



Energy transition and challenges for wind energy in Switzerland

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Abstract

Seeking to phase out nuclear energy, Switzerland needs to replace almost 40% of its electricity production over the next decades. Despite the commitment of the government to promote energy efficiency and renewable energy, the challenges for a sustainable energy transition are substantial. A recent survey indicates significant support for wind energy, even in people's own backyards. Important challenges remain, however, notably because the country is characterized by a large number of veto points that either slow down the authorization process, create uncertainty for investors or facilitate the effectiveness of opposition, even when it is small.

Like Germany, Switzerland launched its energy transition in 2011 to gradually phase out nuclear energy. The five nuclear power plants that produce 37.9 % of the country's electricity are to be decommissioned at the end of their safe life cycle and will not be replaced. This decision implies the need for a profound restructuring of the Swiss electricity system over the next decades. To ensure security of supply, the government wishes to increase energy efficiency and to make greater use of renewable energy sources such as hydropower (current share of supply: 56.4%) and new renewable sources (2.2%).¹ Today there are 34 wind power plants producing approximately 100 GWh of electricity, and the government aims to increase this production to 600 GWh by 2020 and to 4000 GWh by 2050.² Since 2009, there is a feed-in tariff for renewable energy and the

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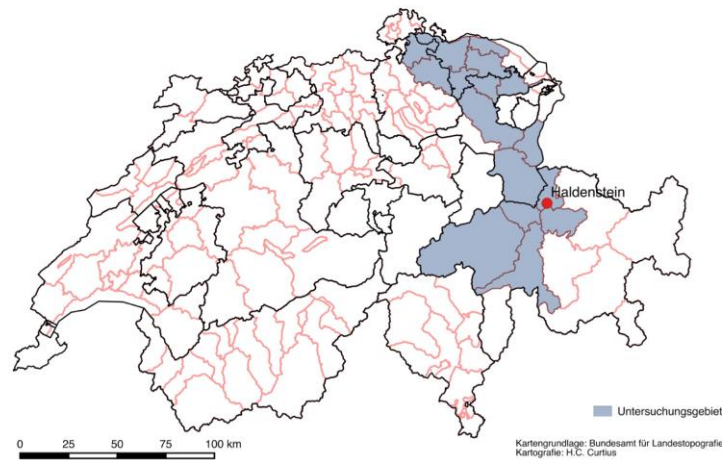
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Parliament is likely to increase these subsidies over the next months. It is also likely to define the use of renewable energy as a “national interest,” so that the goal of securing energy supply can be balanced with that of protecting natural landscapes.

Most of the installed wind power capacity is currently located in the Western Jura range. Cantons from other parts of the country only recently started to consider the implementation of wind power in their regions. This includes the Eastern part of Switzerland where several wind power projects are under consideration (Map 1). Besides issues of planning and construction, there is growing awareness that concerns over social acceptance have to be taken seriously if the ambitious targets of the federal government are to be achieved. In that sense, Switzerland faces many of the same challenges as Canada and other countries that have decided to invest in renewable energy either to phase out nuclear power or to meet their climate change objectives.

In order to gain insights about public attitudes towards renewable energy projects, this research note summarizes key findings from a study on the social acceptance of wind energy that was conducted between the spring and summer of 2015 in Eastern Switzerland.[‡] The fieldwork included 15 semi-structured interviews with 18 stakeholders. A panel survey (N=1095) with a choice experiment was also commissioned to a private polling firm. The following addresses some of the initial findings.

Map 1 – Survey site: 16 districts with potential wind power projects



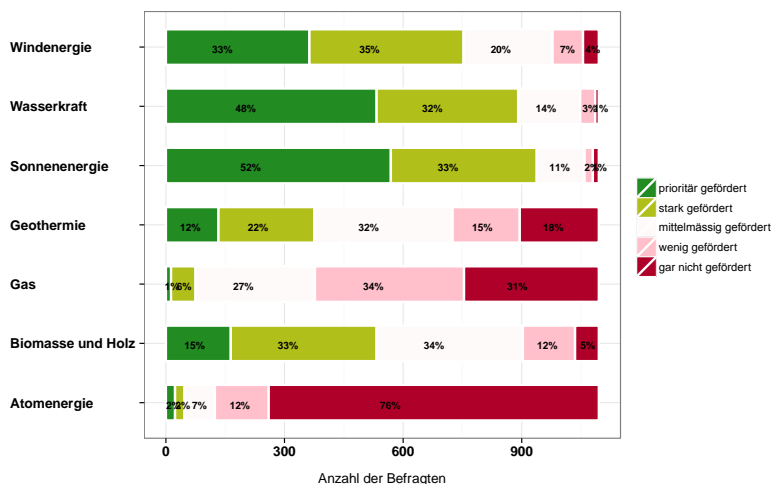
Public opinion and wind energy

What aspects of the so-called ‘energy transition’ do citizens most closely associate with? We find that the development of renewable energy scores highest among respondents to the survey, ahead of the phase out of nuclear energy and the reduction of energy consumption. Consistent with this perception, most respondents wish that their canton would promote renewable sources, especially solar and hydropower, but also wind as Figure 1 illustrates. By contrast, support for

[‡] Rolf Wüstenhagen and I conducted this study for the Institute for Economy and the Environment of the University of St. Gallen with the assistance of Andrea Tabi and Katharina Meyer. The Swiss government and the cantons of Graubünden, St. Gallen and Thurgau commissioned the study.

natural gas and nuclear energy is very limited. In general, respondents favour the energy independence of the country, even their canton, and are sceptical of energy imports from other countries.

