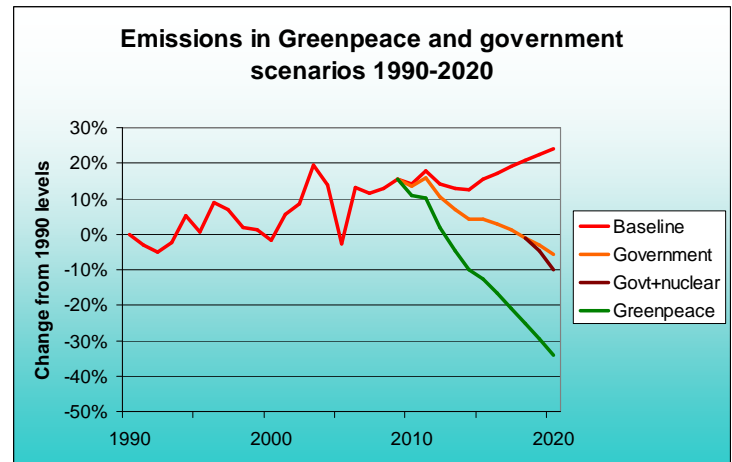


Revolution of Sustainable Energy in Finland 2009-2020

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Greenpeace energy model shows, how Finland can by 2020

- reduce greenhouse gas emissions by 35% below 1990 levels, i.e. 43% below current levels (Finnish government has only proposed measures that can deliver a 5-10% reduction)
- increase share of domestic energy sources from 30 to 40 percent
- completely end the reliance on electricity imports
- over-achieve the EU target for renewable energy in transport without the use of rainforest biofuels
- start a nuclear phase-out by declining permits to new nuclear reactors and closing down one of the operating reactors.



The cornerstone of any effective response to climate change and, indeed, of the Greenpeace model, is **substantially more efficient use of energy**. It is estimated that total energy consumption can be brought back to year 2000 level by 2020, which implies a 20% saving compared to business as usual. Total energy savings are 60% higher than in the government plans.

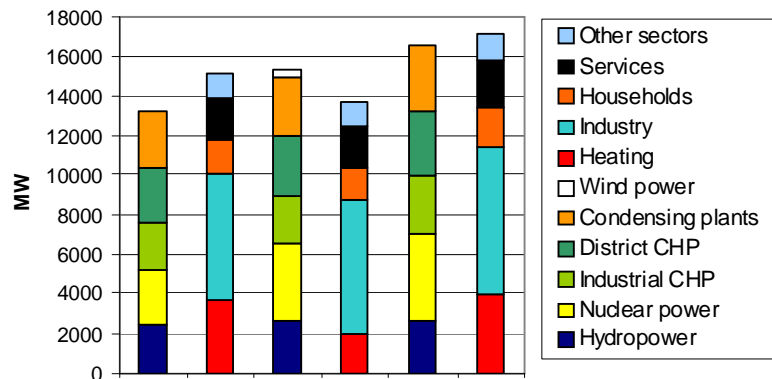
- The largest savings are achieved in heating of buildings. Strict energy performance standards on new buildings and strong financial incentives to minimize energy consumption when buildings are renovated can cut heating demand by 25% – more than the entire electric output of Olkiluoto 3.
- Substantial savings result from binding standards and tax-incentives that make sure people choose the most efficient electric appliances, as well as tax breaks to companies that reduce their energy consumption.
- Fuel economy of cars can be improved drastically by raising taxes on gas-guzzling vehicles and by supporting electric cars. Road tolls should be introduced where public transport offers a genuine alternative to private cars – in large towns and main roads connecting them. Revenue of the tolls should be spent on improving public transport. Land-use planning must take place on a regional level, with the clear objective of stopping urban sprawl, designing public transport friendly communities and minimizing the need for private cars.

Estimates of achievable energy efficiency improvements are based on Finnish studies.

In the Greenpeace model, **renewable energy use grows faster and becomes more diverse** than the Finnish government foresees. Total increase is 50 % higher than in the government strategy, corresponding four times to the electric output Olkiluoto 3. The difference is mostly due to faster growth of wind power, biogas, pellets and briquets and cultivated cellulosic biomass. Use of logging residues, heat pumps and refuse derived fuels is roughly as large as in the government strategy.

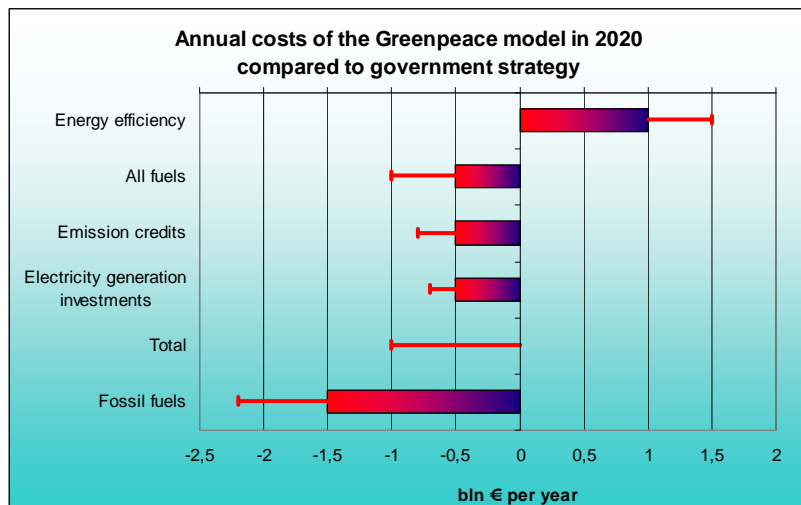
Finland is heavily reliant on electricity imports from Russia, because there is inadequate generation capacity in peak load situations. **Independence from electricity imports** is achieved in the Greenpeace model primarily by renovating electrically heated buildings, replacing electric heating with other heat sources, improving efficiency of electric appliances and increasing the production of electricity in combined heat and power plants. These solutions decrease dependency on imports much faster than nuclear power, reliance on which would keep Finland dependent on imports at least until 2020.

Peak load supply and demand of electricity



What does it all cost? Compared to the government's strategy, much more money needs to be spent on improving energy efficiency. These investments take less than ten years to pay back. On the other hand, less money is spent on building new power plants, buying fuels and buying emission credits. At least €1.5 billion less is spent on importing fossil fuels. Overall, between 2009 and 2020, the Greenpeace model costs no more to implement than the government climate strategy and starts to generate substantial cost savings thereafter.

Annual costs of the Greenpeace model in 2020 compared to government strategy



In addition, implementing a revolution of sustainable energy would create an incredible amount of new **business opportunities and jobs**, especially in sectors of the economy that are hardest hit by the current economic crisis.

For the society as a whole, revolution of sustainable energy makes perfect economic sense. However, **it will not happen without government action**. The price of new energy technology can be brought down only through economies of scale and learning by doing, which requires public support in the beginning. In addition, there are major obstacles to rapid uptake of renewable energy and energy efficiency in the energy markets. For example, the market for energy efficiency services and financing is underdeveloped, energy efficiency potentials are overlooked because decisions are taken by people who will not pay the energy bills, and raising energy prices to a level that would adequately guide decisions has not been politically acceptable.