

Can the electricity sector be 100% renewable in the Faroe Islands?

In 2030 the electricity sector in the Faroe Islands should be 100% renewable, according to the local electrical power company SEV. It is therefore necessary to study, how this goal can be reached with the minimum costs. This can be determined through optimisation of the future electricity sector. This paper presents such an optimisation.

Why is Sev the main power supplier in the Faroe Islands?

SEV is the main power supplier in the Faroe Islands. We operate on 17 of the 18 islands that constitute the Faroe Islands. Isolated in the North Atlantic Ocean, the Faroe Islands need to be self sufficient in terms of electricity generation as the Faroese electrical grid is not interconnected to neighbouring countries.

Should the Faroe Islands be self-sufficient?

Isolated in the North Atlantic Ocean, the Faroe Islands need to be self sufficient in terms of electricity generation as the Faroese electrical grid is not interconnected to neighbouring countries. SEV operates six hydro power plants, three thermal power plants, three wind farms and one solar power plant.

Are the Faroe Islands a sustainable country?

Did you know that the Faroe Islands is one of the world's leading nations in producing sustainable electricity with over 50% of the nation's electricity deriving from renewable energy sources? There is no shortage of renewable power in the Faroe Islands, due to the ocean currents and tides of the Northeast Atlantic and an abundance of strong wind.

How many wind farms are there in the Faroe Islands?

Furthermore, external suppliers operate one wind farm and one biomass plant. Total installed capacity in the Faroe Islands is 163 MW and total power generation in 2019 was 386 GWh. Max demand was 63.1 MW in November 2020. In 2018, 49% of power generation came from renewable sources, i.e. hydro and wind power, respectively.

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The results show that if the least-cost path to a 100% renewable electricity is followed, SEV should invest in 98 MW of wind power, 125 MW solar power, a battery system of 1.6 MW/6.7 MWh and



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In ratios of average consumption in 2030, installed power will be 224% wind, 105% solar with 8-9 days of pumped hydro storage according to the proposed RoadMap. The plan is economically favorable up to 87% of ???

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The Faroe Islands' total energy consumption on land and at sea is distributed mainly between ships, transport, industry, heating and electricity consumption, a total of about 3,800 GWh in 2020. In the big picture, oil accounted for 92 %, while 8 % came from green energy sources on land, mainly hydropower and wind energy but also energy from



Helma Maria's PHD focused on two crucial questions: firstly, how to secure sufficient renewable energy supply, including the necessary number of wind turbines and solar panels required, and the optimal amount of storage capacity.

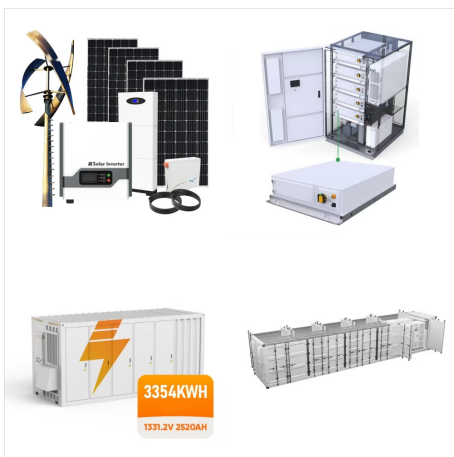


There is no shortage of renewable power in the Faroe Islands, due to the ocean currents and tides of the Northeast Atlantic and an abundance of strong wind. With an existing network of hydropower from mountain streams and lakes, converting other sources of natural power into affordable green energy is a top priority.

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The project outlined economic paths for reaching a power system supplied by renewables alone. Though the Faroe Islands have abundant energy resources such as hydropower, wind power and tidal power, the challenge was how to balance such a relatively small electrical system.



For the electricity supply of isolated communities Islands or largescale national grids, there is an ongoing discussion on the best configuration of systems assuring secure operation without



In 2030 the electricity production in the isolated power system of the Faroe Islands, will be 100% renewable, if the set vision is met. Moreover, both the heating and transport sectors will

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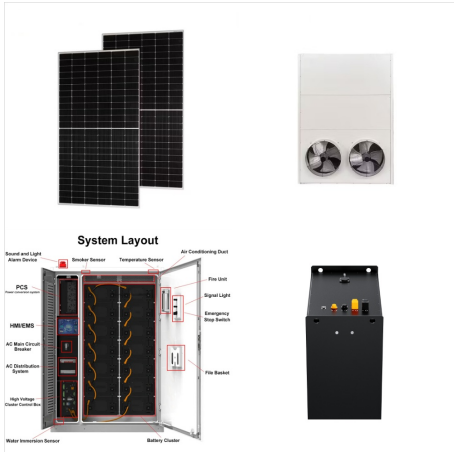


In ratios of average consumption in 2030, installed power will be 224% wind, 105% solar with 8-9 days of pumped hydro storage according to the proposed RoadMap. The plan is economically favorable up to 87% of renewables, but in order to reach a 100% renewable production in an average weather year, the renewable generation capacity has to be



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