

Ensuring social acceptance of the energy transition The German government's 'consensus management' strategy

Eva Krick (ARENA – Centre for European Studies, University of Oslo, Norway)

Published online in *Journal of Environmental Policy & Planning* (2017)

DOI: 10.1080/1523908X.2017.1319264.

Introduction

Within the field of German energy policy today, there seems to be an astounding amount of arenas of policy advice and consultation. The Federal Ministry for Economic Affairs and Energy mentions as much as eight of these bodies alone covering its current energy policy on its websites.¹ Fora such as the 'Energy grids platform' or the 'Nuclear phase-out financing commission' promise to foster dialogue and to develop consensual policy solutions on issues surrounding 'Energiewende', i.e. the rapid transition of the German energy portfolio from nuclear and fossil power to renewable energy sources. The outcomes of such advisory committees, though formally not binding, can de facto be very influential in shaping policies and it can be very costly for policy-makers to deviate from publicly acknowledged committee proposals (Brown 2008; Krick 2015; Kropp 2003). Such arenas can provide policy-makers with specialised expertise, reconcile interests or turn societal resources to account and be used for all kinds of symbolic, strategic or legitimising purposes (cf. Boswell 2008; Weiss 1979).

In Germany, 'government by commission' (Dyson 2005) was a distinct governance strategy in the early 2000s (Kropp 2003; Siefken 2007), but it has been thoroughly discredited since. What are the reasons for the proliferation of these advisory rounds in the energy policy field today? What is their role within the German 'Energiewende'? How do they comply with the current strive towards 'social acceptance' of the energy transition (cf. Ellis et al. 2007; Friedl/Reichl 2016; Schmid et al. 2016; Tabi/Wüstenhagen 2017)? Do we see a revival of 'government by commission'?

¹ Cf. <https://www.bmwi.de/DE/Themen/Energie/Energiewende/koordinierung-energiewende.html>;
http://www.bmwi.de/DE/Themen/Energie/Energie_wende/monitoring-prozess.htm

This study aims at taking stock of these fora and analysing the rationale behind their set-up. After providing some background on the origins and the main elements of the German energy transition (section 1), it starts by mapping state-sponsored advisory committees within the field of energy policy on the federal level in Germany (section 2). As there is no official registry of advisory committees in Germany, an inventory is first assembled on the grounds of extensive internet research and document analysis. Based on this original data source the study distinguishes between different types of committees and analyses what purposes they qualify for with reference to knowledge utilisation and policy advisory systems research. This analysis shows that the number of advisory committees in the field of energy policy is indeed remarkable and that the bulk of these advisory rounds are stakeholder committees that lend themselves to interest reconciliation and societal consensus building.

In a second step, the study analyses the government's policy statements, policy studies and media coverage on German energy policy and embeds these committees into a larger governance strategy of 'consensus management' (section 3). Finally, the significance of a strong social mandate for the energy transition is explained with reference to situational, as well as polity- and policy-related factors, building on political systems and culture research, empirical studies of German public policy and energy policy in particular as well as policy statements by stakeholders, think tanks and international media (section 4). The conclusion summarises the main results, points out unanswered questions and the wider significance of the findings from a comparative perspective on consensus-oriented regimes of public policy- and sense-making.

1. The German "Energiewende"

Current German energy policy is highly influenced by the German parliament's decision to phase-out nuclear power until 2022, a decision that was taken in June 2011, following an intensive phase of political debate that had gone on for decades. In the 1980s, the powerful green movement led to the formation of the Green Party that has since been one of the main drivers towards renewable energies. When the Green Party entered into government with the Social Democrats on the federal level for the first time in 1998, it pushed for a radically different energy policy and played a key role in establishing what has become known as the 'nuclear consensus' ("Atomkonsens"). In 2000, the red-green Federal Government agreed with the large energy utilities on a limited life span for

existing reactors – the first phase-out decision that became law with the amendment of the Atomic Energy Law in 2002. The decision was criticised by the then head of the biggest opposition party, Angela Merkel, for amounting to a destruction of national economic property that would be revoked when the Christian Democratic Union (CDU) came into office (Deggerich 2000). After the first two reactors had already been taken offline, the new centre-right government that took office in 2009 decided to extend the operational life span of existing reactors in October 2010, only to overthrow this decision as a reaction to the reactor meltdown in Fukushima in March 2011. In June 2011, the German Bundestag voted by roll call to end the use of nuclear power by 2022 through the 13th amendment of the Atomic Energy Act, with only the party “die Linke” opposing. The nuclear phase-out decision and its consequences – the fast transition to a new energy portfolio dominated by renewables – is popularly referred to as “Energiewende” and has been translated most commonly as ‘energy transition’ or ‘energy (system) transformation’. This terminology is in line with the Federal Government’s energy policy campaign that strongly centres on this label (cf. e.g. German Federal Government 2012; German Bundestag 2014; German Federal Ministry for Economic Affairs and Energy 2015b, 2017). Yet, the term ‘Energiewende’ has been a key expression since the early days of the green movement in Germany. The term was originally not confined to the nuclear phase-out, but related to the abolition of risky and non-renewable energy sources, i.e. carbon based and nuclear energy, to a focus on energy saving and efficiency gains and to a shift from centralized to distributed generation of power. It probably goes back to the title of a 1980 publication by the German ‘Öko-Institut’, which argued for the complete abandonment of nuclear and petroleum energy (Krause et al. 1980).

The transformation of energy supply towards a portfolio dominated by renewables had already been underway for some time when the second nuclear phase-out decision was made in 2011. Yet, the transformation gained particular momentum through the relatively narrow time frame given by the 2022-horizon as well as the government’s proactive approach and intensive campaigning for a comprehensive overall policy strategy, which it quickly labelled ‘Energiewende’.

Following the nuclear phase-out decision, German energy policy is now characterized by three interlinked goals with considerable built-in tension: energy policy needs to secure domestic energy supply (1) at reasonable costs (2) and without jeopardizing climate goals (3). Because nuclear power cannot be replaced by fossil fuel and coal for climate

protection reasons, renewable “green” energy sources such as wind and sunlight are brought to the fore, along with measures of energy saving, efficiency, storage and transport.

2. Stocktaking: Advisory committees in the field of energy transition

In the following section, an overview of state-sponsored advisory committees² that operate non-permanently (*ad hoc*) on the federal level of the German political system is provided. These committees are supposed to advise and consult exclusively on energy transition-related questions (cf. table 2).³ Apart from the committees’ titles and setup dates, information is given on the mandates, the composition as well as the responsibilities of appointment, session chairing and administration (‘institutional affiliation’). These responsibilities allow to influence the content of recommendations and to direct the committee’s debate to a considerable extent: The appointing authority can above all choose the participants and thus shape the decision round decisively; chairing of sessions usually entails the allocation of speaking time, summary of the debate and drafting of results; while a committee’s office usually selects and provides background expertise, contributes to the writing of committee reports and often speaks on behalf of the committee externally (Nullmeier/Pritzlaff 2009; Krick 2013).

On the grounds of a committee’s composition one can, in an ideal-typical way, distinguish between ‘technical’ (Brown 2008) or ‘scientific’ advisory committees that consist of academics (1); ‘stakeholder’ or ‘corporatist’ (Christiansen et al. 2010) committees that consist of interest groups (2); and ‘participatory’ or ‘citizens’ committees that consist of “ordinary”, lay citizens (3) (cf. table 1). Yet, real-life cases are often hybrids. They often assemble different types of agents and/or are multi-layered structures that combine several arenas of different provenience.⁴

² A committee is here defined as an institutionalised (i.e. not accidental) series of gatherings (i.e. face-to-face contacts) of a small to medium-sized group that is set up by a superior institution for the purpose of collective decision-making or decision-preparation (cf. Nullmeier/Pritzlaff 2009, 358; Sartori 1987, 227f.).

