

# EU coercion or voluntary national decision-making? The shift towards auctions in German renewable energy policy

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## Introduction

The German renewable energy policy development is a pioneering case. Germany has gained considerable attention since 2000, when the government introduced its policy plans for an energy transition, the *Energiewende*. Already in the 1970s, the government introduced strategies for this ambitious transformation and has continuously reinforced such strategies ever since. In order to make the transition happen, the government has introduced policy instruments such as a generous feed-in tariff. This policy instrument has been of global importance for the development of renewable energy technology and provision. Germany's feed-in tariff instrument has received significant consideration as a role model to follow for other countries. However, in 2014 Germany introduced pilot auctions for solar energy. Two years later the government controversially decided to switch from feed-in tariffs to auctions. The turn is fundamental as it changes from a scheme where every provider of renewable energy has the right of support to a competitive approach based on auctions. This occurred at the same time as the European Commission changed its state aid guidelines in 2014. The new state aid guidelines prescribe a competitive approach, according to which feed-in tariffs no longer comply.

Authors therefore assume that the EU is to blame for the introduction of auctions (Tews 2015; Beermann and Tews, 2015). This is in contrast to earlier studies, where researchers argue that national governments typically adopt support schemes voluntarily (e.g. Jacobs 2012). Why did Germany two and a half decades after initiation introduce major changes to its renewable energy policy, breaking with its feed-in tradition?

To explain this change, we draw on insights from the Europeanisation literature as well as gradual institutional theories. We draw on the Europeanisation literature because we are interested in understanding whether and how the European Union (EU) has influenced the policy development in renewable policies in Germany. Researchers within this literature no longer treat the EU as one independent force for change, but argue that existing institutional arrangements in the member states influence adaptations to the EU (Olsen 2002). This means that there is also a need to draw on perspectives that highlight factors that may cause change domestically. We find gradual institutional perspectives relevant as the German Renewable Energy Sources Act (EEG) was never meant to be static, but continuously evaluated and changed accordingly. Since 2000, when the Act was first introduced, the German parliament has reformed the law five times. It is therefore interesting to assess whether the radical change in 2016 occurred gradually or was indeed enforced by an external force like the EU.

In the following sections we, first, present the theoretical framework, from which we derive expectations. Second, we elaborate on the qualitative data that we use. Third, we describe the development of the German policy of support for renewable electricity generation. Finally, we discuss the evidence in light of the theoretical expectations. We conclude that the European Commission has contributed to speed up the process of introducing market-oriented auctions for renewable energy support. However, there was also a push for change endogenously in the German political system. Due to increasing costs and big utilities' insolvency issues, the political majority wanted to control the quantity of renewable energy development and gradually introduced changes that eventually radically

changed the support policy for renewables. The mentioned domestic concerns are key in understanding why Germany introduced auctions.

## Theoretical perspectives

For the purpose of explaining the policy shift from feed-in tariffs to auctions in Germany, we make use of insights from: the Europeanisation literature to understand whether and how the EU has influenced the policy development in renewable policies in Germany; and gradual institutional theories to assess whether the radical change in 2016 actually occurred gradually.

### Europeanisation

Europeanisation as a concept has many meanings. One 'face' of Europeanisation (Olsen 2002) is that it refers to 'the consequences of European integration as they are observable within the member states of the European Union (and beyond)' (Goetz and Meyer-Sahling 2008: 4). As such, it is treated as an output caused by integration in many appearances. A large empirical literature has studied the effect of the EU on the member states, highlighting different processes through which the EU changes domestic policies. Some processes are voluntary and include mechanisms like learning (Ladrech 1994), which occurs when government draws lessons from the experience of others and then apply these lessons. While Claudio Radaelli (2008) argues that modes of governance that facilitates learning (e.g. the Open Method of Coordination) seldom facilitates Europeanisation, David Jacobs (2012) finds that such governance modes have effected Europeanisation via learning in the case of renewables policies.

In contrast, coercive adaptive pressures, such as 'institutional compliance' implies that EU legislation prescribes certain requirements with which the member states have to comply (Knill and Lehmkuhl 2002). Such coercive pressures constrain domestic policy making not necessarily directly via EU law, but also due to legal uncertainty arising from EU's market making policies (Schmidt 2008). Legal uncertainty related to judicialisation of policy-making, may make national actors change their

plans of policy-making or it changes their opportunity structures (Töller 2010). Similarly, negotiations in the 'shadow of hierarchy' (i.e. legislative threats or inducements) may affect national policy-making (Héritier and Lehmkuhl 2008). Anette Töller (2010) mentions state aid guidelines as an example, where the European Commission, given its far-reaching competence to ban certain activities, it negotiates with the member states rather than adopting formal decisions.

Europeanisation may be a combination of voluntary and coercive policies (Radaelli 2003), but the softer for example European law is, the more difficult it is to find evidence that supports it. This is further complicated by the fact that in practice there is no clear line between what is EU influence and what is influence from other sources. As factors at the EU and national level interact (Olsen 2002), there is a need to include policy change perspectives that have been developed studying domestic policy.

