



# **Market Regulation and Multilevel Governance. The German Approach to Promote Green Energy**

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Changing the energy supply from a system based on fossil fuel, carbon, and nuclear power to green energy constitutes a long-term societal project. It will transform industry and business, housing and transport, the living conditions of people and politics thereof. Energy transformation, as we can label the challenge and the process underway, is a complex task affecting different actors in government, economy and civil society, touching upon different policy fields, and including different jurisdictions at the local, regional, national, and international level.

In the EU and its member states, as well as in Canada, several policy instruments are applied to promote energy transformation. Emission Trade Certificates and carbon taxes should increase the costs of producing greenhouse gases. Banning particular energy sources can change the energy-mix and increase pressure to use green sources. Different programs aim at efficient energy consumption and others should stimulate the development and use renewable energy.

This paper focuses on a particular policy approach determined to advance energy transformation, introduced in Germany with the “Renewable Energy Sources Act of 2000”, which combined regulation of the energy market, determined to feed-in renewables into the grid, with subsidies of these new sources by a guaranteed tariff. Regulation privileging renewables in the electricity market started as far back as when the “Electricity Feed-in Law of 1991” came into force. In 2000, the federal government decided to phase-out nuclear power and amended the existing legal rules to promote green energy. Meanwhile, many European states imitated this approach, and it has traveled around the globe, from China, Japan and Australia to Israel, South Africa and Uganda. At the subnational level, a number of states in the U.S. adopted this policy. In Canada, the government of Ontario followed suit in 2009, but ended their program in 2016. This paper will focus on the German version. As the policy has been applied for quite some time in Germany, this case reveals the positive effects of this approach to promote green energy, in particular its transformative force and systemic impact, but also the inherent risks, which, as I will show, are less of an economic and more of a political nature.

The policy to promote green energy gained ground in Germany after the 1998 federal elections. For the first time, the Green Party, which emerged in the wake of protests against nuclear power during the late 1970s, joined a coalition government with the Social Democrats. While the mission of the Green Party was to end nuclear power, the coalition government continued efforts to promote renewable energy that started in the 1970s. For this purpose, the regulation of the energy market was revised with the Renewable Energy Sources Act of 2000. Building upon the 1990 Act, this law incorporated three basic provisions. First, renewable energy should be privileged in the market. The regulation compelled suppliers of electricity to accept power generated from renewables. Second, expensive renewables were subsidized in order to stimulate their expansion. The law established feed-in tariffs, which compensated investment costs for providers of renewable energy and tariffs were guaranteed for 20 years to ensure a secure return of investment. Third, costs of these subsidies for renewables were charged to consumers, rather than

taxpayers. Thus, the incentive to invest in new technology came with disincentives to use electricity, determined to reduce energy consumption.

What might appear as a specific regulation of electricity supply has in fact turned out to be a policy with both transformative power and systemic impact. Its transformative power results from the market mechanism, which the regulation shapes to the benefit of renewables. Subsidized, cost-related tariffs make new technologies competitive in the electricity market. They support small enterprises, farmers, and homeowners to participate in a market so far dominated by big industries. Incremental adjustment of subsidies in response to technological and market development prevents windfall effects, which might obstruct the market mechanism. The financial burdens of energy transformation are allocated also via the market with the effect that these costs should be taken into account in consumers' decisions on their use of energy. Thus, a regulated market mechanism drives transformation, and transformation indeed is under way. The annual share of renewables in electricity has significantly increased since 1990 from 3.4 per cent to 36.0 per cent<sup>2</sup>.

Beyond that, the policy triggered systemic effects. Focused on electricity, it affects further dimensions of the energy system. Accordingly, federal, *Länder*<sup>3</sup> and local governments launched additional programs and measures in related policy fields like housing, transport, agriculture, climate or environment. In society, the change in industry structure and interest organization appears to be the most significant impact. In contrast to old energy supplied by big companies, renewables are provided to a considerable extent by small and medium-sized firms, by farmers or by communities of citizens, and finally by individual homeowners. The corporatist structures linking government with energy corporations partly dissolved, and instead, a plurality of decentralized energy providers emerged, with regional and local governments having emerged as significant players in politics. These political, economic, and societal dynamics have found expression in a change of the policy paradigm flagged as "*Energiewende*".

While the regulated market drives change in the energy mix, systemic effects transgress the market. More often than not, they appear as external effects or redistributive consequences giving rise to contradicting dynamics. In complex transformation processes, the market inevitably comes to its limits, and in several respects, governments have to cope with market failure, as is revealed in German energy transformation.