³ Given this focus, the level of German constituent states (‘Länder’) is not looked at, permanent ministerial advisory bodies or government agencies are not included, and neither are private initiatives that advise on the energy transition, or individual research activities.

⁴ An example for multi-layered policy advice structures would be citizen consultations that take place in online fora as well as in deliberative face-to-face groups accompanied by expert panels.

Table 1: Classification of arenas of policy consultation and advice

	Technical, scientific bodies	Stakeholder, corporatist bodies	Participatory, citizens' bodies
Composition (as regards professional affiliation of the participants)	Academics	Societal stakeholders (Interest groups, NGOs, business and state representatives etc.)	Individual citizens (without organisational affiliation or specialised expertise)

Within research on 'knowledge utilisation' governance functions of policy advice are usually divided into roughly two dimensions: a symbolic dimension and an instrumental dimension (cf. e.g. Boswell 2008; Radaelli 1995; Weiss 1979). These two dimensions and their sub-categories are not mutually exclusive, but complementary; the same committee can fulfil different purposes, from one or both of these two dimensions. Symbolic functions depend on at least the appearance of an instrumental use; if a government's intention to steer a committee towards a 'purely symbolic purpose' becomes too obvious, it will likely be met with public disapproval (cf. Boswell 2008; Krick 2010, 2015; Schrefler 2010)

In the ideal-typical model, expert advice is used as a 'means of justification' within the symbolic mode, while it is used as a 'means of learning' within the instrumental mode (cf. Radaelli 1995: 173). The symbolic dimension can be subdivided into a legitimising function and a substantiating function (cf. table 2; Boswell 2009; Krick 2015; Radaelli 1995; Weiss 1989), while the instrumental dimension has been described as comprising at least an information and guidance function, a consensus-building and interest reconciliation function and a societal self-organisation function (Ashford 1984; Boswell 2008; Krick 2015; Weiss 1979).

Table 2: Dimensions of policy advice utilisation

Instrumental use of policy advice	Symbolic use of policy advice
a) Provide insight and information b) Interest mediation and conflict resolution c) Facilitate societal self-organisation	a) Legitimise the appointing authority in general terms (by strengthening its prestige and power) b) Substantiate the appointing authority's policy preferences

Source: Krick 2015: 491

The data compiled on the committees' composition and institutional affiliation can be read as very simple indicators of what an advisory committee stands for and what it can be used for from a governance perspective. For instance, a scientifically composed advisory committee qualifies particularly for the information function; for the function of interest mediation, the most important stakeholders need to be present in a committee; the function of societal self-organisation requires the participation of particularly resourceful agents (Haas 2004; Krick 2010, 2015; Schrefler 2010; Weiss 1979). For all instrumental purposes, relative autonomy of an advisory institution is helpful, while a committee that is closely connected to the government through its administration, its chair as well as its members can be more easily steered towards a government's preferences and thus qualifies particularly for symbolic purposes (Krick 2010, 2015; Majone 1997; Verhoest et al. 2004).

This study provides an overview of a large range of advisory committees active in the field of energy policy and assembles basic data on their structural components (cf. table 3). It does not provide in-depth studies of the individual committees' advisory processes and their impact on public policies.⁵ It does not claim to ascertain which functions individual committees actually fulfilled or what the intention of an appointing authority was in setting up these fora. Since institutional features provide a corridor for action, however, the data allow us to hypothesise about paths and dynamics that are more likely to unfold. The study therefore aims at deducting the most likely purposes that the committees qualify for, given their composition and affiliation.

The overview of advisory committees makes no claim to be complete, but provides a first assembly of those state-sponsored advisory institutions active in shaping the energy transition. Detecting the committees in the first place is severely complicated by the absence of an official registry of public advisory committees and by the practice of providing the committees with manifold names (such as 'platform', 'partners', 'union', 'summit' and many more), which makes it difficult to search for them.⁶

⁵ It has repeatedly been pointed out in case studies that the de facto authority of these "quasi-legislative bod[ies]" (Brown 2008: 544) is often considerable (cf. e.g. Dyson 2005; Krick 2013, 2015; Siefken 2007); due to their visibility and the negotiated nature of their outcomes they cannot easily be ignored by decision makers, and even if the degree of *direct* diffusion is low, parts of the advice are likely to resonate in the political sphere (Kropp 2003).

⁶ The 'Federal committee composition bill' ("Bundesgremienbesetzungsgesetz"), which aims at providing an overview of the gender distribution in public committees, obliges the Federal Government to compile a

The data given in table 3 has been compiled by a twofold search strategy: issue-focused analyses of official documents on energy policy and a key-word led web search.⁷ Translations of official titles of organisations are, as a basic rule, the ones provided by the English version of official websites, or, if those were not available, the German terms have been translated by the author. Participant groups under ‘composition’ are listed with regards to their institutional affiliation: The category ‘business’ relates to private corporations; the category ‘societal stakeholders’ covers pressure groups of individual as well as collective interests, including industry and trade associations, and lists the *predominant* institutions, respectively; the category ‘academia’ covers agents who work at research institutions. Individual participants that do not stand for any societal interest but take part in their personal capacity are referred to as such.

Table 3: State-sponsored committees of policy advice and consultation on the German energy transition

	Name & date of appointment	Mandate	Composition	Institutional affiliation (appointing authority, administration ⁸ and chair)
1.	German National Platform for Electric Mobility (“Nationale Plattform Elektromobilität”) May 2010 -	Coordinate and develop recommendations for policy-makers and business on electric mobility	State (Federal Government) Business Societal Stakeholders (trade unions, trade associations, research) Academia	Appointing authority: Federal Government Office and Administration: For the committee: the Federal Government’s Joint Agency for Electric Mobility (“Gemeinsame Geschäftsstelle Elektromobilität der Bundesregierung”) For the committee chair: Acatech (‘German Academy of Science and Engineering’)

report every four years that lists the ‘significant’ federal committees. These reports usually only list permanent departmental councils and supervisory boards but very few, if any, ad hoc advisory committees, since it was at the discretion of the ministries to interpret the understanding of ‘significant’. The latest revision of this bill in 2015 now gives a slightly less vague definition of what is ‘significant’ and might widen the range of committees disclosed in the next report.

⁷ More precisely, the search strategy consisted, first, of the issue-focused reading of official documents, such as legislation and parliamentary inquiries, policy statements, reports and public communication by the government on energy policy and, second, of a systematic web search using combinations of key words such as ‘energy policy’, ‘energy transition’, ‘coordination’, ‘consensus’, ‘debate’, ‘dialogue’, ‘committee’, ‘commission’ ‘forum’, ‘arena’, ‘recommendations’, ‘advice’, ‘consultation’, ‘stakeholder’ or ‘expert’.

⁸ Details on the authority responsible for administration are only given if this is not the responsibility of the Federal Government, or one of its departments or agencies.