### Gradual institutional theories

The German system has regular evaluations of many of its laws, among others the EEG, which was never meant to be fixed. Therefore it could be expected that a certain degree of openness to change is endogenous in the EEG and that gradual institutional theories provide useful insights for understanding the policy development in this field. We draw on gradual institutional theories as developed by Kathleen Thelen and co-authors (Mahoney and Thelen 2010a; Streeck and Thelen 2005), which include four key types of change: displacement, layering, drift and conversion. We focus on gradual displacement and layering, as we are interested in the actual shift of rules rather than the interpretation of rules and whether actors abide by them, which is more prominent for drift and conversion. We argue that it is useful to use gradual institutional theories to address policy change, because policies like institutions represent rules.

Displacement refers to the replacement of existing rules. While displacement may be radical and seem abrupt, the gradual institutional perspective proposes that it has occurred slowly (Mahoney and Thelen 2010b). This theory assumes that actors who did not benefit from the old system push for

new institutions. Gradual displacement takes place, if those who favour the old system are not able to prevent abandonment of the new rules. Layering differs from displacement as it introduces revisions or additional 'layers' to existing rules rather than completely new ones (Mahoney and Thelen 2010b). Such 'differential growth' (Leiren 2015) happens when opponents are not able to shift the original rules, but from within the system manage to circumvent unchangeable rules, by introducing new voluntary rules on top of the existing (Streeck and Thelen 2005).

To assess whether gradual institutional theories contribute to explain policy change it is necessary to collect evidence that portrays, in Boasson's (2015) terminology, the political and organisational field. Political field factors include political conflict and the distribution of power between parties. Organisational field factors involve private and public organisations and the power relationships between them. A mapping of such factors is relevant in order to understand who the actors are that seek to keep the existing rules and who wants to change the rules and how powerful these actors are. This is pertinent as displacement is unlikely when the protectors of the existing rules are powerful: Under such circumstances, layering is more likely (Mahoney and Thelen 2010b).

## Data

The data is primarily qualitative. Sources of written data are official documents such as policy papers, consultancy reports, hearings, newspaper articles, homepages of public authorities such as the German Ministry of Economics, which has thorough information about the changes of the Renewable Energy Source Act as well as different interest organisations' websites. We draw on secondary literature in particular when describing the earlier phases, as there is an extensive literature addressing the German energy transition.

We have also collected data via 16 interviews, which took place in Berlin and via telephone in November and December 2016 and February-April 2017. The informants include a citizen NGO

(Interview 1), a renewable energy association (Interview 2), environmental NGO (Interview 3), economic association (Interview 4), large energy utility (Interview 5), political advisor for a Green party politician (Interview 6), energy transition policy advisor (Interview 7), Green party politician (Interview 8), civil servant in the Ministry of Economics (Interview 9), former Green politician (Interview 10), renewable energy association (Interview 11), consultant (Interview 11), renewable energy association based in Brussels (Interview 13), environmental NGO (Interview 14), energy expert (Interview 15). Topics include perceptions about the rationale behind the development of the policies, administrative or organisational factors, patterns of conflict, coordination among actors, influence from the EU as well as economic aspects and structural factors of the national energy systems. Anonymity ensured that informants could speak freely, which we consider more important than the benefits of knowing the source of each statement.

## From Feed-in-Tariffs to auctions

It is important to understand the roots of the German energy democracy to recognize the emergence of the feed-in tariffs as well as the change to auctions and the resistance against the switch to auctions. The oil crisis in the 1970s hit Germany hard and made the national government continue its nuclear energy programme from the 1950s and search for new nuclear sites (Agora 2015). The government met resistance from a societal protest movement, which inspired nuclear opposition throughout Germany (see Morris and Jungjohann 2016). The Chernobyl accident in 1986 highlighted the perceptions of nuclear risks to the society. At the time, 86 per cent of Germans supported a nuclear phase-out (Hake et al. 2015, p. 536).

Despite resistance, the governing coalition between the Christian Democratic Union (CDU) and its Bavarian sister party, the Christian Socialist Union (CSU), as well as the Free Democratic Party (FDP) were in favour of nuclear power (Hake et al 2015). In opposition, the Social Democrats (SPD) committed themselves to phase out nuclear power although the party was divided on the issue up

until the Chernobyl accident. The Green party, which was established in 1980 and rose out of the anti-nuclear movement, demanded an immediate suspension of all nuclear power plants even prior to the Chernobyl accident as the only political party in Germany.

Climate change was put on the agenda in 1987, when a broad consultative process including leading parliamentarians, prominent scientists and large industrial associations created a consensus for political action (Hatch 2007). In 1990 the Conservative government adopted Germany's first Climate Change Action Plan. CDU saw climate change as an opportunity to counterbalance the opposition to nuclear because it did not emit CO<sub>2</sub> (Hatch 2007).

