

Plehwe, Dieter

Article — Published Version

Reluctant transformers or reconsidering opposition to climate change mitigation? German think tanks between environmentalism and neoliberalism

Globalizations

Provided in Cooperation with:
WZB Berlin Social Science Center

Suggested Citation: Plehwe, Dieter (2022) : Reluctant transformers or reconsidering opposition to climate change mitigation? German think tanks between environmentalism and neoliberalism, Globalizations, ISSN 1474-774X, Taylor & Francis, London, Iss. Latest Articles, pp. --, <https://doi.org/10.1080/14747731.2022.2038358>

This Version is available at:
<https://hdl.handle.net/10419/251192>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<http://creativecommons.org/licenses/by/4.0/>

Reluctant transformers or reconsidering opposition to climate change mitigation? German think tanks between environmentalism and neoliberalism

Dieter Plehwe 

Berlin Social Science Center, Berlin, Germany; Department of Political Science, University of Kassel, Kassel, Germany

ABSTRACT

Germany is known as a leader in energy transition, but the country keeps falling short of meeting stated objectives. While attention has been high on climate change related policy leadership, the competing domestic alliances in the field of energy transition have received scant attention. In Germany, the strong momentum of the conversion to renewable energy has been stalled in the second half of the 2010s. Enabled by an increasing weight of neoliberal economic concerns, traditional energy coalitions have managed to reshape the path of energy transition. In this article three competing discourse coalitions are introduced to examine their constituencies and projects in the field of energy and politics. It focuses on radical ecological forces around the Öko-Institut, environmental modernization capacities linked to Green Budget Germany and fossil interest groups intersecting with neoliberal academic and partisan think tanks. As such, the article opens a view on multiple contestations over Germany's Energiewende.


KEYWORDS

Energy transition; Germany; climate change; neoliberalism; think tank

1. Introduction

Germany is generally considered a progressive force in climate change politics. Angela Merkel promoted herself as a global leader in this field much like the preceding Christian Democratic government of Helmut Kohl back in the 1980s and 1990s, let alone the Social-Democrat-Green Coalitions headed by Gerhard Schröder (1998–2005). Supported by a spearheading role in important areas of climate change mitigation – emission reduction targets in the 1990s, expansion of renewable energy in the 2000s – the country attracted the home office of the United Nations Framework Convention on Climate Change in Bonn in 1994 and of the Innovation and Technology Centre of the International Renewable Energy Agency (HQ Abu Dhabi), which was also founded in Bonn in 2009. Germany is the third largest producer of renewable energy excluding hydropower (solar and wind, mainly) following the much larger countries U.S. and China, and has a much larger per capita share of renewables than the U.S and China. In terms of per capita share, Germany is trailing the much smaller nations Iceland, Denmark and Sweden only (Renewables, 2021, p. 41).

But Germany's climate change policy making has not been without fault and blame. As pointed out by several authors, Germany's practical commitments kept falling short of stated objectives. Ambitious greenhouse gas reduction goals have been subject to backsliding and political horse

CONTACT Dieter Plehwe  plehwe@wzb.eu

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

trading to protect strong industrial interests both in the national arena and in the European Union. Policy making has been marred by divisions between various responsible ministries and the federal system of power sharing between federal and state level (Länder) governments. Last but not least, corporatist traditions have enabled influence peddling by incumbent energy firms and industrial interest groups in particular (Michaelowa, 2008, 2013; Stevenson, 2021).

The mixed record of German climate change mitigation has led one expert to characterize Germany as a ‘climate policy giant on earthen feet’ (Michaelowa, 2013, p. 319). Germany can thus be considered a perfect site for a case study both on ‘path dependencies’ and ‘institutional change’ in the area of climate change mitigation. Due to the zig-zag policy around nuclear phase out¹ and dedicated support for renewables, Germany is also a good place to look for ‘critical junctures’ and ‘policy change’ in the field of energy policy in particular (Stefes, 2014).