				<p>(“Deutsche Akademie der Technikwissenschaften”))</p> <p>Co-chaired by: Federal Government and Acatech</p>
2.	<p>Energy Grids Platform</p> <p>(“Plattform Energienetze”)</p> <p>February 2011 –</p>	<p>Develop joint recommendations for action to be taken by policy-makers for the expansion, modernisation and secure operation of power grids.</p>	<p>State (Federal Government, the constituent state level (‘Länder’), local authority association)</p> <p>Business Societal Stakeholders (trade, industry, consumer and environmental associations, energy agencies)</p> <p>Academia</p>	<p>Appointing authority: Federal Ministry for Economic Affairs and Energy</p> <p>Chair: Federal Ministry for Economic Affairs and Energy</p>
3.	<p>Research Forum Energy Transition</p> <p>(“Forschungsforum Energiewende”)</p> <p>April 2013 – February 2016</p>	<p>Discuss and assess research-based measures for the transformation of energy supply</p> <p>Identify and communicate needs for further research from the perspective of society</p>	<p>State (Federal Government, Länder)</p> <p>Business Societal Stakeholders (environmental and democracy associations, trade unions, academic associations)</p> <p>Academia</p>	<p>Appointing authority: Federal Ministry of Education and Research</p> <p>Office and Administration: Acatech IASS (‘Institute for Advanced Sustainability Studies’) ‘Max-Planck-Society’</p> <p>Chair: Federal Ministry of Education and Research</p>
4.	<p>Platform Buildings</p> <p>(“Plattform Gebäude”)</p> <p>July 2014 –</p>	<p>Develop measures and draw up a comprehensive strategy for an energy efficient, climate-neutral buildings stock</p>	<p>State (Federal Government)</p> <p>Business Societal Stakeholders (industry and consumer associations)</p> <p>Academia</p>	<p>Appointing authority: Federal Ministry for Economic Affairs and Energy</p> <p>Co-chaired by: Federal Ministry for Economic Affairs and Energy Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety</p>
5.	<p>Energy Efficiency Platform</p> <p>(“Plattform Energieeffizienz”)</p> <p>July 2014 –</p>	<p>Develop joint solutions for increased energy efficiency</p>	<p>State (Federal Government, Länder)</p> <p>Business Societal Stakeholders (trade unions, consumer and environmental associations, energy agencies)</p>	<p>Appointing authority: Federal Ministry for Economic Affairs and Energy</p> <p>Office and Administration: ‘dena’ (German Energy Agency (‘Deutsche Energieagentur’)) & ‘Institute for energy efficiency in industrial production’ at the University of Stuttgart</p>

			Academia	Chair: Federal Ministry for Economic Affairs and Energy
6.	Electricity Market Platform ("Plattform Strommarkt") Juli 2014 -	Design an electricity market that guarantees secure power supply in the light of an increasing share of wind and solar power and support the transformation of the electricity system	State (Federal Government, Länder) Business Societal Stakeholders (environmental and energy industry associations) Academia	Appointing authority: Federal Ministry for Economic Affairs and Energy Chair: Federal Ministry for Economic Affairs and Energy
7.	Research and Innovation Platform ("Plattform Forschung und Innovation") May 2015 -	Coordination and dialogue on the direction, implementation and development of energy research and funding programmes develop stimuli to boost the use of innovative energy technologies	State (Federal Government, Länder) Business Societal Stakeholders (energy industry associations, energy agencies, academic associations) Academia	Appointing authority: Federal Ministry for Economic Affairs and Energy Office and Administration: Project Management Jülich (Forschungszentrum Jülich GmbH) Chair: Federal Ministry for Economic Affairs and Energy
8.	Ethics Commission for Secure Energy Supply ("Ethikkommission für eine sichere Energieversorgung") March - May 2011	Develop a broad consensus on the realisation of energy transition, on risks of nuclear energy, ethical questions around a quick phase-out process and a transition towards renewables	Business Societal Stakeholders (trade unions, churches) Academia (Ex-)politicians without office Complemented by written public input and hearings with stakeholders	Appointing authority: Federal Government Co-chaired by: Klaus Töpfer (former Minister for the Environment) Matthias Kleiner (President of the German Research Council)
9.	Final Storage Commission ("Kommission Lagerung hochradioaktiver Abfallstoffe (Endlagerkommission)") April 2014 -	Develop recommendations for security requirements and criteria for the future site of nuclear waste storage	State (Länder, MPs) Societal Stakeholders (churches, trade unions, environmental and industry associations) Academia Individual energy and	Appointing authority: German Bundestag Office and Administration: German Bundestag's Administration Co-Chaired by: Ursula Heinen-Esser (CDU, former Parliamentary State Secretary) Michael Müller (SPD, former parliamentary state secretary,

			environment experts Complemented by open access 'citizens' conferences, workshops and online fora	head of "Naturfreunde Deutschland" (environmental association))
10.	Nuclear phaseout financing commission ("Kommission zur Überprüfung der Finanzierung des Kernenergieausstiegs") October 2015 -	Develop policy recommendations that assure the long-term financing of the decommissioning and dismantling of nuclear reactors and the disposal of radioactive waste by the responsible power companies	State (Federal Government, Länder, parliamentary groups, European Court of Auditors) Societal Stakeholders (Church, trade union, industry and environmental associations) Academia Lawyers	Appointing authority: Federal Government Co-chaired: Ole von Beust (CDU) Matthias Platzek (SPD), Jürgen Trittin (Greens) (Former members of Länder governments)
12.	National committee monitoring the nuclear waste repository selection ("Nationales Begleitgremium") December 2016 -	Scrutinise the process of selecting a storage site for highly radioactive waste from the perspective of the German public	Individual citizens Academia Societal Stakeholders (environmental associations) ⁹	Appointing authority: German Bundestag Co-chaired: Prof. Dr. Klaus Töpfer (former executive director of the United Nations Environment Programme, and former Federal Minister of the Environment) and Prof. Dr. Miranda Schreurs (TU München)
13.	Citizens' dialogue on energy technologies for the future ("Bürgerdialog Energietechnologien für die Zukunft") Juli - November 2011	Develop policy recommendations on the implementation of energy transition/the promotion of renewable energy supply, grids and energy efficiency and the use of gas and coal	Individual citizens Complemented by an 'expert panel' ("Beraterkreis") consisting of state representatives, societal	Appointing authority: Federal Ministry of Education and Research Office and Administration: IFOK GmbH / Meister Europe GmbH Chair of the expert panel: Prof. Dr. Andreas Barner (Boehringer Ingelheim GmbH) and Prof. Dr.

⁹ The law specifies that the committee needs to consist of two 'randomly chosen citizens' and one 'representative of the younger generation', who have been nominated through channels of citizen participation as well as six 'renown public figures', who have been elected by the two chambers of parliament (cf. German Council of Constituent States 2016, 3).

			stakeholders and academics	Regine Kollek (University of Hamburg)
14.	<p>Independent expert commission on the monitoring process ‘energy for the future’</p> <p>(“Expertenkommission zum Monitoring-Prozess ‘Energie der Zukunft’”)</p> <p>Oktober 2011 –</p>	Provide a scientific opinion on the Federal Government’s annual monitoring report ‘energy of the future’ and the three-annual progress report on the energy transition	Academia ¹⁰	<p>Appointing authority: Federal Government</p> <p>Office and Administration: Personal assistants of committee members</p> <p>Chair: Prof. Dr. Andreas Löschel (University of Münster)</p>

When we look at the plain numbers, the sheer amount of committees active in the field of energy policy is remarkable when compared to other times and policy fields. Although numbers on advisory committees within the German committee system should be taken with a pinch of salt given the lack of reliable official figures, there have been comparative studies on the use of advisory committees as well as more general governance studies that cover this issue, which hint at peak times and policy fields (cf. Dyson 2005; Krick 2010, 2013; Kropp 2003; Siefken 2007). The period of the red-green coalition (1998 – 2005) has been described as the heydays of “government by commission” (Dyson 2005) in Germany, with Chancellor Gerhard Schröder openly promoting the use of consensus-oriented external advisory bodies as part of his government’s “leadership in dialogue” strategy (Steinmeier 2001). This open promotion created the impression of an increase in numbers, but Siefken (2007) finds no evidence for a higher number of advisory committees during this period of government in his encompassing study of advisory committees. Advisory committees at the time were broadly composed of stakeholders and academics mainly; they were largely used for the instrumental purposes of conflict resolution and interest coordination in times of a hung parliament and were independently institutionalised in that they were headed by a renown, non-partisan figure and tended to build on their own rules of procedure (cf. Dyson 2005; Krick 2013, 2015; Kropp 2003; Siefken 2007). The use of advisory committees in policy-making was

¹⁰ The majority of these members at least partly works as professional policy consultants with considerable public committee and government advisory experience, while emphasis on research (indicated by recent research projects and publications) is less pronounced.

criticised at the time within the media and by individual legal scholars, either for predisposing legislative decisions and side-lining parliament, or for enforcing 'de-politicisation' through the delegation of authority to private experts (cf. Grimm 2001; Ramsauer 2000). Political scientists took a more pragmatic stance on this phenomenon and pointed out that the committees' suggestions were never implemented 1:1 and often contributed to more transparency and open public debate on contested policy issues (cf. Krick 2013; Kropp 2003). When Merkel first took office in 2005, advisory committees did not take centre stage in the government's communication strategy any more, although they did not disappear from the political scene (Krick 2010, 2015).

