



Business from technology

REPAP 2020 – Renewable Energy Industry Roadmap for Finland, Draft March 17, 2010 - comments on Targets & trajectories

Satu Helynen, Vice President, R&D, Energy and
Pulp&Paper
VTT Technical Research Centre of Finland

Background 1/2

- Main characteristics of the Finnish energy system were identified
 - + high dependance on the imported energy
 - +well-operating Nordic wholesale electricity market
 - Missing: role of energy intensive industry
 - Structure of MEE
- Current status of renewable energy
 - Is the dominating role of CHP for bioenergy described in the model properly?
 - Is the dominant role of forest products industry in the bioenergy sector described properly?
 - Residues from harvesting; By-products from industry: bark, saw dust, black liquor
 - Use of steam and electricity>< CHP plants, sales of excess biomass-based fuels, pellets

Background 2/2

- Additions to current renewable energy support policies
 - Present support for renewable electricity: correct values
 - Under preparation: feed-in tariffs for electricity: wind, biogas
 - New proposals 4/2010 from the government: feed-in tariffs for wood-fuelled small CHP, market-adjusted support for electricity from forest chips, and additional support when replacing coal in pulverized coal CHP-boilers
- Mentioned shares of investment subsidies were the maximum, in reality shares are lower and the total amount of subsidies has been limited

Energy demand for 2020 (same values for both NAT and ACT scenarios)

	REPAP	National Strategy	MEE 20.4.2010	
Final energy consumption (High efficiency)	26,9 Mtoe 313 TWh (24,11 Mtoe 281 TWh)	310 TWh	28,1 Mtoe 327 TWh	
Electricity consumption (High efficiency)	105 TWh (91,9 TWh)	98 TWh	98 TWh	

Availability of biomass in 2020

	NAT scenario	ACT scenario	MEE 4/2010
Agricultural products	2,6 TWh	3,1 TWh	
Agricultural residues	4,7 TWh	5,2 TWh	
Forestry products	61,2 TWh	70,4 TWh	39 TWh
Forestry residues	46,2 TWh	46,8 TWh	56 TWh (black liquor, residues)
Biowaste	3,2 TWh	3,2 TWh	2 TWh+1 biogas
Additional RES -from solid biomass	63,7 €/MWh	130,5 €/MWh	
-from biowaste	57,1 €/MWh	95,7 €/MWh???	

Renewable energy in NAT and ACT scenarios 2020 compared to year 2005

- NAT
 - Large increase of biomass in heating sector (+24 TWh) and some in electricity (+3,7 TWh), heat pumps (+2,2 TWh), very little wind (+0,7 TWh) and other RES. Liquid biofuels +5 TWh.
- ACT
 - Additionally very much wind (+7,3 TWh), heat pumps (+2,8 TWh), solar electricity (+2,2 TWh). Liquid biofuels +5 TWh.

Heating sector dominating: if CHP-biomass heat +10 TWh then buildings +14 TWh

How much CHP in municipalities and industry?

How much new plants and how much replacing fossil fuels ?

MEE 4/2010

- Wood fuels + 20 TWh, Liquid biofuels + 6,5 TWh, Heat pumps + 6 TWh, Wind + 6 TWh

Transportation fuels 2020

10 % share – 425 ktoe

- 29% local bioethanol
- 71% imports
- Not yet 2nd generation biofuels



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