In spite of strong claims to climate leadership and renewable energy conversion, Germany surprisingly is also a perfect place to study the politics of climate policy opposition and obstruction, i.e. strategies developed and executed to prevent ambitious mitigation, to slow down climate or to reverse policy developments considered detrimental to fossil energy and other corporate interests (Brulle & Aronczyk, 2019; Lamb et al., 2020). In order to observe conservative and reactionary efforts to shape climate change related policy making, a broad range of both academic and partisan think tanks as well as NGOs and campaign organizations need to be included in the analysis in addition to traditional (fossil) interest and corporate lobby groups. Michaelowa (2008) has shed some light on disruptive strategies in German climate policy making, though his focus has been on concentrated power of both industrial interests and renewable energy producers in their parts of the energy sector. In contrast to such an approach it is important to discuss the relationships between a wider range of actors and strategies involved in the continuing effort to undermine emission reduction targets and to shape mitigation and adaptation strategies. While solar groups were temporarily successful indeed reaping extraordinary profits from the pricing mechanism introduced in 2000, fossil groups succeeded to remove the feed-in tariff as policy instrument of choice, and in blocking the rise of renewables in the second half of the 2010s. In order to properly examine the relationship between industrial policy, competitiveness concerns and the energy transformation path chosen, it is important to account for a broad range of national and European, political and discursive strategies of the climate change policy opposition rather than focusing on market power in individual segments of the energy system.

Beyond the opposition to rapid decarbonization and energy transformation narrowly conceived, the business minded coalitions face the more fundamental challenge of the ‘energy democracy’ movement. This ecological ‘discourse coalition’ (Hajer, 1993) has been fundamentally critical to corporate and financialized capitalism and the consumerist growth regime. The coalition rose during the fight against nuclear energy production to advance an alternative economic approach in which the potential of decentralized renewables plays a major role (Morris & Jungjohann, 2016). In between the two camps that are diametrically opposed – corporate fossil conservatism versus overlapping movements of energy democracy, radical ecology, climate justice and ‘degrowth’ – we can trace the emergence of a new version of economic modernization under the label of an ‘ecological social market economy’. This cross-party coalition plays a mediating role in Germany and elsewhere. With climate denialism thoroughly discredited, climate change policy obstruction needs to strategically advocate for a position between status quo protection and reformism (greener capitalism) in order to keep the more fundamental opposition to fossil capitalism at bay, and to secure longer transition periods. The political struggles over the transformation pathway are also struggles over the orientation and meaning of the sub-discipline of environmental economics as we shall see.

In order to situate contemporary struggles in the German climate and energy political field it is necessary to link energy conflicts to broader dimensions of international political economy, social geography, material infrastructures and power relations (Moss & Gailing, 2016). Geels (2014) has rightly called for greater attention to politics and power in the often technical and innovation-minded debate on energy transition. It is crucial to develop a conflict theoretical focus on policy related knowledge, ideas and discourse, because agents and agencies need to cognitively relate to each other to interpret interest positions, and because *discourse coalitions* influence policy and discourse in ways that work beyond economic interest positions narrowly conceived. Political and intellectual entrepreneurship in conjunction with particular interests group dynamics is not only relevant to explain institutional change and political dynamics (Becker, Beveridge, & Röhring, 2016), but also to observe resistance to reforms and policy obstruction (Bonds, 2011).

The contemporary opposition to transformative change needs to be creative in the face of new and strong challenges to incumbent positions and dwindling support for the status quo in the face of climate emergencies. Possibly because of the greater relevance of specialized knowledge and the volatility of many policy fields, the supply of policy-related expertise has been increasingly externalized by economic interest groups. A wide range of policy actors can be observed employing dedicated consulting firms and think tanks, sometimes as well as in-house experts, to strategically advance their interests. The growing number and diversity of academic and partisan think tanks in particular that are involved in struggles over energy transition and the climate change-related transformation process, exemplifies this trend.