Under these circumstances two backbenchers representing the CSU and the Green party used the opportunity to propose the feed-in tariff (Berchem 2006). They were able to gain support from other parliamentarians, who were interested in renewable energies, and eventually from all parliamentary factions before the *Grid Feed-In Law* was decided on in October 1990 (Stefes 2010). The *Bundesrat* also approved of the support scheme as it would reduce the financial responsibilities of the German states (ibid.). Focusing on the East German energy sector and underestimating future economic and political consequences of a feed-in tariff, the utilities failed to mobilise against it (ibid.). The private utilities benefitted from exclusive supply contracts with the municipalities, established regional monopolies and could refuse feed-in to their grid by local renewable energy producers (Jacobsson and Lauber 2006). When the reunification between West and East Germany occurred in 1990, the utilities tried to position themselves in the restructuring of the East German power sector (Agora 2015). Renewables did not fit the utilities' business models and the act gave no incentives for them to focus on renewable energies, economically nor legally as the law excluded corporations (Interview 5; StrEG 1990 §1.2; also EG 2000 §2.1).

However, the Grid Feed-In Law obliged power companies to purchase electricity from renewable sources and pay for it. It granted those who fed into the system a compensation of at least 90 per cent of the average cost of private customers. Yet the European Commission challenged the

law. Before entering into force 1 January 1991, the German authorities submitted the law for approval to the European Commission. While the European Commission's DG Competition initially argued that Germany should decrease the rates, the European Commission (2001) approved the law because the amount of the aid and its impact on electricity prices were minimal. However, in 1998 the German court asked the European Court of Justice questions about the interpretation of EU law related to the proceedings between the electricity suppliers PreussenElektra AG and Schleswig AG (de Lovinfosse 2008). The renewables energy feed-in tariff policy, as introduced through the Grid Feed-In Law, was challenged as inappropriate state aid (Gawel and Strunz 2014). This was the beginning of a long-lasting controversy between Germany and the European Commission.

1 April 1999 Germany introduced an electricity tax, which was imposed on electricity consumers in Germany, as part of the Law on the initiation of the ecological tax reform. The tax was incorporated into the basis for calculating the feed-in price. The European Commission (2001) took the view that the increase in feed-in price was incompatible with the state aid rules, but because the German government repealed the Grid Feed-In Law in 2000, the European Commission closed the investigation.

The act encouraged small, decentralised energy generation (i.e. the participation of individuals and citizen initiatives) and contributed to creating jobs and tax income. This broad base of participation in renewables also led to widespread acceptance among the public and politicians. In 1998, the Green party went to the election campaign with the parole, 'we want 100,000 roof photovoltaics' (Interview 8). The campaign was inspired by the social democrat Hermann Scheer, who together with the Green politician Hans-Josef Fell initiated the German feed-in tariff system. The topic became part of the coalition negotiations between the SPD and the Green party, who created the first red-green coalition under the leadership of Gerhard Schröder (SPD) (Interview 8). With close ties to the trade associations, including miners, coal was an important issue for the SPD. However, one of the fathers of the law, Scheer, was able to break the opposition from the coal interests in his party and form a coalition in

favour of renewables by introducing mine gas into the discussions (see Morris and Jungjohann 2016, p. 213). This led to the introduction of a more generous feed-in tariff.

In 2000, the government replaced the Grid Feed-In Law with the *Renewables Energy Sources Act* (EEG 2000). The amended EEG provides a feed-in tariff not only for renewables but also mine gas from coal mines. In contrast to the predecessor, the EEG differentiated to a larger extent between different renewable energy sources. While the remuneration in the Grid Feed-In Law was based on a uniform minimum reimbursement, the EEG tariffs differentiated between technologies depending on the energy source, capacity or location of the plant. Location of the plant as a criterion was introduced to ensure a profitability of wind turbines also in Germany's less windy regions, thereby aiming to reach a more even distribution of wind power plants all over the country (Ohlhorst 2015). In particular, the costs of installing solar were high. PV operators were therefore paid the highest reimbursement (99 Pfennig per kWh).

The new law became the key policy instrument for the *Energiewende*. The aim was to strengthen and promote sustainable development of energy supply within climate and energy protection (§ 1 Abs. 1 EEG 2000). The EEG set a target to increase the share of electricity generated from renewable sources from 5 to 10 percent by 2010. To achieve this, grid operators were obliged to prioritise renewable energy facilities, and renewable electricity producers would get a fixed rate of return over 20 years from the initiation of a project, ensuring predictability for the power producers. The rate would decrease every year. This combination of a fixed rate and an annual decrease in support 'has been of global importance for the introduction of renewables and the development of such technology' (Interview 8; see also Berchem 2006).

In order to adhere to the European Commission's guidelines on national regional aid, the government incorporated provisions of making an annual progress report of the status of costs and deployment of renewable energies into the EEG (Mendonca 2007, p. 32). Making location of wind a criterion for remuneration was also a way of complying to the guidelines related to over-

compensation. That way the government would avoid having to pay too high compensation rates for wind energy (Mendonca 2007).

However, pressure against renewables grew. As the new act would drive up electricity prices, the Federation of German Industry was concerned with German competitiveness, arguing that the law would create excessive burdens for the industry (Jacobsson and Lauber 2006). Similarly, the German Utilities Association criticised the law for imposing higher costs on consumers (ibid). The Ministry of Economics supported such concerns, but its role was weakened as the second red-green coalition (elected in 2002) decided to move the responsibility for renewable energy to the Ministry of Environment. The transfer increased the awareness of renewable energy in the German governmental administration and strengthened the support of the feed-in tariff system (Bruns et al 2009, p. 15).