Figure 1 – Support of different energy sources



Opinion polls often show a high level of acceptance of wind energy. What is more striking in our survey is that support remains high when people are asked whether they would approve of a wind power site near their municipality: 45% are ‘in favour’ of increasing wind power production in Switzerland and 37% ‘rather in favour’; 42% are ‘in favour’ and 39% ‘rather in favour’ of a wind power site in the vicinity of their municipality.

This support is strongest among Green and social democratic sympathisers, as well as among high earners and people under 50, but it remains well above 50% across the survey sample. The sight of a wind power plant from their house ‘would not’ or ‘rather not’ upset 63% of the respondents. Not surprisingly, the most popular place to build wind farms is where there is pre-existing infrastructure, such as transmission lines, highways or rail tracks. But interestingly, 49% of our respondents would even consider the construction of a wind power plant on protected land³ under certain conditions (e.g. financial compensation or the ecological upgrading of an equivalent area).

Opposition and veto points

The high level of public support, which is not only general and abstract but seems to include the acceptance of wind turbines within sight of one’s home, was also confirmed by other surveys in other parts of the country (e.g. Canton of Neuchatel in 2010, Canton of Fribourg in 2011). However, the currently installed capacity of 60 MW, which equals the consumption of 30,000 Swiss homes or 0.2% of the country’s overall electricity consumption, does not mirror the support expressed by the public.⁴ Why is Switzerland, despite its commitment to an energy transition and public support in favour of wind projects, having such a hard time boosting the proportion of wind in its energy mix?

The “not in my backyard” explanation (NIMBY) is the most common answer, but different studies show that the NIMBY phenomenon is more complex than it might seem.⁵ Our hypothesis

is that institutional factors play an important part in slowing down the sustainable energy transition. In contrast to Canada, the energy policy framework in Switzerland is characterized by a large number of veto points that either slow down the authorization process, create uncertainty for investors or facilitate the effectiveness of opposition, even when it is small. First developed to analyse the legislative process, veto points describe more generally all the stages in the decision-making process where the agreement of a specific actor is required for change to occur. In particular, the following features of the energy policy framework generate veto points:

First, due to the cooperative patterns of Swiss federalism,⁶ many important energy decisions that are made at the federal level need to be implemented at the cantonal level. This means that 26 cantons decide about the policies, strategies and means to attain the objectives set by Bern. For example, cantons have jurisdiction over the building sector, but they are also actively involved in the energy supply and territorial planning, all of which are critical to attain the federation's energy transition policy.

Second, Switzerland is characterized by an extreme degree of multi-level decentralization. In certain cantons, important powers remain with the municipalities. A municipal referendum is mandatory for all wind energy projects, which means that citizens have the final say on the approval of a project on their territory. The referendum occurs at the end of the planning process.

A third feature is the overlap of sectoral policies with often diverging objectives. Territorial planning plays a key role for wind energy projects. There is a federal-level territorial planning framework, but each canton develops its own territorial plan that has to be approved by the federal government. The cantonal plans are in general subject to broad-based consultation processes, in which various stakeholders (environmental groups, professional associations, etc.) take part. These processes are often lengthy and their outcome is unpredictable, which creates uncertainty for wind energy developers and investors. Moreover, environmental impact assessments automatically accompany planning approvals, and environmental organizations have a well-institutionalized right of appeal.⁷

Of course, the geography of Switzerland, and in particular its high population density, does not allow the development of large wind farms such as the ones we find in Canada or Germany. But numerous land use restrictions shape a regulatory density that further limits the number of places where wind farms could be built. The unavailability of land, either for physical or for institutional reasons, strengthens the veto points we have sketched out above. For example, potential sites have to be excluded because they are in conflict with airport traffic control or situated on land that is protected by the so-called *Federal Inventory of Landscapes and Natural Monuments of National Importance*.

Conclusion

Up to now, wind energy projects triggered only local opposition, but no countrywide and coordinated mobilization. The population we surveyed is relatively positive about wind energy in the regions where the construction of farms is under consideration. Nevertheless, the challenge is very high if Switzerland counts on wind energy to fill in a part of the gap that the nuclear phase out will leave in the country's electricity supply. Federalism, multilevel decentralization, sectoral policy overlap and regulatory density generate multiple veto points, which allow different stakeholders to easily resist wind energy projects.

¹ See, http://www.bfe.admin.ch/themen/00526/00541/00542/00630/index.html?lang=de&dossier_id=00768 (accessed on September 7, 2015).

² See, http://www.bfe-gis.admin.ch/storymaps/EE_WEA/index.php?lang=en (accessed on September 7, 2015).

³ The so-called BLN areas: Inventory of Landscapes and Natural Monuments of National Importance.

⁴ See, <http://www.suisse-ecole.ch/de/windenergie/statistik/> (accessed on September 7, 2015).

⁵ See, for example: D. Bell, T. Gray, et C. Haggett, (2005), “The “Social Gap” in Wind Farm Siting Decisions: Explanation and Policy Responses,” *Environmental Politics* 14(4): 460-77; P. Devine-Wright, (2005), “Beyond NIMBYism: towards an integrated framework for understanding public perceptions of wind energy,” *Wind Energy* 8(2): 125-39; M. Wolsink, (2007), “Wind power implementation: The nature of public attitudes: Equity and fairness instead of ‘backyard motives,’” *Renewable and Sustainable Energy Reviews* 11(6): 1188-1207.

⁶ S. Wälti, (2010), “Multi-level environmental governance,” In H. Enderlein, S. Wälti and M. Zürn. *Handbook of Multi-level governance*, Cheltenham. Edward Elgar, p. 414.

⁷ A. Flückiger et al., (2000), *Wie wirkt das Beschwerderecht der Umweltschutzorganisationen?* Bern. BUWAL.