I focus on think tanks and related campaign organizations both in terms of organizations and functions dedicated to policy related research, consulting and publicity. While focusing on contested policy expertise it is important to recognize that neither think tanks nor academic research institutes exist in isolation of a range of (political, economic, academic etc.) interests that come into play in policy related research in one way or another and need to be taken into account (Medvetz, 2012; Stone, 2007). Academic independence and quality can therefore be best enhanced by way of consideration and recognition of dependencies and biases of policy knowledge in addition to evidence base, academic rigour or methodological prowess. Think Tanks (and related organizations/networks) in any case are in the following analyzed according to bottom up 'logics of constituencies' (academic, partisan orientations, funders etc.) and top down or sideway 'logics of influence' (political expectations, contracting customers, competing forces etc.) in adaptation of Schmitter and Streeck's (1999) approach to study interest groups. While interest groups have 'membership logics', few think tanks have a relevant membership base like the Öko-Institut or Green Budget Germany discussed below. But all think tanks do have constituencies like funders and supporters, public and/or private, staff members etc. involved in relevant networks. Much like interest groups, think tanks operate in a social space subject to external pressure enabling or disabling research projects and selectivity in terms of approaches and orientations, and to pressures emanating from competing alliances. Both academic and partisan think tanks are therefore ideal to study both key concepts and relevant actor relations that eventually come to define larger discourse coalitions (compare Plehwe, 2015). The dynamics between such groups and coalitions is critical for policy in particular in circumstances of strong contestations. We will therefore turn our attention to them in the effort to better understand and explain the ambiguities of the 'Energiewende' in Germany (and the European Union).

We need to first examine the rise of the anti-nuclear and broader environmental movement in Germany. One of the important organizations created in militant protest was the Öko-Institut in Freiburg, which published the original Energiewende proposals. The institute combined outsiders

from the mainstream Social Democratic Party with radical social movement forces together constituting the radical wing of the ecological social movement (Section 2). We need to secondly examine new efforts to advance agendas for ecological economic modernization and environmental economics, which subsequently gained traction in the German policy field. The centrist reconfiguration of the Green Party during the 1980s enabled the founding of the bipartisan Forum for the Ecological Social Market Economy, which advanced a model Green Budget for Germany in the 1990s (Section 3). Last but not least it is necessary to examine the even more recent efforts to fight back against *Energiewende* and renewable energy in particular. This struggle has been advanced with the help of dedicated energy experts and neoliberal economists. Their perspectives have been disseminated widely through academic and partisan think tanks and related (lobby) networks (Section 4). The current stop and go conundrum in solar and wind energy has been a result of the dynamic interplay of forces within this triangle of energy political discourse coalitions and their underlying economic and social constituencies within the broader context of the emerging European 'Green Deal'. The confluence of fossil interests (both electricity producers and large energy customers), competitiveness concerns and the influence of neoliberal (energy) economists has been able to stall the advance of renewable energy transition in the one area in which Germany had excelled in the new millennium: electricity generated from renewable sources (wind and solar in particular).

2. Green policy think tanks: the Öko Institute and the origins of the *Energiewende*

The emergence of extraordinarily novel, far-reaching, comprehensive and radical policy ideas under the *Energiewende* is surprising and needs explaining in the face of path dependencies, vested interests and bureaucratic inertia (Rüb, 2014). Explanations that rely primarily on moments of crisis, external shock and windows of opportunity (such as presented by the Fukushima nuclear accident in 2011 in the energy political field) cannot explain the origins and the development of alternative ideas, concepts and necessary expertise needed to create a new path and to promote a new policy development. The backdrop of Germany's energy transition has much to do with the post-war energy system 'status quo' *before* the battles of the 1970s, of relying mainly on domestic coal-based electricity generation and regional (regulated) private distribution monopolies that were closely intertwined with both public and private producers and public municipal services. The centralized energy monopoly structure had been reinforced by the increasing reliance on nuclear energy, which also led the electricity debate far beyond energy concerns to include questions of international and domestic security, military infrastructures and public health and safety concerns. The post-war energy system was stable due to multi-partisan political support backed by business groups and labour unions. But the energy coalition ran into deep trouble in the course of the 1970s when a rapidly growing social movement started to attack nuclear power and pollution from coal-fired plants. The ensuing struggles against nuclear energy and other hazards related to energy production and consumption led to new conceptual developments in the field of ecology (Hirschl & Vogelpohl, 2019), and to new contention over energy policy.