This happened despite increasingly powerful utilities. Several energy companies merged at the turn of the millennium, eventually leading to the 'Big Four' E.ON, RWE, EnBW and Vattenfall. This was a result of the revision of the Energy Industry Act in 1998, which liberalised the energy market to accommodate an EU market directive (Kungl, 2015). While new firms took advantage of the feed-in tariffs and started to grow in the renewables sector (Kungl 2015), it was not particularly interesting for the Big Four to invest in renewables because the rates of return were not large enough (Interview 5; 8) and their key interest was in coal and nuclear.

Nuclear energy continued to be disputed in the political sphere and the public alike. All the political parties agreed that international climate change actions and faster renewables growth were necessary, while disagreeing about the role of nuclear (Hake et al 2015). One of the most important election promises of the Greens had been to phase out nuclear power plants. The Social Democrats were not particularly fond of nuclear either (Hake et al 2015). In 2000, after difficult negotiations, the red-green coalition and the energy utilities agreed on a 'nuclear consensus' (Bundesregierung 2000), which was transposed into law two years later. The nuclear consensus, which was a major accomplishment politically, gave the remaining 19 nuclear power plants a lifetime of 32 years. It

strengthened proponents of renewables, as renewables became the 'only' climate friendly energy source.

At the European level, the European Commission incorporated concerns about renewable energy in its state aid guidelines in 2001. The dispute between Germany and the European Commission about whether the feed-in tariff should be considered as illegal state aid continued. The *PreussenElectra* verdict in 2001 settled the issue, when the European Court of Justice decided that this feed-in tariff, under the given conditions, did not constitute as state aid, because there was no involvement of financial sources by the state involved. As a result, the European Commission could not prevent the feed-in tariff idea from spreading (Boasson and Wettestad 2014).

The red-green coalition, which was first elected in 1998, began to work on a revision of the EEG after it was reelected in 2002. In 2003 the parliament decided that energy-intensive industry would be exempted from the EEG surcharge (Special Equalisation Scheme Act 2003). The Ministry of Economics had initiated the exemption. Industrial interests and power suppliers wanted exemptions for industrial consumers to protect German firms so that they would continue to be able to compete internationally (Gründinger 2016). This exemption was important for maintaining a consensus about the EEG (Interview 7).

Due to cost efficiency concerns, the parliament decided to amend the EEG in 2004. The revised act decided that plant operators were responsible to pay for grid connection, while the grid operator would have to cover costs related to upgrading the grid (Mendonca 2007). The fee structure was differentiated further. The increased tariffs for PV made PV more attractive commercially, leading to a solar boom in 2004 (ibid.). Moreover, the EEG 2004 broadened the applicability of the feed-in tariffs so that bigger corporations and utilities could also participate (EEG 2004 §2).

Politically there was a conflict between the Green Minister of Environment and the Minister of Economics from SPD (Mendonca 2007). Arguing that the rates were too high, the Minister of Economics disagreed with feed-in tariff as a principle and proposed a tendering system. However, the

red-green majority in parliament decided to revise the government bill largely against the proposal by the Minister of Economics.

Criticism against the EEG arose among utilities and the FDP. CDU politicians also started to question whether a feed-in tariff with such high rates was still necessary. Typical arguments included that the EEG is too expensive, contravenes market rules, leads to more regulation and a vast extension of the grid (see Mendonca 2007). This played a role in the election campaign in 2005, when all parties (i.e. CDU, SPD, Grüne, FDP, Linke) addressed climate or energy concerns and called for renewable energies as part of the German energy mix, but disagreed about nuclear phase-out and how to support renewable energy (Greenpeace, 2005). The Green party and the SPD expected the EEG to make Germany an industrial world leader in PV and wind energy (SPD 2005; Bündnis 90/Grüne 2005). In contrast, the CDU/CSU and FDP wanted to change the scope of the German renewable energy policy. The CDU called for a 12.5 per cent share of renewables in the overall electricity mix (CDU 2005, p. 19). The FDP wanted to abolish the EEG and replace it with a more market friendly model (FDP, 2005, p. 18). The FDP also disagreed with the nuclear phaseout, calling for nuclear power to be an important energy source.

After the elections, the CDU/CSU and SPD created the 'grand coalition' under Angela Merkel. Sigmar Gabriel (SPD) became the Minister of Environment. Although industrial interests like the German Chambers of Commerce and Industry called for Germany to leave its climate leadership ambitions (Jänicke, 2010, p. 489), the coalition agreement between CDU/CSU and SPD continued along the same path as the former red-green coalition within the area of climate and energy policy (Bundesregierung 2005). In the coalition agreement, the government called for a reform of the EEG without any big changes.