When we look at particular policy fields, there has been an emphasis on committees that deal with 'innovation policy' (business development and research funding) (Krick 2013) and with migration and integration (Schneider 2010) in recent years, yet not on the scale that is currently observable in the energy policy field.

In terms of their composition, the data shows that the bulk of current advisory institutions in the field of energy policy are broadly composed of societal interest groups, state representatives, academic experts etc. Two out of 14 identified advisory committees consist largely or exclusively of individual citizens, who neither represent a specific societal interest, nor have specialised expertise; they can be described as instruments of citizen consultation and participation¹¹. 'Purely scientific' or 'technical' advisory arenas (Brown 2008) are the exception amongst the ad hoc committees in focus here, with only one committee consisting exclusively of academics.¹² Academics are present in all but one of the observed committees. Yet, they usually take part in negligible numbers when compared to stakeholders. These academics tend to be representatives of the applied, technical sciences who can fulfil the double role of an independent adviser and a stakeholder who establishes collaborations with the energy industry and bargains for public research funding or public procurement within these settings. Besides, the broad categorisation of 'academia' that this study relies on covers scholars from both privately

¹¹ One of these cases, the 'Citizens' dialogue on energy technologies for the future' is a borderline case, since it consisted of a series of workshops, conferences and online fora with varying participants (partly randomly chosen, partly self-selected) and was thus not as solidly institutionalised as other, more traditional committees. Yet, in its closing event, the citizens' summit, a joint policy recommendation was produced on the grounds of the individual fora's inputs and it is therefore included here.

¹² Yet, there are a range of permanent advisory committees in the field of energy policy active on the Federal level, which consist predominantly or exclusively of academics, such as the 'German Advisory Council on the Environment' ("Sachverständigenrat für Umweltfragen") and the 'German Commission on radiological protection' ("Strahlenschutzkommission").

and publicly funded research-oriented institutions and their independence therefore varies.

The largest share of participants are representatives or delegates of a larger collective, i.e. those that do not participate in a personal capacity, but take part ex officio and represent an organisation. This could be a state level, a business corporation, or a societal pressure group. Among these, societal stakeholders are the largest group, present in all but two committees; state representatives are only missing in three of these 14 committees; and business representatives are the third largest group, present in more than half of the committees. As ‘microcosms of society’ (Jasanoff 2005) such ‘corporatist’ or ‘stakeholder’ committees radiate the *double authority* of ‘political legitimacy’ that builds on participation and inclusion, and ‘technical rationality’ or epistemic legitimacy that builds on specialised knowledge (Jasanoff 2005, 216; cf. also Beck 2012, 2; Haas 2004, 575; Krick 2015). From a governance perspective, these stakeholder committees qualify particularly well for conflict resolution and consensus building through broad inclusion and negotiation of compromises, pacification of veto-players and coordination of affected interests.

Most of the energy policy committees are institutionally closely connected to and managed by the appointing authority. Representatives of the Federal Government’s administration are included as formal members in the majority of cases and additionally tend to be present in informal terms in advisory committees (Krick 2013); 12 out of 14 committees are set up by the Federal Government, with the Federal Ministry for Economic Affairs and Energy being most active. Half of the committee offices and half of the chair positions are managed by the Federal Government or one of its departments and agencies and the institutional connections have thus overall been close between the committees and government. This allows for a considerable governmental influence. Under these conditions we can expect a coordination of committee results with government policies. Yet, a ‘purely symbolic use’, or a mere orchestration of committee deliberations for substantiating purposes, would hardly be appreciated by the involved interest groups and has not been very common in German committee governance (Siefken 2007).

3. The government’s ‘consensus management’ strategy

The government’s management of the energy transition is not only characterised by these “consensus rounds” that facilitate interest conciliation with and between stakeholders.

Striking are also the numerous organisations that explicitly lobby for the energy transition by organising exchange and debate fora and by providing ‘expertise’ through surveys and policy statements on energy policy. Many of these organisations, which call themselves ‘initiatives’, ‘competence centres’ and ‘agencies’, are fully or largely sponsored by the Federal Government and can thus be considered as part of a larger governance-strategy.¹³ Table 4 lists the largely state-funded organisations dedicated to promoting the energy transition according to their mission statements and whose publications and events one constantly comes across when searching online for issues related to energy policy.

Table 4: State-sponsored organisations promoting the energy transition

Name	Goal	Legal status	Funding and affiliation
<p>German Energy Agency ‘Dena’</p> <p>(“Deutsche Energie-Agentur”)</p> <p>2000</p>	<p>Promote the implementation of the energy transition by offering advice, campaigns, assessments and networking activities</p>	<p>Private company (limited liability corporation (“GmbH”))</p>	<p>Proprietors: Federal Republic of Germany, represented by the Federal Ministry for Economic Affairs and Energy (50%), the KfW Group (26%), Allianz SE (8%), Deutsche Bank AG (8%) and DZ BANK AG (8%)</p>
<p>Agency for renewable energy ‘AAE’</p> <p>(“Agentur für erneuerbare Energien”)</p> <p>2005</p>	<p>Communicate the advantages of a sustainable energy supply on the basis of renewable energy</p>	<p>Registered society (“e.V.”)</p>	<p>Partly funded by the renewable energy industry and their associations, partly by Federal Ministries</p>
<p>Competence centre nature conservation and energy transition ‘KNE’</p>	<p>Reconcile the development of renewables with nature conservation;</p> <p>Objectify debates and prevent conflicts on energy transition by</p>	<p>Private company (limited liability corporation (“GmbH”))</p> <p>Run by the environmental</p>	<p>Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety</p>

¹³ There are also various fully privately funded initiatives active in promoting the energy transition. Examples are “Agora Energiewende” and “Cleanenergywire” that are both funded by the Mercator and the European Climate Foundation. By its own account, ‘Agora’ develops positions on a “shared vision” and the further development of Energiewende (<http://www.agora-energiewende.de/en/about-us/frequently-asked-questions/>), while ‘Clean-energywire’ provides edited content, organises workshops and panel discussions on the German energy transition (cf. <https://www.cleanenergywire.org/about-us-clew-motivation>).

(“Kompetenzzentrum Naturschutz und Energiewende“) 2016	organising dialogues, providing expertise and sending out trained mediators	foundation ‘Michael Otto Stiftung für Umweltschutz’	Plus additional project-specific funds that are to be raised
Citizens’ dialogue on grids (“Bürgerdialog Stromnetz”) 2015	Promote the energy transition, stimulate debate and inform about grid expansion and opportunities for public involvement by providing information and dialogue fora (online tools, local offices and deliberative events)	Private company (civil law association (“GbR”)) Run by the communication and conflict mediation company IKU (‘Die Dialoggestalter’) and a subsidiary to the consumer and environmental association “Deutsche Umwelthilfe e.V”	Federal Ministry for Economic Affairs and Energy

These institutions are usually not identified as a part of the Federal Government, but are perceived as independent agents given their legal status, yet their mission blends in nicely with the government’s energy transition management that to a large extent builds on organising public support for the necessary transformations and the subsequent costs. The Federal Government openly campaigns for public support in its publications, official documents and in the form of advertising campaigns like the large-scale “Die Energiewende – ein gutes Stück Arbeit” that amounts to 652.569,96 € (German Bundestag 2015, 10). The government’s statements on energy policy follow a common narrative that presents energy transition as an ethical responsibility. Following this narrative, energy transition is a large national challenge that can only be tackled in a joint effort and by dint of “German engineering ingenuity” (Hermwille 2016, 242), demanding sacrifices for the sake of a higher goal. When going through the government’s official statements, the following ideas recur:

1. The realisation of the energy transition is a ‘herculean’ task, a task of pre-eminent dimensions (German Federal Government 2011; German Federal Ministry of Education and Research 2014).