Regarding environmental politics, progressive think tanks were highly relevant in (a) (re-)developing an ecological understanding of the world after the Second World War due to grave consequences of rapid industrialization, mass production and consumption under Fordism, in (b) promoting the new environmental movement and in (c) configuring the emerging environment and climate policy field since the 1970s. Surprisingly, existing histories of environmental politics

in Germany and the European Union have nevertheless been silent about the role of think tanks (Böcher & Töller, 2011; Meyer, 2011).

Contrary to the establishment think tanks like Resources for the Future (RFF) in Washington, DC, or Barbara Ward's International Institute for Environment and Development (IIED) in London, which grew out of the political mainstream (Strong, 2000, pp. 252–259; Engfeldt, 2009, p. 50), Germany's first environmental think tank was set up in the midst of intense social struggle. The Öko-Institut in Freiburg much like major environmental and peace movement organizations such as Friends of the Earth or Greenpeace was born during environmental policy battles of the 1970s. Most prominent was the fight against nuclear bomb testing and nuclear power plant construction involving both the development of new political strategies like civil disobedience and a new politics of counter-expertise. The former became the mainstay of social activism of organizations like Greenpeace, Friends of the Earth or Robin Wood. The politics of counter-expertise led directly to the establishment of green/environmental (movement) think tanks (McCormick, 1989).

Germany's Öko-Institut in Freiburg was set up to support activism against the construction of a nuclear power plant in Wyl on the French-German border (Rucht, 1980). Activists needed expertise to support their case in the courtroom and critical scholars speaking out against nuclear energy needed a supportive institution for their academic work because they were subject to marginalization in the universities. To this day, the Öko-Institut in Freiburg is one of the few think tanks with a strong membership base due to its roots in the social movement, which provides a degree of independence from the funding agencies and contract research on which it mainly relies. The line between the two types of civil society organizations, the NGO and Think Tank, in fact are blurred with NGOs engaging frequently in investigative research and publishing findings in reports not so different from movement think tanks. Vice versa, the role of ecologically partisan think tanks in support of movement activists resembles many of the NGO activities (Spangenberg, 2012). But the two are distinct in terms of perspective: the growth of the organizational format of the think tank can be explained by the specific requirements of short, medium- and longer-term research efforts related to policy making compared to the quicker and generally media and policy attention-oriented pace of campaigning.

Due to the focus on research and opportunities for both policy-related and academic studies, think tanks gained a particular role in developing and shaping important conceptual frameworks that can be found guiding (environmental) policymaking to this day (Smith, 1991; Fischer, 1993). Regardless of the inevitably political character of knowledge, research and science conducted in think tanks has been capable of mustering greater recognition and legitimacy than the work conducted by other advocacy organizations. Independent from the more or less legitimate truth claims (scientific reliability, evidence-based research and 'objectivity'), think tanks and researchers working in such organizations acquire a role of intellectual and conceptual entrepreneurship beyond immediate research and consulting services to specific causes. Think tanks have become critical organizations for the development of popular short cut explanations of troublesome phenomena (e.g. trees dying due to acid rain), or *story lines* (Saloma, 1984).