After the general election in 2005 the grand coalition initiated a new policy formulation process (Seibt 2014), leading to new amendments in 2009. The EEG 2009 increased the renewables target (to 30% by 2020) and introduced a growth corridor with flexible degradation. If the annual PV

market growth exceeds the corridor, the degression rate increases by 1 per cent in the following year. A Green politician criticises these changes, arguing that the change in the balancing mechanism, i.e. how to calculate the EEG levy, was a 'major fundamental error' (Interview 10): The new way of calculating the renewable energy surcharge resulted in a surge in wind power production, so that the electricity price on the spot market became negative. It means that the power generators preferred to pay buyers to take electricity rather than ramping down their plants. At the same time, the surcharge on power rates rose, as the balancing mechanism was designed so that lower prices on the spot market for electricity raised the surcharge on power rates (Morris and Jungohann 2016). The 2009 amendment therefore made the EEG levy jump abruptly without providing any compensation payments to those covering the costs of the support scheme (Interview 10).

The inflated returns gave opponents of the support scheme possibilities to gain political benefits (Interview 10). Among opponents, interest groups like the German Solar Association, which benefited from the high rates, lost credibility as it continued to promote conservative prognoses and engaged in aggressive lobby activities (Seibt 2014). In contrast, promoters of the feed-in tariff highlighted that the high rates of return contributed to great investment and cheap solar energy production worldwide (Interview 10).

There was another important change in the legal framework for energy policy. The EU's Third Energy Packet obliged member states to separate energy supply and generation from the operation of transmission networks to avoid unfair infrastructure access (European Commission 2017). Germany transposed these rules into its Energy Sector Law (enforced in 2010). This regulation resulted in unbundling, forcing the integrated power companies to their electricity transmission network operators (Hesse und Bauchmüller 2010; Kloc and Koska 2012). The changes have been called 'a big mistake' because the unbundling made the financial situation of the big utilities more difficult (Interview 12).

On 11 March 2011, the Fukushima disaster happened. Four days later Chancellor Angela Merkel announced a temporary shutdown for three months of the nuclear extension plan, a safety check of all nuclear power plants and the shutdown of the seven oldest ones (Schreurs 2012). Suddenly there was consensus amongst all the parties in Germany that nuclear power was no longer an option (Huenteler et al 2012). In July 2011, the Parliament decided to reverse a 2010 decision to give nuclear power plants lifetime extension, rather the parliamentarians voted overwhelmingly in favour of shutting down eight nuclear power plants and phase out the remaining nine no later than 2022 (Schreurs 2012).

This was accompanied by an acceleration of electricity and heat generation from renewable sources. Many were concerned by this rapid development. In addition to the increasing surcharge on power, there were technical challenges and high cable costs related to offshore wind parks and bringing such electricity to shore (Schreurs 2012). Another issue was the lack of a high-voltage grid infrastructure that could transfer electricity from the northern states that produce a lot of wind electricity to the southern states, where there is a demand for more electricity (Schreurs 2012). The pressure on the grid from the growing wind power capacity in northern Germany made it relevant to for example, curb the feed-in tariff for renewables (Apunn 2015).

The good financial situation of the Big Four started to change as the demand for electricity decreased during the economic crisis. In 2004 the Big Four generated 90 per cent of the electricity and owned 82 per cent of the electricity production capacity (Bundesnetzagentur 2007). In 2010 the generation was reduced to 77 per cent and their share of the total capacity of renewable energies was 6.5 per cent (Bundesnetzagentur 2011). In 2009 and 2010 the companies responded by cutting costs (Kungl 2015). In 2011 the market effects of the EEG became clearer and the economic crisis had also an effect on the companies' earnings in foreign markets. These developments, in addition to the phasing out of eight nuclear reactors, made the Big Four face a crisis.

The EEG was modified again in 2012 due to party preferences of the conservative-liberal government. The government introduced a German market premium scheme as an option to feed-in tariffs (BEE 2013). The transmission network operator would no longer be responsible for selling the electricity on the market, but rather the plant operator itself. The aim was to create a stronger alignment to price signals in the market (Purkus et al. 2015). Politicians from the Green party and the left-oriented *Linke*, NGOs as well as many researchers criticised the introduction of direct marketing, being of the opinion that this would no longer benefit the diversity of renewable energy producers (Interview 14). The feed-in tariff had gained broad social acceptance as it allowed for a manifold of actors – from single households to corporations – to engage in energy policy.

However, as the investments in renewable energies continued to grow, the debate about whether to control the volume of renewable energy became more heated (Interview 9). As anyone who produced electricity from renewables had the right for support, there was no control of who had access to the feed-in tariff or how much the costs would develop. Opponents criticised over-supply and the remuneration for solar electricity, which was far above the market price for electricity (Vorholz 2016).

Under such circumstances, FDP's Minister of Economy, Philipp Rösler, spoke out for drastic cuts and to introduce a cap to limit the installation of photovoltaics (Enkhardt 2012). During the federal election campaign in September 2013, the costs of the energy transition was a key topic. The Minister of Environment from May 2012 to December 2013, Peter Altmaier (CDU) suggested that the energy transition would cost about 1000 billion Euro until 2030 (Altmaier, 2013). Together with Rösler, he suggested to reduce the feed-in tariffs for new plants by one billion Euro annually. This happened under great pressure among others from a massive campaign that *Initiative Neue Soziale Marktwirtschaft* initiated in 2012, wanting to 'Stop the EEG!'. Other industrial interests were also 'aggressively' against the EEG. The German utilities, RWE and E.ON promoted instead a strong

European internal market and emissions trading, arguing that such measures will bring renewables forward (De Clercq and Lewis 2013).