2. Joint societal efforts and broad public support are conditions for the project's success (German Federal Government 2011; German Federal Ministry for Economic Affairs and Energy 2015a, 1).

3. The success of such an energy-intensive "economic powerhouse" as Germany in transforming its energy system can serve as an example for other countries (German Federal Government 2012, 1; German Federal Ministry for Economic Affairs and Energy 2015b, 2, 2017, 18).

4. Transition of the national and indeed global energy system towards renewable energies is an "ethical responsibility" (German Federal Government 2011, 5; cf. also German Federal Ministry for Economic Affairs and Energy 2014b, 1; 2015b, 2).

This narrative makes use of a convention in German politics to close ranks on matters of great national importance, such as questions of war and peace.¹⁴ It can generate a 'we'-feeling that can provide fuel for joint commitment, and it certainly reconfirms the German self-perception as the world's number one environmentalists.

While the Green party and the Social Democrats did not have to be convinced of the primacy of a sustainable energy system, chancellor Angela Merkel in her government statement in June 2011 likely contributed to committing the more conservative political agents within her own party CDU and its 'sister party', the Christian Social Union (CSU). This was done by framing "Energiewende" as a national responsibility and comparing it with three major achievements that form German post-war identity: the 'social market economy'; unification of the country after 1990; and its performance in the debt and euro crisis (German Federal Government 2011). Elements of this narrative are not only shared by political parties of all colours, but also by conservative and green political think tanks, the renewable and the conventional energy sector and a wide range of interest groups and NGOs.¹⁵ This rhetoric finds its way into academic publications on energy policy (cf.

¹⁴ Cf. the decision on the so-called Kosovo-mission, in October 1998, when 503 out of 584 MPs voted for the participation of the German army in an air strike against Yugoslavia, or the military action against IS in December 2015 that was approved by 445 MPs against 146 and thus extended the majority of the ruling Grand Coalition. In such instances, open cooperation and a commitment to cross-party consensus is the rule, while under less existential conditions, coordination takes place behind closed doors and the impression of autonomous political parties, a working opposition and a healthy party competition is maintained.

¹⁵ Cf. the accounts by the CDU-affiliated 'Konrad-Adenauer-Foundation' (<http://www.kas.de/wf/de/71.12519//>), by the electricity company 'RWE' (<http://www.rwe.com/web/cms/de/1701408/rwe/verantwortung/akzeptanzstudie/>), the Regional Association 'Renewable Energies North-Rheine-Westphalia' (Landesverband Erneuerbare Energien NRW; <http://www.lee-nrw.de/themen/energiewende-teilhabe-und-akzeptanz/>), by Agora (<http://www.agora->

e.g. Gawel 2014, 6; Kalkbrenner/Roosen 2016, 60), and alongside many critical assessments, it is also powerful in international media.¹⁶ There is widespread agreement on the superior value of renewable energy sources, the scope of the efforts of energy transition, the societal consensus needed and the global responsibility that comes with it. The considerable funding of research and expertise on energy issues can be added as a fourth element of the Government's consensus management strategy, as it is expected to strengthen public trust in the transition (cf. German Federal Government 2014). The Federal Government regards energy-related research as a 'trailblazer' and 'strategic element' of German energy policy (German Federal Ministry for Economic Affairs and Energy 2015c), and funded its 6th Energy Research Programme with € 3.5 billion between 2013 and 2016. Apart from the scientific expert commission that scrutinises the 'energy of the future' monitoring process, the government has launched the establishment of research networks on 'electricity grids', 'energy systems analysis' and 'energy in buildings and neighbourhoods' that are meant as interfaces between research, application and policy-making (ibid.).

All these governance elements – the setup of debate and deliberation fora, the funding of organisations dedicated to the public promotion of the energy transition, the public campaigns appealing to people's commitment, and the funding of research on energy technology – can be read as measures to generate 'social acceptance'. The goal is to convince and persuade the public of the government's policies, extend the timeframe for successful implementation, pacify and reassure that all interests and research findings have been taken into account and finally that the government acts responsibly and sagaciously. The governance elements can in total ensure public commitment to and compliance with energy transition policies and the impositions they bring. Yet, while social acceptance might be 'an important determinant of the time and effort required to realize energy infrastructure projects' (Friedl/Reichl 2017, 184; cf. also Ellis et al. 2007; Schmid et al. 2016), why does the government put all this effort into it? After all, Germans support the energy transition in general, considering that opinion polls constantly show high support for the energy transition and the phase-out decision in particular

energiewende.de/de/themen/-agothem-/Thema/themadetail/5/Akzeptanz/) and by the 'Ethics Commission for Secure Energy Supply' (2011).

¹⁶ Cf. as examples Smedley (2013) in the 'Guardian', Schiermeier (2013) in 'Nature', Eddy (2015) in the 'New York Times'.

(Hermwille 2016, 242).¹⁷ Besides, there is already an astounding degree of cross-party consensus on the need for an energy transition (Hake et al. 2015). Indeed, would one not expect a stronger need for consensus building on policy issues that are essentially contested and divide the country, such as migration policy? We will now look at situational circumstances as well as policy- and polity-related conditions to develop a better insight into what can explain the apparent relevance of public support from a governance perspective within this policy field.

4. Explaining the efforts to ensure public acceptance of the energy transition

Strong public support for energy policies is partly necessitated by the particular institutional layout of the German political system and the corresponding political culture. While all democracies, and indeed all political systems, are dependent on public support to a certain extent, sweeping agreement is of vital importance in consensus democracies such as Germany, where reconciliation is paramount for system effectiveness, democratic legitimacy as well as epistemic authority. The German consensus-democratic institutions, such as the federal state structure, the electoral system of proportional representation and corporatist state-society relations all disperse power and thus call for constant coordination and cooperation (Krick/von Blumenthal 2013; Lijphart 1999; Lhotta 2002).¹⁸ A consensus-oriented culture that has evolved from these institutional conditions rewards moderate political debates as well as mediating politicians and it sustains the effectiveness of the system. Even before Grand Coalition governments on the federal level became the norm rather than the exception as a result of the expanded party system, Germany was described as being ruled by an *informal* Grand Coalition for some decades (Schmidt 1987), which expresses the evident need for coordination between the parliamentary chambers and between the states. German public policy has thus for decades been characterised not by conflict and deadlock, but by incremental policy changes that represent, if not full consensus, at least large majorities or sweeping

¹⁷ Five years after the last nuclear phase-out decision, 93% of those asked in a TNS Emnid survey in 2015 supported the development of renewable energy sources (Renewable Energy Agency 2015, 1).

¹⁸ The degree of corporatism in Germany, as in other countries, is contested, which is partly due to the enigmatic nature of the concept (cf. Molina/Rhodes 2002). While corporatism has been in a legitimacy crisis since the 1980s, it certainly still plays a role in the German-speaking and Scandinavian countries, when we understand it as a mode of governance that relies on coordination and institutionalised relations between particular interest groups and the state during legislation and implementation (Jasanoff 2005; Siaroff 1999).

consensus (Krick/von Blumenthal 2013; Lhotta 2002; Manow/Burkhart 2007). In line with this political culture, an epistemological culture or ‘national civic epistemology’ (Jasanoff 2005) has been described that relies on the inclusion and the consensus of a plurality of viewpoints and especially those affected as the basis for public knowing (ibid.; Beck 2012).