The founding statement of the Öko-Institut in 1977 relates the dramatic consequences of the ongoing destruction of the environment and the failure of the state in this regard, but it also emphasized the positive role of the judiciary in Germany. The institute wanted to establish an independent and critical research unit to offer a decisive instrument at the service of self-responsible citizens (Roose, 2002). Key constituencies of the Öko-Institut included value-conservative and to a certain degree industry-critical Social Democrats like Erhard Eppler and the centrist opposition to nuclear

energy, many of them church going people. Among the activists a broad coalition ranged from moderate and even conservative environmentalists to members of Germany's marginal Communist party, and activists in the local, German and transnational struggle against nuclear power plants. Last but not least a small community of critical academics needs to be mentioned that looked for a more favourable environment for their research (Roose, 2002). Institutional logics relevant to the work of the Öko-Institut instead refer to top down and sideway influences on the organization, among which the courts and the domestic security apparatus originally played a major role before they were superseded by German and European ministries and other contractors offering ever increasing funds for dedicated environmental policy research.

In addition to the early research related to the fight against nuclear energy, the Öko-Institut established work lines related to chemicals, genetics, material flow (waste management and recycling), transport and environmental law. In addition to the original location in Freiburg, offices have been opened in Darmstadt (near Frankfurt am Main in Hessen) and later in Berlin. Partly shedding its ecological radicalism, the Öko-Institut has become a major contract research organization for public and private contractors. Originally highly critical towards the private sector in particular, the institute now considers itself a partner of industry and government rather than an element of the radical opposition (Scheytt, 2007). This is partly due to the mutual effort of reconciliation between the environmental movement and corporate management interests (Weidner, 1996). Although the Öko-Institut was certainly a part of the progressive wing of the fledgling Green party movement of the late 1970s and early 1980s, many of the agendas it helped to promote moved quickly from the margins to the mainstream of the political and managerial class. Generating key concepts for a new political era driven by growing concerns over global warming in the course of the 1980s, species extinction and related problems of new inequalities, mass migration and war contributed strongly to the mainstreaming of Öko-Institut content. Becoming part of the new mainstream, however, did not mean becoming uncontroversial.

Turning to the field of energy, it was the Öko-Institut that came up with the visionary concept of 'Energiewende' (Krause, Bossel, & Müller-Reißmann, 1980). The authors were first anticipating a decoupling of economic development and energy consumption. The *Energiewende* book relied to a certain degree on the work of the American physicist Amory B. Lovins who developed ideas for a turn towards soft energy supply in the United States (Lovins, 1976/1977). The German authors deconstructed the nuclear energy narrative according to which there was no alternative to oil and uranium to close the energy gap and to sustain growth and employment of an industrialized nation like Germany. To the contrary, the book showed the limited supply of both uranium and oil ('peak oil') that would necessitate alternative energy sources regardless of the other good reasons to give up nuclear energy in particular. Interestingly, the book did not yet develop a full anti-fossil energy concept and projected a continuing reliance on coal, which still was a significant domestic economic sector in Germany at the time. Both the growing concern with global warming and the limited relevance of German coal mining quickly led to the modification of the original perspective. The much more damaging impact of East German lignite added additional urgency to coal phase-out after unification, although local populations mobilize resistance in the affected regions, including forces from the far-right party Alternative für Deutschland (Morton & Müller, 2016). Historical modifications notwithstanding, 'Energiewende' was the first daring proposal to significantly shift Germany's energy system and to advance a model dedicated to comprehensive policy change including systematic support for renewable energy and public policy planning instruments such as subsidies for energy conversion and prize guarantees (feed in tariffs). The energy experts of the Öko-Institut in this way also ushered in a new era of ecological economics.

The rise of radical ecological think tank and NGO networks in the 1970s in any case led to a lasting transformation of the political party spectrum of Germany, supporting and sustaining the rise to the sprawling Green Party movement. The integration of the Greens into the political system in turn had a strong influence on the emergence of a second category, of mainstream environmental think tank.