Referring to the threatening cost scenario, Altmaier increased the pressure on the opposition, in particular the Green party (Der Spiegel 2013). Sigmar Gabriel (SPD) followed suit by making costs a key topic, arguing that there was a need to stabilise the costs and at the same time protect the export-oriented German industry, not to endanger jobs (Sturm 2014). Industrial competitiveness was a key topic (Interview 5):

‘the energy transition will only become a model of success, if it is economically feasible. And Germany [...] can afford a lot of investments, but only if, in the end, the German industry becomes substantially able to compete through the energy transition, otherwise it fails’ (Interview 7).

CDU/CSU won the election in 2013 and created another ‘grand coalition’ with SPD. The new government decided to transfer the responsibility for renewable energy from the Ministry of Environment to the Ministry of Economics (Interview 15). The key aim of this transfer was to concentrate the energy responsibilities in one ministry, for which the Vice Chancellor, Gabriel, wanted to become the minister (Interview 7; 8; 15). Informants argue that the emphasis on costs increased after the shift, primarily due to who became the minister (Interview 4; 6; 7; 8).

To decrease the costs there was a need for stronger measures to control the volume (Interview 9). In particular the Greens and the green NGOs were against controlling the volume (Interview 6). It was also disputed how to control the volume (Interview 9). In the hearings, the organisations did not propose alternatives to auctions, but promoted (e.g. the four transmission system operators, Industrial Energy Association) or criticised (e.g. friends of the earth, Greenpeace, German Trade Union Federation) auctions. However, informants suggest that three relevant alternatives were discussed in consultations: cap, quota and auctions. ‘My impression was that many fundamentally declined volume control; however, if volume control would be carried out, then procurement by tender would be the best alternative’ (Interview 9). This was because quotas would, on the one hand, require a technology

neutral system, but technology neutrality did not find much support in Germany. On the other hand, a technology differentiated quota was considered as being too complex (Interview 9). An issue related to introducing a cap was that a cap does not necessarily make the most efficient facilities available (Interview 9).

The large utilities, which were close to bankruptcy, favoured auctions and put the Ministry of Economics under strong pressure (Interview 3; 8). Competition procurements by tender is considered beneficial for large companies as they have more large-scale projects which makes it possible to make cheaper offers than smaller companies (Interview 5). On the one hand, environmentalists highlighted that the utilities had themselves to blame, for not having invested in renewables, there was some understanding in the green camp about bankruptcy concerns. Highlighting the role of Germany as a role model to follow for other countries, one informant, argues, 'Mr. Gabriel made an argument, which I can personally understand. He says that if one of the Big Ones goes insolvent, then the German energy transition will no longer be a good role model to the outside world' (Interview 3). While Germany is able to pay the remuneration rates, it is too expensive for other countries to follow suit (Interview 5).

The grand coalition between CDU/CSU and SPD promised to revise the EEG scheduled for 2014 (Bundesregierung 2013). Their coalition agreement introduced a growth corridor and stated that the government would introduce measures to control the development of renewables within this corridor, mentioning procurements by tender as one such measure. One civil servant argues, 'At that point it was relatively clear that we would get procurements by tender and goals [volume] that would be controlled' (Interview 9). One politician in the opposition agrees, 'We realised early what was the deal [auctions] and could not change much' (Interview 8). He refers to the fact that the influence of the opposition is limited under the conditions of a great coalition (Interview 6).

In the coalition agreement, the government stated that it would start the dialogue with the European Commission and other member states as soon as possible about how to develop the support scheme for renewables in accordance with European law. However, the interaction between the

European Commission and Germany had already started. In December 2013, the European Commission notified the German government that it would open an inquiry looking at compliance of the EEG with the state aid guidelines (European Commission 2013). In the framing of its opening decision, the European Commission addressed the scope of inquiry and the remuneration for different technologies. Arguing that Germany had substantially amended its EEG act, the European Commission doubted the compatibility of EEG 2012 and the relevant Treaty articles related to state aid (Gawel and Strunz 2014, p. 138-9). The European Commission considered the aid as being unlawful and highlighted that the support scheme was considerably different from the *PreussenElektra* case.

One of the issues that the European Commission criticized was the levy reduction for energy-intensive industries. The aim of this exemption is to prevent relocation of such industries to other countries, where electricity costs are lower (Gawel and Strunz 2014). The European Commission's focus on the exceptions from the EEG-levy for energy-intensive industries was particularly difficult for the German government, 'because the industrial exceptions from the EEG-levy are key for creating political consensus for the energy transition' (Interview 7). Without the exemptions energy-intensive industries would have to pay a much higher electricity price. For some companies, this meant that the price would be too high for them to compete internationally (see n-tv 2014). Focusing on the exemptions meant that the whole energy transition was in danger, 'because without the exceptions for the industry, the EEG system and the whole energy transition is not able to reach consensus in Germany. I have to say, their [the European Commission's] focus was cruel, building up maximum pressure' (Interview 7).