Yet, while German corporatism and a consensus-oriented democracy might be a part of the story, such systemic settings and long-term cultural features can hardly account for a peak of consensus-building measures within a specific policy field. While the relevance of social acceptance of the transition towards renewables has been characteristic of other consensus-democracies like Switzerland or Austria (Friedl/Reichl 2016; Tabi/Wüstenhagen 2017), it also influences energy policies in the UK’s majoritarian system (Ellis et al. 2007). One wonders where this emphasis on public acceptance in current German energy policy originates, particularly given the previously mentioned high general support for the idea of an energy transition. Yet, public support is generally lower when it comes to more hands-on questions of policy implementation, such as the development of the energy infrastructure or financing of particular projects (Amelang 2015; Kübler 2015; Thalman 2015; German Federal Agency for Nature Conservation 2014, 50f.). The fact that energy infrastructure projects meet more opposition on the micro-level than attitudinal surveys on the macro-level reveal, can be attributed to a range of factors, such as the concrete measures and procedure of implementation or the selection of the people involved in local planning processes (Ellis et al. 2007; van der Horst 2007). Yet, it is certainly an oversimplification to attribute local opposition to an essentially selfish ‘NIMBY’-motivation alone and thus potentially discredit legitimate counter-arguments, as pointed out by several ‘social acceptance’-researchers (cf. e.g. Ellis et al 2007; Friedl/Reichl 2016; Wolsink 2000). Besides, there is a wide range of other obstacles facing the realisation of energy infrastructure than public opinion (Wolsink 2000). In fact, the implementation of the transition touches upon value questions of energy, climate and environmental policy that have been the source of conflicts for decades.¹⁹ These conflicts concern for instance the sustainability- and health risks related to electromagnetic radiation and nuclear waste storage; the rising CO₂-emissions and climate effects of coal mining; and the nature conservation concerns about wind turbines and power lines changing the landscape (Amelang 2015; German Federal Agency for

¹⁹ Cf. Hake et al. (2015) for a comprehensive account of these conflicts.

Nature Conservation 2014; Hake et al 2015; Thalman 2015). There is a considerable power struggle between a large variety of stakeholders who differ strongly with respect to their interests and underlying worldviews (Schmid et al. 2016, 272). Dividing lines are numerous and they even cut across certain ‘families’ of stakeholders, such as ‘industry’ or ‘environmental groups’. They run, for instance, between the energy-intensive industries, the renewable energy industry, the traditional power suppliers (the ‘Big Four’) and local power producers (e.g. farmers and cooperatives). The quite numerous and powerful German environmental groups internally disagree on the relative weight of climate protection, development of renewables and nature preservation. Implementation questions of the energy transition, such as the role of coal or the level of subsidies for renewables, are now also contested amongst the political parties and the government can thus no longer bank on the cross-party support it enjoyed when the landmark decision on nuclear phase-out was made in 2011. For many legislative acts, such as the reform of the ‘renewable energy act’ (“Erneuerbare Energiengesetz” (EEG)), the Federal Government needs the support of the second chamber of parliament, the ‘Bundesrat’, which assembles the governments of the constituent states. Despite being a “Grand Coalition” of the two largest parties (SPD and CDU/CSU), which builds on a very large majority in the first chamber, the Federal Government cannot automatically count on the Bundesrat’s support for its policies.²⁰ These perspectives and interests of societal stakeholders have to be reconciled to a considerable extent to ensure compliance and commitment.

A successful transition also relies on the support of individual citizens who bear the costs in the form of money, attitude and routine changes as well as environmental damage. The transformation of the whole energy system in a short amount of time calls for high public expenditure on research and development on renewables, electricity storage, production and transport infrastructure as well as incentives to intensify energy efficiency and saving. These high distributional costs are mainly borne by private households in the form of taxes and levies on energy consumption, while Germany’s energy-intensive industry are accommodated with an exemption from the surcharge on retail power in order to ensure international competitiveness (Amelang 2015; German Federal Agency for Nature

²⁰ One reason for this is that the Länder governments often have their own agenda and do not necessarily follow the line of the federal party organisations; another reason has to do with the recently extended German party system and the subsequent pluralisation of governing coalitions on the Länder-level, which make it much more difficult for the Federal Government to win their consent (Krick/von Blumenthal 2013; Lhotta 2002; Manow/Burkhart 2007).

Conservation 2014, 50f.). One of the main criticisms is accordingly directed at the high costs for private households, exemplified by rising electricity bills (Gawel et al. 2014 2; Hake et al. 2015, 544; Schroeter et al. 2016, 116; Thalman 2015, 1), which are very directly tangible and affect poorer households disproportionately. Moreover, efficiency gains are at the heart of a successful transition, but have not been accomplished to the necessary extent (Hake et al. 2015, 543). This has much to do with individual consumption choices. Individuals have to make medium-scale investments on for instance heat insulation or the replacement of domestic appliances, and they need to cut down on energy use. They may consider these changes of their everyday behaviour and routines as burdens to their lifestyle (Schroeter et al. 2016, 116), or simply not be able to afford these expenses. The energy transition furthermore relies on an extension of the grid system that already lags behind because of local protests and postponements by the Bavarian government (Hake et a. 2015, 543). Not least because of the political trauma of 'Stuttgart 21', such infrastructure decisions cannot be decided authoritatively, but call for extensive public involvement and the organisation of consent.²¹

Conclusion

The German Federal Government makes extensive use of advisory committees in the field of energy policy, the bulk of which are stakeholder fora that qualify particularly for a corporatist mediation of opposing interests on the path towards energy transition. In contrast to the heydays of 'government by commission' in the early 2000s, current advisory committees are no longer kept at arm's length but are closely connected with the government in institutional terms, which facilitates their symbolic use. These committees do not so much trigger concerns about the accountability of politically detached, independent experts. Since decision-making power is not delegated to experts, but remains very much under the aegis of the government, the committees' liaison with the public administration can also be interpreted as an expression of 're-politicisation'. It is then rather the transparency of and access to these potentially powerful rounds of political bargaining and lobbying, the balance of representation and the opportunities for public scrutiny that are crucial from a perspective of democratic legitimacy.

²¹ The large-scale public protests against the construction of the new central train station in Stuttgart (Stuttgart 21) peaked between 2009 and 2011 and have motivated extended public involvement also in other large infrastructure projects.

The setup of stakeholder fora has been interpreted as a part of a governance strategy of ‘consensus management’ that aims at securing a strong social mandate for the energy transition. This strategy consists of at least three further elements: extensive public communication on ‘Energiewende’ as the big national challenge and ethical responsibility that requires joint societal efforts; the funding of applied research on energy-technological innovations that promise competitiveness of the German industry-based economy, the creation of jobs and a cost-efficient realisation of the energy transition; and the support of energy ‘agencies’ and ‘initiatives’ that are explicitly devoted to the energy transition and help spread the word.

The relevance of sweeping public support for ‘Energiewende’ has been traced back to three main origins: the general institutional imperative of coordination and reconciliation in a consensus democracy; the recently rising costs and increasing conflicts of interest around implementation of the ambitious goals; the significance of public commitment; and the limits to authoritative enforcement in this policy field. This study illustrates that the implementation of a successful and fast transition to renewables depends heavily on individual investments and consumption changes. People have accordingly been addressed as consumers and small-scale entrepreneurs by the government’s public communication. As democratic citizens that actively shape political decisions, the public is involved in several of the advisory committees, two of which consist of ordinary citizens only and can be counted as bodies of citizen participation. Yet, the bulk of direct citizen involvement and participatory decision-making on the more hands-on issues, such as grid extension and nuclear waste storage, takes place on the local and regional level and thus largely slipped the attention of this federal level study.