First, electricity trade requires a particular infrastructure. The operation of the market for electricity depends on complicated calculations of energy demand, on technical instruments to control electricity supply, and on a market design allowing prompt reactions to an imbalance between demand and supply. The grid operators play a central role in fulfilling these tasks. They are also responsible for the grid, a public utility not provided by

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<sup>2</sup> Federal Ministry for Economic Affairs and Energy report, "Development of Renewable Energy Sources in Germany 2017," March, 21, 2018, page 7, [https://www.erneuerbare-energien.de/EE/Redaktion/DE/Downloads/development-of-renewable-energy-sources-in-germany-2017.pdf?\\_\\_blob=publicationFile&v=17](https://www.erneuerbare-energien.de/EE/Redaktion/DE/Downloads/development-of-renewable-energy-sources-in-germany-2017.pdf?__blob=publicationFile&v=17).

<sup>3</sup>The term *Länder* refers to the sixteen States of the Federal Republic of Germany; also known as *Bundesländer*.

the market. If turned into private property, the grid constitutes a natural monopoly to be controlled by government. With the rise of renewable energies and the lack of sufficient storage capacities, the grid has to be restructured and extended, not in the least due to spatial disparities of energy supply and demand. With its decision on a general strategy of energy transformation privileging particular energy sources, the government determines whether and how the grid needs to be extended. Yet changes in the grid affect the location of new power plants. Therefore, promotion of energy by subsidies and adjustment of the grid need to be harmonized.

Second, like most investments and like other energy forms, those in renewable energy cause external effects, although not on a global but on a local level. Wind turbines have impacts on nature and landscape; biogas production causes conflicts with food production and has negative effects on nature; hydropower changes landscapes and may affect the local climate. Investments in the grid also cause external effects. Decisions on new power lines regularly give rise to protests among citizens, farmers or local communities who fear negative impacts on their property or environment. Hence, many conflicts arise in the implementation of green energy, and the dynamics of transformation induced by the market only intensify the level of conflicts.

Third, financing feed-in tariffs by a surcharge increases the costs of electricity for consumers. In general, rising prices is an issue causing political debates. In the special case of electricity, it has also redistributive effects with social consequences. In Germany, a significant number of firms with energy-intensive production are exempt from paying the full surcharge on the electricity price, although these additional costs of production could motivate companies to save energy. Certainly, industry is also charged by the European Emission Trade system. Yet, both policies are not coordinated and the costs of emission certificates had been rather low and only recently increased significantly. What contributes to political debates is the fact that people who are not able to invest in energy-saving measures bear the burden of energy transformation by the market. Hence, people with low income have to spend an increasing share of their available revenues for electricity.

Fourth, the transformation of the energy system has different regional economic impacts. On the one hand, production structures of regional economics vary, and so does, in consequence, the demand for energy and the supply of energy. In Germany, nuclear power is located mainly in the south and in the north, whereas lignite mining is concentrated in North Rhine-Westphalia and Saxony-Anhalt. On the other hand, the balance of costs and benefits of green energy promotion differs between regions. Some profit from the fact that subsidies are higher than surcharge, whereas in other regions, this balance is negative.

Finally, the transformation of energy supply has cross-border effects, since oversupply from renewables may cause grid congestion in neighboring countries which are integrated in the common energy market of the EU. The oversupply from German green resources appears particularly counterproductive, threatening pumped-storage power plants in the Alps (Switzerland and Austria). They operate with high fixed costs, i.e. costs incurred

regardless of delivery of electricity. Therefore, they are not able to adjust to declining of market prices or decreasing demand caused by temporal “oversupply” of energy.

One might consider these negative consequences as an indication of policy failure. Yet, they actually result from a regulated market designed to promote green energy. Markets always cause external effects and problematic redistributive consequences. Therefore, not only the success of renewables in the market, but also the symptoms of “market failure” prove the transformative force of the policy approach to promote green energy outlined above. A new technology requiring new investments necessarily increases costs, and if these costs are distributed via the market, the result does not conform to norms of distributive justice shared in a society. Moreover, the regulated market induces investments generating social costs. Neither the distributive effects nor the social costs speak against governance by market mechanism. Rather, they call for policies coping with these effects. It is for governments at different levels and administrations responsible for affected policy fields to manage the various side-effects of a transformation of the energy system.

Without appropriate complementary policies, energy transformation is likely questioned in principle. Recent public debates on energy policy in Germany demonstrate that unintended effects of transformative mechanisms can be turned into an argument against the promotion of green energy. Of course, coping with external and redistributive effects does not rule political disputes on energy transformation. However, energy transformation requires a combination of market mechanism and political governance. As the German case illustrates, a multilevel political system provides the necessary competences to respond to various kinds of market failure. Yet, the efforts of various governments and administrations need to be coordinated in order to avoid reciprocal interference of incoherent decisions. In view of political conflicts, multilevel coordination is unlikely to succeed in the usual patterns of intergovernmental negotiations or joint decision-making. Therefore, energy transformation also requires a change in multilevel governance.