3. The rise of environmental policy think tanks: ecological tax reform and the advance of (neoliberal) environmental economics

Compared to the bottom up logics of civil resistance behind early radical ecological think tanks and social movement NGOs, a second group of environmental think tanks have been founded already with an eye to playing an important part in the institutional evolution of the environmental policy field at national and international levels. The critical role of the multi-country Institute for European Environmental Politics (IEEP) is a good example. The organization was founded by the German refugee Konrad von Moltke, son of one of the officers killed by the Nazis after the failed attempt on Hitler's life in 1944.² Konrad von Moltke returned to Germany via the Netherlands, and originally helped from there to build European and transatlantic research and communication channels needed to develop the European and global (United Nations-centred) environmental policy field (backed by the Dutch royal Prince Bernhard and the European Cultural Foundation). Following the IEEP, the Wuppertal Institute and the Ecologic Institute in Berlin have continued the national, pan-European and transatlantic effort envisioned by Konrad von Moltke with networks stretching from Germany to Brussels and Washington, DC. In the UK, the New Economics Foundation played a similar role, in Scandinavia the Stockholm Environment Institute, and so forth. The ecological movements in the streets were complemented by a new transnational environmental policy elite (Plehwe, 2012).

The proliferation of mainstream environmental research institutes followed the institutionalization of the policy field from the late 1970s onwards. Contrary to established policy fields, environmental policy research started outside of universities and government research facilities in many countries. Both the interdisciplinary character and the private civil society-based roots set a precedent for the subsequent outsourcing of government research and the rise of public-private governance in research and policy making more generally, which of course became a hallmark of the neoliberal age.³ Environmental studies in this way was novel both with regard to the interdisciplinary character and with regard to the organizational format of the private European policy think tank contracting from government agencies at national and international levels.

Policy-related think tank research functions at the same time do not necessarily require a single organizational shell. Consider the crucial (MIT) study of Meadows et al. 'The Limits to Growth' from 1972. It was ordered by members of the Club of Rome many of whom were closely related to the OECD Committee on Science and Technology Policy. The science and political strategy of the Club of Rome, which had been founded in 1968, was eventually reinforced by the German Volkswagen foundation, a major research funding organization independent from the car manufacturer, which financed the forecasting study in an effort to assist launching a global debate (Schmelzer, 2012, Bernstein, 2001).

According to Nowotny et al. (2001) a new approach to better integrate science and society has generated good results, generally. Commercialization and increasing pluralism are seen to overcome the longstanding problem of scientific efforts being geared primarily to scientific communication (from ivory tower to ivory tower). Considering the contributions of ecological and

environmental policy think tanks one is inclined to endorse the juxtaposition of a new mode of science to the traditional world of more exclusive academia. The old mode has been ‘superseded by a new paradigm of knowledge production (Mode II), which was socially distributed, application oriented, trans-disciplinary, and subject to multiple accountabilities’ (Nowotny et al., 2003, p. 179). But the closer entanglement with the political and the commercial fields of think tank related activities (Medvetz, 2012) needs to be taken with a grain of salt. If and how and to what end the array of policy expertise is brought to bear to exert influence on the policy process needs to be subject to empirical investigation.

For the purpose of explaining the complications of German energy transition one think tank of the new category discussed here can be considered crucial. In 1994, a cross-party coalition of politicians (CDU, CSU, SPD, Greens) together with forward looking individuals from the corporate sector (like Deutsche Bank chief economist Norbert Walter) founded the association for ecological tax reform (Förderverein ökologische Steuerreform, FÖS), which promoted an increase of taxes on fossil energy sources to be compensated by a reduction of levies on labour. The principal ideas came from the work of the Swiss environmental economist Hans Christoph Binswanger who was among the active scholars of the FÖS. Post-unification Germany was still marked by high levels of unemployment. The politicians and business people active in this group, across the Green, Social Democratic and Christian Democratic party spectrum, therefore aimed at reconciling environmental and economic (employment in particular) policy making. The goal was to create a win-win constellation to unite ecological, economic and social policy goals rather than pitting environmental and economic policy objectives against each other.

