Institute of Transport Economics
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Summary

The Ambitious and the Ambivalent

Sweden and Norway's Attitudes Towards New Domestic Renewable Energy Sources

TØI Report 1784/2020
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Oslo 2020 61 pages English language

The Paris agreement outlines that the world's countries are to work to attain a global warming "well below" 2 degrees Celsius and strive to achieve a warming of maximum 1,5 degrees Celsius. To achieve this, a radical reduction of greenhouse gas (GHG) emissions in all sectors is needed. These emissions stem from several sectors, including the production and consumption of energy. In the future, almost all or all energy consumed globally will thus have to stem from zero-carbon energy sources, not least from renewable energy. New renewable energy sources include the energy sources: solar energy, wind energy, geothermal energy, bioenergy and ocean energy.

Sweden and Norway have long sought to be environmental frontrunners internationally. For example, they have institutionalized policies on environmental and climate issues and have taken ambitious positions in the global climate negotiations over the last decades. With great access to domestic renewable energy sources and substantial financial and institutional capacity, both Sweden and Norway have considerable potential to become early cases of carbon-neutral societies. They can achieve this by several means, including: using renewable sources to produce electricity, heating and cooling, using renewable sources as fuel in the transport sector, as well as by reducing energy consumption.[1] Thus, it is of particular interest to focus in on these countries to further understand the factors that may stimulate and hinder the expansion of new renewable energy in affluent countries with ample renewable energy resource bases.

Sweden and Norway's energy systems featured several similarities in the 1960's, and show numerous other political and institutional similarities as well. Nevertheless, the neighboring countries for many years chose completely different paths as regards the investment in research, development and installation of production facilities for the various renewable energy sources, in particular in relation to new renewable energy sources. Therefore, this study asks:

> *Which factors might explain the large differences between the installation of facilities for production of new renewable energy in Sweden and in Norway, and what can we learn from this?*

The study focuses on the production of new renewable energy in the Swedish and Norwegian energy systems from 1960 until 2015. The method used is the comparative method of "most similar systems design." Data sources include 16 interviews with key/elite informants in Sweden and Norway dealing with energy issues, documents from the public authorities, quantitative data, previous research and other data.

The analyses show that politics and public policies, as well as the natural resource base, have made profound impacts on which renewable energy sources have been developed in Sweden and Norway, as well as when and how. Sweden, which since 1970 has lacked

[1] Other strategies include carbon capture and storage (CCS) and increasing carbon sequestration.

access to new river systems where production facilities could be installed to provide the country with cheap hydropower, has generally implemented significantly more ambitious and comprehensive policies than Norway as regards new renewable energy. By consequence, by the end of 2014, the production of energy from the new renewable energy sources like wind power and solar power in Sweden was much higher than in Norway. As of 2020, this is still the case.

Differences in energy production from these sources might be explained by differences in: natural resource endowments, long-term research and innovation efforts, combined with the creation of markets and predictable public policies. Enhanced new renewables production has boosted energy security and contributed to stabilizing the energy systems in both countries. The joint Swedish-Norwegian certificate market for green electricity, which was introduced in 2012, contributed in 2014 to the expansion of cost-competitive or nearly cost-competitive renewables technologies: small-scale hydropower in Norway and bio power and wind power in Sweden.