In Germany, new forms of multilevel coordination emerged in energy policy. The federal department for economics and energy established “joint tasks”. In contrast to institutionalized intergovernmental cooperation, which the German constitution defines under this label, the federal strategy to transform the energy system combines existing conferences of federal and *Länder* governments or federal-*Länder* administrative networks with thematic working groups including experts and stakeholders from the relevant sectors. The *Länder* governments have set up similar platforms of communication, like, for instance, the forum “Future of Energy” in *Hesse*. In all these governance arrangements, cooperation is highly informal and flexible. It aims at intensifying exchange of information, gaining scientific and practical knowledge, and stimulating mutual learning. At the federal level, the overall strategy of energy transformation should be elaborated in this context. In principle, the structure of coordination seems appropriate to adjust the promotion of green energy to technological development and changing market conditions, as is revealed by regular revisions of the relevant law and the “fine tuning” of feed-in tariffs for the different energy sources. Federal energy policy has proved its flexibility, although the transformation became increasingly controversial in party politics.

Grid restructuring also constitutes a multilevel task. Coordination starts with a framework program outlining future development, continuing with federal legislation determining the required power lines, before the federal or *Länder* administrations decide on the particular projects. The scenario guiding the political and administrative decisions has to be revised every other year. All stages of the process are open to participation of stakeholders, interested citizens or civil society organizations, *Länder* and local governments. Nonetheless, cooperation between grid operators and the Federal Network Agency strongly influences planning. Critics consider the complicated process to have caused delays in the implementation of grid restructuring. However, the reiteration of the planning cycle inhibits investments in the grid to determine the development of the energy system.

The energy mix actually results from decisions on power plants, which have to conform to territorial planning of the *Länder* or their regions and have to be approved by regional or local administrations. Conflicts with affected citizens are managed at the local level. These conflicts in particular concern the installment of wind turbines, which - like in other countries - are a contested issue in Germany. Meanwhile, political parties at the Land and federal levels respond to resistance of local citizens, invigorating political debates on energy policy.

With the exception of cross-border impacts that have been dealt with in bilateral negotiations among responsible administrations and corporations, external effects caused by the success of green energy in the electricity market have led to a politicization of energy transformation. Therefore, the broad societal consensus on the need for change in energy supply is presumably eroding. In contrast, redistributive effects so far have remained an issue looming in the background in Germany. Certainly, parties and media discuss high electricity prizes and use them as a reason to contest energy transformation. Yet, social problems due to rising energy costs have been addressed by a number of measures at the federal, *Länder* and local levels. While the federal and Land governments support pilot projects in selected cities, local governments provide advice and financial support to consumers in need. Considering regional disparities, grid operators have introduced a territorial equalization mechanism in the allocation of revenues from feed-in-tariffs, which, however, turned out as quite complicated. So far, this issue remains a matter of experts.

As these examples demonstrate, policies responding to the transformative dynamics and systemic effects of the electricity market are variegated. They combine to form a complex setting of multilevel governance. In contrast to the traditional pattern of joint decision-making, they have generated a structure consisting of loosely coupled arenas of policy-making at all levels of government and in different departments, which often include private actors and civil society organizations. They encompass the federal platform “*Energiewende*”, similar arrangements established in the *Länder*, and local public-private networks. Moreover, the European Energy Union evolves as an additional arena where goals are defined and where communication among member state representatives as well as diverse policy networks support policy innovation and diffusion.

Certainly, German market regulation designed to promote green energy and multilevel governance determined to manage systemic consequences should not be considered as an unconditional success story. Coordination problems, still persisting corporatist structures between grid operators and federal administration or between coal industry and the Land governments concerned, and political conflicts among federal and *Länder* governments or between parties forming coalition governments obstruct the transformative dynamics set off by previous changes in energy policy. Nevertheless, the German case demonstrates that promoting green energy reaches beyond the support of new investments or a new technology. It necessarily implies a transformation of the whole energy system. Hence, governments are confronted with a multifaceted task of designing the energy market and policies coping with the external effects and redistributive consequences of market transactions.

Beyond that, the case of Germany reveals that energy transformation requires the coordination of decisions made at different levels of government and different departments of government and administration. Market regulation needs to be complemented by multilevel energy governance, one fostering significant change and facilitating regular policy adjustment, including patterns of coordination with changes evolving during the transformation process. There is no model how to design such a structure of multilevel governance, not the least as it needs to fit into given different institutional conditions. However, it seems to be obvious that the diverse territorial and functional arenas of policy making contributing to energy transformation should be linked in a loosely coupled, network-like structure. In these structures, dense communication can support policy innovation and policy coordination. Moreover, they provide a basis for elaborating binding agreements, which are to be approved or transformed into law in the responsible institutions.

Although market and multilevel governance constitute basic mechanisms for promoting green energy, energy governance is not a technocratic matter. Rather it is a highly contested political issue. For this reason, policy-makers have to consult with civil society, as is intensely practiced in Germany. Finally, however, elected representatives have to assume responsibility for decisions, even if they incur costs and redistributive effects, which are inevitable in processes of transformation. Populist politics, i.e. politicians who claim to defend the “common people” against elitist politics or private companies, jeopardizes energy transformation no less than a technocratic approach solely relying on expertise and the market.