

Annex Finland - Climate Targets

Summer 2025

1 Finland

The EU and Finland has set targets in what the overall share of the energy consumption is going to be produced by the different energy sectors. Therefore I have added the overall targets in percentage and the breakdown of production in TWh [1, 59]. There seem to be a lack of concrete numbers of the capacity in total numbers. They write, as other Nordic countries, that the market has the ability to compete with fossil fuels because of the EU ETS scheme [2, 115]. They, also, have as a target to be climate neutral by 2050 and carbon neutral by 2035. They see more integration in the Nordic electricity market and research cooperation. The NECP is written in english making it more readable and making me more confident that the numbers I report are accurate.

1.1 Supply

These are the overall percentage targets and assumed devolvment of Finland. However, they give no precise plan on the amount of capacity for the breakdown only how much TWh every category will produce.

1.1.1 Percent Targets

Indicator	2025	2027	2030
RES overall	55%	58%	62%
RES-E	61%	63%	65%
RES-H&C	66%	69%	74%
RES-T	26%	37%	53%

[1, 57]

1.1.2 Capacity targets

There are non-binding targets for off shore wind that is 1 GW in 2030, 5 GW in 2050, and 12 GW in 2050 [2, 60]. I have written them into the excel file, but with the problem dummy being 1.

1.1.3 Targets in TWh

Here is the most comprehensive idea we get about what the production capacity of each sector will be. However, these are estimates under the WEM scenario and are not targets.

Table 1: Renewable energy per sector and technology in the WEM projection [TWh of gross final consumption].

Indicator	2022	2025	2027	2030
RES Overall				
Hydropower	15	15	15	15
Wind power	17	25	28	33
Solar energy	1	2	4	6
Bioenergy	99	111	114	116
Heat pumps	10	11	11	12
Total	141	164	171	181
RES-E				
Hydropower	15	15	15	15
Wind power	17	25	28	33
Solar energy	1	2	4	6
Bioenergy	12	14	14	14
Total	44	56	61	67
RES-H&C				
Solar energy	0	0	0	0
Bioenergy	81	91	91	91
Heat pumps	10	11	11	12
Total	91	101	102	103
RES-T (excl. coefficients)				
Liquid biofuels	5	6	8	10
Biogas	0.4	0.7	0.8	1.1
Renewable electricity	0.6	1.1	1.9	3.0
Total	6	8	10	14

[2, 59]

1.2 Demand

There is no specific electricity demand, but I did find the general energy demand - and I assume that with the percentage goals one could find a measure to describe some total electricity demand.

Year		2010	2015	2020	2025	2030	2035	2040
Final energy consumption	ktoe	26482	24560	23945	24863	23810	22638	21927
By sector	ktoe							
Industry	ktoe	10963	10512	9901	10163	10245	10155	10021
Residential	ktoe	5978	5277	5237	5610	5199	5015	4780
Tertiary	ktoe	4486	4029	4089	4162	4034	3926	3875
Transport	ktoe	4394	4180	3963	3893	3434	2924	2632
Other	ktoe	661	562	755	1037	898	618	619

[2, annex-1]

1.2.1 Heat pumps

Heat pump targets were found in the TWh table i.e. table 1.

1.2.2 EV-Targets

According to the IEA, Finland has a target of having fossil free transport by 2045 and a roadmap of reaching 750,000 passenger EVs by 2030 and 45,000 light electric trucks. The target for 2045 is 2 million passenger EVs [1] [2, 49].

1.2.3 Climate targets

Finland aims to be carbon neutral by 2035. [2, 91]

1.2.4 Energy storage

Under the energy storage section of the NECP it says that there is little energy storage in the country, but with new projects there will be 5 gw of hydro storage which I have assumed is by 2030 [2, 155].

References

- [1] Finland: Heat Pump Market Outlook.
- [2] NECP. Finland - Final updated NECP 2021-2030 (submitted in 2024) - European Commission.