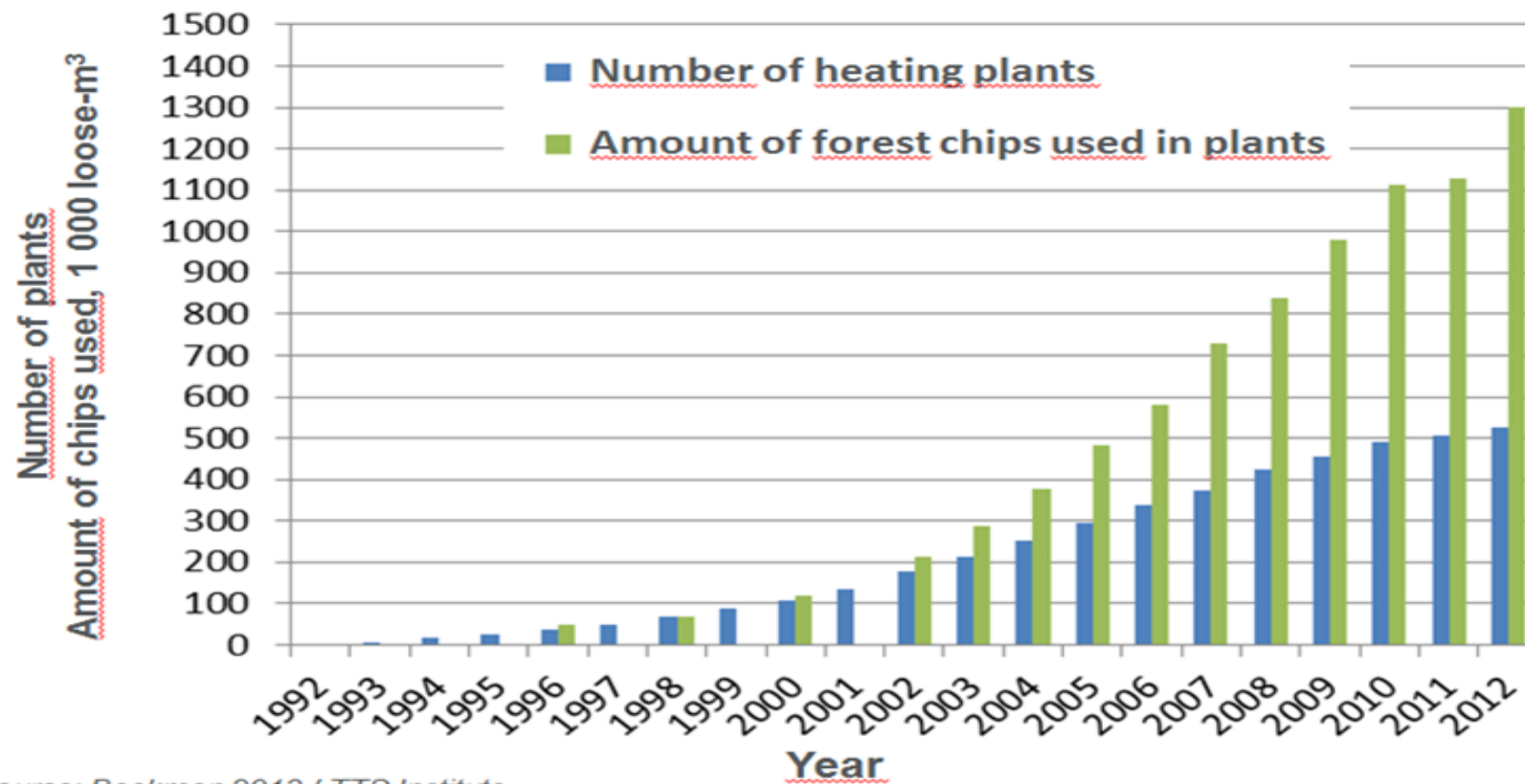
EU:
target by 2020:
10%
of transport fuel from
renewable sources

- Political drivers have had and will have a decisive role both Europe (and Canada) – consistent policy needed.
- Investment aid to new installations has been an important factor.
- Production subsidies required – currently paid to fuel (wood) supplier.



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Success story: heat entrepreneurship



Source: Backman 2013 / TTS Institute

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Success story: heat entrepreneurship

History of heat entrepreneurship in Finland

First heat entrepreneurs started in 1992.