The legal consequence of the formal letter opening of the state aid guidelines inquiry is that from that moment, the member state is no longer allowed to take any further measures that may be prohibited aid. If the subsidy is found illegal, the companies' repayment obligation could be billions of Euros. The attack on the EEG-levy exemption therefore meant that the German government had less than a year to respond to the requirements of the European Commission, as the exemptions are re-

issued every year (Interview 7). From this point the government negotiated with the European Commission, trying to find a 'landing zone' for the reformed EEG and at the same time trying to reform the EEG reform. The Ministry of Economics, whilst drafting the EEG amendment, was constantly in exchange with the European Commission (DG Competition) to make sure the proposal would be in line with the state aid guidelines. One parliamentarian argues that the process was very opaque, as the parliament did not get continuous information (Interview 15). He argues that the EU was a 'shadow negotiator' during the EEG discussions (Interview 15). When the Minister of Economics presented the draft to the parliament in June 2014, he argued that this could no longer be changed because it had already been negotiated with the European Commission (Fischer 2016).

In 2014 the EEG was amended. The reform represented substantial changes including growth corridors, caps and direct marketing. The government followed up its intentions to test tendering procedures in practice (Bundesregierung 2013). In order to test the viability of auctioning to determine future support levels, the new EEG provided for the introduction of a tendering process for freestanding PV installations as a pilot project. The first auctions were launched in 2015. This was politically much more controversial than introducing the quantity control itself (Interview 9).

In parallel to the state aid inquiry in Germany, the European Commission was reforming its state aid guidelines, which entered into force in August 2014. In its 2014 state aid guidelines proposition, the European Commission compelled member states to align their renewable support schemes to competitive bidding processes. While bidding procedures were already a discussion in Germany, the state aid inquiry contributed to speed up the process (Interview 7, 9, 15). One policy advisor argues that the transition to a tendering system 'would certainly not have been so fast, [...] if the Commission had not said, "no matter what you do, but we need the tender as default"' (Interview 7).

There are exceptions from the tendering system for small installations. Small renewables installations of under 750 kilowatt (kW) capacity (in the case of biomass under 150 kW) continue to

receive feed-in tariffs (Apunn 2016). This way it is intended that citizen cooperatives and small project developers continue to operate small renewables plants. However, there are no exceptions for wind farms with less than six turbines. Rather the government has introduced simpler and more transparent rules for such onshore wind installations. There are special rules for citizen energy projects. Unless too small, citizen energy projects have to compete in auctions but enjoy benefits such as automatically receiving the highest feed-in tariff accepted in the tender (i.e. even if their own bid is lower) (ibid.).

## Discussion

The previous sections describe the origin and development of the feed-in support scheme for renewables and the shift to auctioning. On the one hand, the shift to auctions is a profound change. On the other hand, there have been numerous reforms to the feed-in-tariff over the years, which could imply that the shift occurred gradually. In the following, we relate the evidence to the theoretical perspectives.

Related to the *coercive approach* in the Europeanisation literature, there are in particular two EU laws and guidelines that are important for the development of the German renewables electricity policy. First, the EU renewables directives from 2001 and 2009 have promoted the member states to increase the share of renewables in their energy mix, but did not require the member states to design their support schemes in particular ways. This has been in line with Germany's interest. As a Council Presidency in 2007 Germany played a key role in making member states agree on ambitious climate and renewable energy targets. Germany did not want the EU to harmonise the instruments used to achieve such goals.

Second, in Germany there has been controversy related to the European Commission's state aid guidelines. DG Competition in the European Commission never approved of the feed-in tariff and has threatened with litigation also after the European Court of Justice in 2001 decided that the German

feed-in tariff did not constitute as state aid. As Germany had made changes to its support scheme, the European Commission notified the German government in 2013 that it would open an inquiry looking at compliance of the EEG with the state aid guidelines. While attacking the exceptions from the EEG-levy for energy-intensive industries in the opening letter (European Commission 2013), the final letter accepts such exceptions as long as Germany has introduced procurements by tender (European Commission 2016). In 2014, shortly after many discussions with the German Minister of Economics and after the introduction of pilot auctions in EEG 2014, the European Commission adopted its 2014 state aid guidelines, which makes procurements by tender mandatory.

Vogelpohl et al. (2017) point out in their analysis that there has been long policy continuity in Germany and feed-in tariff was long defended by its advocates. However, the evidence suggests that there was already increasing political will to radically change the support scheme and that the grand coalition elected in 2013 preferred procurements by tender. Informants argue that auctions would have been introduced even in the absence of the European Commission. As mentioned in the analysis of the political field, Germany as a federal system has many veto players and policy-making is typically slow in order to cater for bargaining. The European Commission's threat of litigation helped promoters of auctions to speed up the process (see also Fischer 2016, p. 336). The possibility to blame Brussels – more specifically the European Commission, which served as a 'shadow negotiator' during the EEG policy-making process – made it possible for the government to overcome the decision-making trap much sooner than otherwise would have been expected.