Although this study has closely focused on the German case and its government’s consensus management, the relevance of public support for the implementation of energy transitions has been pointed out for many countries, and by no means only for consensus democracies (cf. e.g. Ellis et al 2007; Wüstenhagen et al. 2007). Even in majoritarian political systems, where rapid and major policy changes are institutionally facilitated, implementation relies on commitment and compliance to a certain extent and it will therefore be wise to ensure “community acceptance” (Wüstenhagen et al. 2007, 2684) of energy infrastructure projects or convince the public at large of energy saving measures. Yet, there is reason to expect that the role of stakeholder consultations within committees and more informal settings in managing energy transitions is particularly pronounced in

consensus-oriented democracies with a corporatist legacy. After all, in the Scandinavian and the German-speaking countries institutions of policy-coordination have enjoyed exceptional trust when it comes to the development of both democratically legitimate and epistemically sound collective decisions for a long time (cf. e.g. Christiansen 2010; Jasanoff 2005).

References

- Amelang, Sören. 2015. 'German Energiewende Enjoys Strong Social Mandate', *Cleanenergywire*, 8.8.2015, <https://www.cleanenergywire.org/news/german-energiewende-enjoys-strong-social-mandate>.
- Ashford, Nicholas A. 1984. 'Advisory Committees in OSHA and EPA: Their Use in Regulatory Decisionmaking', *Science Technology and Human Values*, 9/1, 72-82.
- Beck, Silke. 2012. 'The Challenges of Building Cosmopolitan Climate Expertise: the Case of Germany', *WIREs Clim Change*, 3(Jan/Feb), 1-17.
- Boswell, Christina. 2008. 'The Political Functions of Expert Knowledge: Knowledge and Legitimation in European Union Immigration Policy', *Journal of European Public Policy*, 15(4), 471-488.
- Boswell, Christina. 2009. 'Knowledge, Legitimation and the Politics of Risk: The Functions of Research in Public Debates on Migration', *Political Studies*, 57/1, 165-186.
- Brown, Marc. B. 2008. 'The Politics of Representation on Government Advisory Committees', *Political Research Quarterly*, 61(4), 547-560.
- Christiansen, Peter M./Nørgard, Asbjørn S./Rommetvedt, Hilmar/Svensson, Torsten/Thesen, Gunnar/Öberg, Per. 2010. 'Varieties of Democracy: Interest Groups and Corporatist Committees in Scandinavian Policy Making', *Voluntas*, 21(1), 22-40.
- Deggerich, Markus. 2000. 'Konsens bei Atomgesprächen: Der Ausstieg kommt, aber keiner weiß wann' *Der Spiegel*, 15.06.2000, <http://www.spiegel.de/politik/deutschland/konsens-bei-atomgespraechen-der-ausstieg-kommt-aber-keiner-weiss-wann-a-80879.html>.
- Dyson, Kenneth. 2005. 'Binding Hands as a Strategy for Economic Reform: Government by Commission' *German Politics*, 14(2), 224-247.

- Eddy, Melissa. 2015. 'Germany may Offer Model for Reining in Fossil Fuel Use', *New York Times*, 3.12.2015, http://www.nytimes.com/2015/12/04/world/europe/germany-may-offer-model-for-reining-in-fossil-fuel-use.html?_r=0.
- Ellis, Geraint/Barry, John/Robinson, Clive. 2007. Many Ways to Say 'no', Different Ways to Say 'yes': Applying Q-Methodology to Understand Public Acceptance of Wind Farm Proposals, *Journal of Environmental Planning and Management* 50(4), 517-551.
- Ethics Commission for Secure Energy Supply (Ethikkommission Sichere Energieversorgung). 2011. *Deutschland Energiewende. Ein Gemeinschaftswerk für die Zukunft*. Berlin: Bundesregierung.
- Friedl, Christina/Reichl, Johannes. 2016. Realizing Energy Infrastructure Projects – a Qualitative Empirical Analysis of Local Practices to Address Social Acceptance. *Energy Policy* 89, 184-193.
- Gawel, Erik et al. 2014. 'The Future of the Energy Transition in Germany', *Energy, Sustainability and Society* 4(15), 1-9.
- German Council of Constituent States (Bundesrat). 2016. 'Gesetzesbeschluss des deutschen Bundestages. Gesetz zur Neuordnung der Organisationsstruktur im Bereich der Endlagerung', *Printed Paper*, 347/16, 24.06.2016.
- German Federal Agency for Nature Conservation (Bundesamt für Naturschutz). 2014. *Naturbewusstsein 2013. Bevölkerungsumfrage zu Natur und biologischer Vielfalt*. Bonn: Bundesamt für Naturschutz.
- German Federal Government (Deutsche Bundesregierung). **2011**. *Regierungserklärung "Der Weg zur Energie der Zukunft"*, 09.06.2011, <https://www.bundesregierung.de/ContentArchiv/DE/Archiv17/Regierungserklaerung/2011/2011-06-09-merkel-energie-zukunft.html>.
- German Federal Government. 2012. *Energiewende kommt voran*, <https://www.bundesregierung.de/ContentArchiv/DE/Archiv17/Artikel/2012/06/2012-06-04-artikel-energiewende-langfassung.html>.
- German Bundestag. 2014. 'Unterrichtung durch die Bundesregierung. Erster Fortschrittsbericht Energiewende', *Printed Paper*, 18/3487, 03.12.2014.
- German Bundestag. 2015. 'Schriftliche Fragen', *Printed Paper*, 18/3761, 16.01.2015.
- German Federal Ministry for Economic Affairs and Energy (Bundesministerium für Wirtschaft und Energie). 2014a. 'Bundesumweltministerium gibt Startschuss für

- “Kompetenzzentrum Naturschutz und Energiewende”, *Energiewende Direkt*, 8.7.2014, <https://www.bmwi-energiewende.de/EWD/Redaktion/Newsletter/2014/22/Meldung/Bundesumweltministerin-gibt-startschuss-fuer-kompetenzzentrum-naturschutz-und-energiewende.html>.
- German Federal Ministry for Economic Affairs and Energy. 2014b. *Germany is a Pioneer in the Fight against Climate Change*, <http://www.bmwi.de/EN/Topics/energy,did=636790.html>.
- German Federal Ministry for Economic Affairs and Energy. 2015a. *Public Dialogue*, <http://www.bmwi.de/EN/Topics/Energy/Grids-and-grid-expansion/public-dialogue,did=682632.html>.
- German Federal Ministry for Economic Affairs and Energy. 2015b. ‘The Energy Transition: Switch to the Future’, *Energiewende direct*, 26.3.2015, <https://www.bmwi-energiewende.de/EWD/Redaktion/EN/Newsletter/2015/01/Meldung/topthema-the-energy-transition.html>
- German Federal Ministry for Economic Affairs and Energy. 2015c. *Economic Affairs Ministry Launches New Research Networks: "Electricity Grids" and "Energy System Analysis"*, <http://bmwi.de/EN/Press/press-releases,did=701124.html>.
- German Federal Ministry for Economic Affairs and Energy. 2017. *Die Energiewende: unsere Erfolgsgeschichte*. Berlin.
- German Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung). 2014. *Herausforderungen der Energiewende*, <http://www.buergerdialog-bmbf.de/energietechnologien-fuer-die-zukunft/299.php>.
- Grimm, Dieter. 2001. ‘Verhandlungsdemokratie? Politik des Möglichen – Möglichkeiten der Politik’, in: Körber-Stiftung (ed.): *Verhandlungsdemokratie? 120. Protokoll des Bergedorfer Gesprächskreises*. Hamburg: Edition Körber-Stiftung, 8-14.
- Haas, Peter M. 2004. ‘When does Power Listen to Truth? A Constructivist Approach to the Policy Process’, *Journal of European Public Policy*, 11(4), 569–592.
- Hake, Jürgen-Friedrich/Fischer, Wolfgang/Venghaus, Sandra/Weckenbrock, Christoph. 2016. The German Energiewende – History and Status Quo, *Energy*, 92, 532-546.
- Hermwille, Lukas. 2016. ‘The Role of Narratives in Socio-Technical Transitions – Fukushima and the Energy Regimes of Japan, Germany and the United Kingdom’, *Energy Research and Social Science*, 11, 237-246.