In 2013, 310 heat entrepreneurs were running 533 heat plants consuming a total of 1.5 million cubic meters of woodchips. This represents between 7 and 8% of the available woodchips.

This represents 1/3 of the local energy networks and 2/3 of the real estate property connected heating plants.

Total potential is estimated to over 5000 municipal, commercial and industrial sites.

Typical heat entrepreneurs: farmers, forest owners, peat producers...

Average size of the heat plants : 500 kW (1.7 million BTU/hr).

Biggest heat plants 2.5 – 3.5MW, mostly for municipal heat networks and industrial customers.



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Success story: heat entrepreneurship

Study cases – Case 1: Kämenniemi heating plant

- Two ways of providing heat to the municipal buildings are studied:
 - Municipal oil-fired heating plant (current solution)
 - Woodchip biomass heating plant of an energy entrepreneur
- The current heat network is connected to a school, a pre-school and a group of houses. An extension of the heat network is at study.
- Total heat demand is estimated at 2,500 MWh/year
 - Municipal buildings 1,500 MWh/year (60%)
 - Private owned properties 1,000 MWh/year (40%)
- The current municipal heating plant belongs to, and is operated by the town of Tampere, who is also owner of the heat network.
- The biomass heating plant at study would be owned by an energy entrepreneur who would also be in charge of operating it.
- The woodchips would be sourced from the entrepreneur's own forests, meaning that there would not be a third party for the fuel deliveries.
- Current oil fired plant will be used for peak energy and ad backup energy source for the biomass plant.
- The pricing for heat is expected to be the same for private and municipal customers.



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Success story: heat entrepreneurship

Study cases – Case 2: Lapinjärvi woodchip heating plant

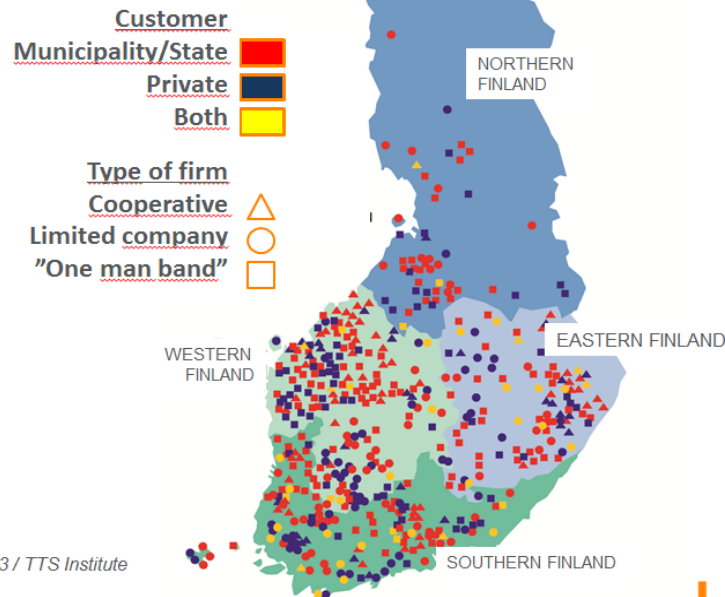
- Two ways of providing heat to the municipal buildings are studied:
 - Oil fired boilers in each property
 - Biomass power plant owned by an energy entrepreneur (current solution)
- Total heat demand is estimated at 4,900 MWh/year
 - Municipal buildings 3,400 MWh/year (70%)
 - Private owned buildings 1,500 MWh/year (30%)
- Individual oil-fired boilers are the responsibility of their respective owners (municipal or private).
- Biomass plant is operated by an energy entrepreneur who is also owner of the plant and the network*
- The woodchips would be sourced from the entrepreneur's own forests, meaning that there would not be a third party for the fuel deliveries.
- The pricing for heat is expected to be the same for private and municipal customers.



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Success story: heat entrepreneurship

Type of business



Source: Backman 2013 / TTS Institute

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- No quick jackpots – but reliable and profitable business
- Job creation on rural areas
- Money circulates in the local economy
- Improved quality of forests

Sources: LUKE, Natural Resources Institute Finland & VTT, Technical Research Centre of Finland



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What do you need for successful forest energy business in Ontario?

- Forests
- Demand for heat and power (with reasonable paying ability)
- Professionals with timber harvesting experience
- Business models
- Proven technologies for supply and conversion



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THANK YOU!!!

KIITOS!!!