The evidence suggests that this change happened gradually through a process of *layering*, continuously revising the EEG and incrementally adding elements of increased market-orientation, for example with voluntary direct marketing in 2012, which was made compulsory in 2014 and auction pilots within one technology (solar) before radically displacing the feed-in tariff for large-scale electricity generation in 2016. The protest actions which started in the 1970s, targeted nuclear power. Resistance against nuclear power increased with external nuclear accidents (i.e. Chernobyl and later,

Fukushima). To replace nuclear power there was a need for increased deployment of renewable energy. Initially the feed-in tariff did not pose any threat to the established utilities' market shares, as no one had thought renewable energy would grow so much and quickly. However, once introduced the feed-in tariff scheme became popular among for example, farmers, small firms and cooperatives. The deployment of renewables grew 'outside the prevailing channels of institutional power' (Hager 2015) and changed the organisational field towards increasing fragmentation. Large budgets to renewables, political experience and support from the Green Party and the Ministry of Environment strengthened the lobby groups promoting renewables.

At the turn of the millennium unbundling changed the electricity market to become dominated by the Big Four. These big utilities underestimated the impact of the support scheme for renewable energies until the beginning of the 2010s. This lack of interest of the utilities and the professionalisation of the renewable energy associations are important to understand the introduction of the generous feed-in tariff. Yet producers of renewable energy increasingly encroached on the market shares of the big utilities, driving them to the verge of insolvency. This created increasing resistance against the support scheme. Gradually, and in line with layering, reforms aimed at making the feed-in tariff less expansive by introducing degression rates and growth corridors and increasing market-orientation. The shift towards procurements by tender reflects that the organisational actors have become more 'utility friendly'. Given the intermittent character of the electricity provided by renewable producers, it would not be in the interest of the energy system to let the established utilities go bankrupt. This is one reason as to why the prevailing institutions became powerful again.

The historical development of the German energy transition shows a path with relative stable institutional support. The evidence shows that in the early years of the policy development, politicians from unusual party constellations such as CSU and the Green Party (until 1999) and SPD and the Greens (around 2000) cooperated to push for the feed-in tariff, thereby being able to get sufficient votes. This is related to internal party disagreements: EEG design preferences have not always been clearcut

across parties or political levels. In the early years of the EEG, the evidence highlights the role of individual politicians in being able to break the opposition from interests that have feared large renewable energy shares in the market.

Originally in particular nuclear energy has been politicised in Germany, but since the end of the 1990s how to support renewable energy has also been a competitive issue where in particular the FDP and the Green party have developed clear and stable preferences. The Greens helped introducing the feed-in tariff, emphasised the feed-in tariffs' successful deployment of renewable energy and highlighted Germany's role in driving down renewable energy prices worldwide. It was helpful for supporters of the feed-in tariff that the Minister of Environment, who was in charge of renewable energy, was from the Green party (1998-2005). In contrast, the FDP paved the way for the shift towards auctions voicing criticism against the EEG already in 2004, pointing to the cost issues related to the rapid deployment. The coalition between CDU/CSU and FDP, formed in 2009, prepared the ground for introducing auctions, finally carried out by the grand coalition elected in 2013. The grand coalition transferred the responsibility for renewable energy to the industrial friendly Ministry of Economics and the minister from SPD spoke in favour of auctions. Under the dominance of the grand coalition, the opposition against auctions was powerless.

FDP and CDU/CSU, and later SPD, used costs to legitimise the shift to auctions. From the big industries point of view the cost argument was useful. While others argued that most of the energy costs are not coming from the EEG but for example infrastructure, the cost argument was effective especially as costs are made more visible in the case of RES than other energy sources (i.e. it is highlighted on every customer's bill). Because of the long-lasting cost and quantity control discussions, the evidence suggests that the German government would have introduced a tendering system even if the European Commission had not required this.

## Conclusion

This study describes the development of the German support policy for electricity generation and explains the shift from a feed-in tariff support scheme to auctions. The evidence shows that in Germany how to support renewable electricity generation has been heated for centuries. While not getting much attention when the first feed-in tariff was introduced in 1990, the Grid Feed-in Law created a surprisingly powerful political and societal dynamic. For almost three decades the feed-in tariff survived external pressures from the European Commission and internal pressures from industrial interests, the Ministry of Economics, liberals, conservatives and eventually also social democrats to shift to a more market-oriented support scheme. However, the fact that the support scheme was successful created concerns about costs and that the utilities would go bankrupt. Brussels knew about the increasing concerns and the wish of organisational and political field actors to revise the system. The European Commission therefore found an appropriate time to raise the state aid inquiry against the German feed-in tariff law, putting pressure on the German government. Having raised concerns, framing the feed-in tariff as an unbearable cost issue, the FDP had prepared the ground for the following grand coalition government to introduce auctions, introduced into law as a pilot for solar energy in 2014 and full-scale in 2016.

The EU as an exogeneous force is important but not the primary explanation of transformation. We find that that the shift auctions, although seemingly abrupt, happened gradually through a process of layering. Politicians were continuously revising the EEG and incrementally adding elements of increased market-orientation, including voluntary direct marketing in 2012, which was made compulsory in 2014 and auction pilots within one technology (solar) before more radically displacing the feed-in tariff for large-scale electricity generation in 2016. New actors manage to unsettle dominant practices and impose their preferences. The cost issue and insolvency issue made the defenders of the feed-in-tariff vulnerable to displacement.

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