- Jasanoff, Sheila. 2005. 'Judgment under Siege: The Three-Body Problem of Expert Legitimacy', in: Maasen, Sabine/Weingart, Peter (eds.): *Democratization of Expertise? Exploring Novel Forms of Scientific Advice in Political Decision-Making*, Dordrecht: Springer, 209-224.
- Kalkbrenner, Bernhard/Roosen, Jutta. 2016. 'Citizens' Willingness to Participate in Local Renewable Energy Projects: the Role of Community and Trust in Germany, *Energy and Research*, 13, 60-70.
- Krause, Florentin/Bossel, Hartmut/Müller-Reißmann, Karl-Friedrich. 1980. *Energiewende – Wachstum und Wohlstand ohne Erdöl und Uran*. S. Fischer Verlag.
- Krick, Eva. 2015. 'Negotiated Expertise in Policy-Making. How Governments use Hybrid Advisory Committees', *Science and Public Policy* 42(4), 487-500.
- Krick, Eva. 2013. *Verhandlungen im Konsensverfahren. Varianten kollektiver Entscheidung in Expertengremien*. Wiesbaden: VS.
- Krick, Eva. 2010. 'Regieren mit Gipfeln – Expertengremien der großen Koalition', *Zeitschrift für Politikwissenschaft* 20(2), 233-264.
- Krick, Eva/von Blumenthal, Julia. 2013. 'Regieren in der Politikverflechtung. Parteienwettbewerb und Verhandlungen in Deutschland', in: Karl-Rudolf Korte/Timo Grunden (eds.): *Handbuch Regierungsforschung*. Wiesbaden: VS, 287-295.
- Kropp, Sabine. 2003. "'Deparlamentarisierung" als Regierungsstil?', in: Gohr, Antonia/Seeleib-Kaiser, Martin (eds.): *Sozial- und Wirtschaftspolitik unter Rot-Grün*. Wiesbaden: Westdeutscher Verlag, 329-344.
- Kübler, Knut. 2015. 'Strompreise, Einkommensentwicklung und Akzeptanz der Energiepolitik' *Energiewirtschaftliche Tagesfragen* 65(3), 1-3.
- Lhotta, Roland. 2002. 'Konsens und Konkurrenz in der konstitutionellen Ökonomie bikameraler Verhandlungsdemokratie. Der Vermittlungsausschuss als effiziente Institution politischer Deliberation', in: Oberreutter, Heinrich/Kranenpohl, Uwe/Sebaldt, Martin (eds.). *Der deutsche Bundestag im Wandel. Ergebnisse neuerer Parlamentarismusforschung*. Wiesbaden, 93-117.
- Lijphart, Arend 1999. *Patterns of Democracy. Government Forms and Performance in 36 Countries*. New Haven: Yale University Press.
- Majone, Giandomenico. 1997. 'The New European Agencies: Regulation by Information', *Journal of European Public Policy*, 4(2), 262-275.

- Manow, Philip/Burkhart, Simone. 2007. 'Legislative Self-Restraint under Divided Government in Germany, 1976–2002' *Legislative Studies Quarterly* 32, 167–191.
- Molina, Oscar/Rhodes, Martin. 2002. 'Corporatism: the Past, Present and Future of a Concept, *Annual Review of Political Science*, 5, 305-331.
- Nullmeier, Frank/Pritzlaff, Tanja. 2009. 'The implicit Normativity of Political Practices. Analyzing the Dynamics of Power Relations of Committee Decision-Making', *Critical Policy Studies*, 3(3-4), 357-374.
- Radaelli, Claudio M. 1995. 'The Role of Knowledge in the Policy Process', *Journal of European Public Policy*, 2(2), 159–183.
- Ramsauer, Peter. 2000. Wider die Kommissionitis. *Die Welt*, 04.07.2000, <http://www.welt.de/print-welt/article521339/Wider-die-Kommissionitis.html>.
- Renewable Energy Agency (EEA). 2015. Akzeptanz für Erneuerbare Energien weiterhin hoch. *Renews kompakt* 27, 10.12.2015, https://www.unendlich-viel-energie.de/media/file/416.AEE_RenewsKompakt_Akzeptanzumfrage2015.pdf.
- Sartori, Giovanni. 1987. *The Theory of Democracy Revisited. Part I: The Contemporary Debate*. Chatham, NJ: Chatham House.
- Schiermeier, Quirin. 2013. 'Renewable Power. Germany's Energy Gamble', *Nature*, 10.04.2013, URL: <http://www.nature.com/news/renewable-power-germany-s-energy-gamble-1.12755>
- Schmid, Eva/Knopf, Brigitte/Pechan, Anna. 2016. 'Putting an Energy System Transformation in Practice: The Case of the German Energiewende', *Energy Research and Social Science*, 11, 263-275.
- Schmidt, Manfred G. 1987. 'West Germany. The Policy of the Middle Way', *Journal of Public Policy*, 7(2), 139-177.
- Schneider, Jan. 2010. *Modernes Regieren und Konsens? Regierungskommissionen im Politikprozess untersucht am Beispiel der unabhängigen Kommission Zuwanderung*, VS.
- Schrefler, Lorna. 2010, 'The Usage of Scientific Knowledge by Independent Regulatory Agencies', *Governance*, 23/2, 309-330.
- Schroeter, R., Scheel, O., Renn, O. & Schweizer, P.-J. 2016. Testing the value of public participation in Germany: Theory, operationalization and a case study on the evaluation of participation, *Energy Research & Social Science*, 13, 116-125.
- Siaroff, Alan. 1999. 'Corporatism in 24 Industrial Democracies: Meaning and Measurement',

- European Journal of Political Research*, 36, 175-205.
- Siefken, Sven. 2007. *Expertenkommissionen im politischen Prozess. Eine Bilanz zur rot-grünen Bundesregierung 1998-2005*. Wiesbaden: VS.
- Smedley, Tim. 2013. 'Goodbye Nuclear Power. Germany's Renewable Energy Revolution', *The Guardian*, 10.5.2013, <http://www.theguardian.com/sustainable-business/nuclear-power-germany-renewable-energy>.
- Steinmeier, Frank W. 2001. 'Konsens und Führung', in: Machnig, Mathias/Müntefering, Franz (eds.). *Sicherheit im Wandel – neue Solidarität im 21. Jahrhundert*. Berlin: Vorwärts, 263-273.
- Tabi, Andrea/Wüstenhagen, Rolf. 2017. Keep it Local and Fish-Friendly: Social Acceptance of Hydropower Projects in Switzerland, *Renewable and Sustainable Energy Reviews* 68, 763-773.
- Thalman, Ellen. 2015. 'German Industry and its Competitive Edge in Times of Energiewende', *Cleanenergywire*, 6.8.2015, <https://www.cleanenergywire.org/dossiers/energiewende-effects-power-prices-costs-and-industry>.
- Van der Horst, Dan. 2007. NIMBY or not? Exploring the relevance of location and the politics of voiced opinion in renewable energy siting controversies, *Energy Policy* 35, 2705-2714.
- Verhoest, Koen/Peters, Guy B./Bouckaert, Geert/Verschuere, Bram. 2004. 'The Study of Organisational Autonomy: A Conceptual Review', *Public Administration and Development*, 24(2), 101-118.
- Weiss, Carol H. 1979. 'The Many Meanings of Research Utilization', *Public Administration Review*, 39(5), 426-431.
- Weiss, Carol H. 1989. 'Congressional Committees as Users of Analysis', *Journal of Policy Analysis and Management*, 8(3), 411-431.
- Wolsink, Maarten. 2000. Wind power and the NIMBY-myth: institutional capacity and the limited significance of public support, *Renewable Energy* 21, 49-64.
- Wüstenhagen, Rolf/Wolsink, Maarten/Bürer, Mary Jean. 2007. Social Acceptance of Renewable Energy Innovation: And Introduction to the Concept, *Energy Policy* 35, 2683-2691.