The core idea of the new 300-member Think Tank eventually was turned into the political programme of the Social-Democratic-Green coalition government led by Gerhard Schröder. The government introduced a CO₂ tax (exempting coal!) and compensated companies by way of reducing contributions to the social security system (pensions in particular). The programme fell short of the ambitious ecological transformation plan envisioned by the activists of the environmental policy think tanks, but it did manage to keep ecological goals on the agenda and thereby modified the ubiquitous discussion of locational competitiveness in Germany to a certain extent. In addition to the one-time hike of CO₂ taxes (on Diesel and gasoil in particular), the red-green government introduced the renewable energy law in conjunction with nuclear phase out, which featured fixed feed-in tariffs for all the different sources of renewable energy.⁴ The renewable energy law since has been reformed numerous times and would become the key concern of the neoliberal and fossil interest groups of the country when the market share of renewables expanded much faster than traditional energy producers had expected. But we will turn to this conflict below and continue the discussion of ecological tax reform first for a moment.

Apart from the effort to reconcile ecology and micro-economic competitiveness, the move towards ecological taxation was also the result of an application of mainstream economics to the environmental challenge in the making since the publication of ‘Limits to Growth’ (Meadows et al., 1972). The reaction of neoclassical economics to the Club of Rome challenge was defensive at first. The key growth model of the neoclassical synthesis by Robert Solow did not account for finite resource consumption, as consistent with neoclassical tradition (Walker, 2020, p. 19). But Solow and his followers quickly developed an upbeat response: If resources become scarce, the prices will adjust and resource use will be internalized, i.e. become a part of the economic equations calculated in the growth model (Solow, 1973, for an overview of the discussion since see Halkos & Psarianos, 2015). Economists would also be quick to admit that common goods (like clean air and water) need to be brought into the market (models) since free consumption (and pollution leading

to additional costs for producers and consumers) are ‘external’ unless priced, ideally by private contract and the market mechanism, as explained by Ronald Coase in his classical critique of traditional welfare economics (Coase, 1960).

In Germany, the head of the Kiel Institute for World Economy, Herbert Giersch, was a close friend of the MIT ‘growth man’ Robert Solow and a key protagonist of the move towards ‘endogenous growth theory’ including the efforts to internalize external cost of common good consumption. Giersch also was a towering figure of German neoliberalism and the president of the Mont Pèlerin Society from 1986 to 1988 (Plehwe & Slobodian, 2019). The efforts Giersch and (some of) his students to integrate the environment into economics from a neoliberal perspective developed momentum. A key collaborator of Giersch in Kiel was Deutsche Bank’s Norbert Walter who left Kiel for a new position at Germany’s key financial institute where he eventually advanced to become the chief economist. Walter joined a rising star of the Green Party, Sven Giegold, and Social Democrat and Christian Democratic MEPs to set up Förderverein ökologische Steuerreform think tank (FÖS) to advance and apply environmental economics.

The Solow-Giersch-Walter trajectory of embracing environmental economics was both a creative approach of neoliberals to compete in the new world of increasing environmental regulation, and a defense of the neoliberal concern with limited government regulation and market competition at the same time. Green Budget Germany played an important role in this process. ‘Each year, it also awards a prize to someone who has been especially helpful in promoting environmental taxation. The award is called the Adam Smith Prize’ (Morris & Jungjohann, 2016, p. 167). While the authors are right to emphasize that Adam Smith is here invoked not to fight for lower taxes in the field of environmental policy making, the authors also idealize German neoliberalism (ordoliberalism). They fail to recognize the double-edged sword of neoliberal approaches to environmental economics and the continuing concern of neoliberal environmental economists with growth and competitiveness in opposition to vilified ‘command and control’ regulation and public ownership. It remains unclear in the field of neoliberal environmental economics, if the major concern is with environmental objectives or with a defensive attitude about free markets in the face of severe (ecological) challenge that may require alternative regulatory and planning approaches. While historical German ordoliberalism has credited the state a strong role to secure a competitive market order in contrast to the second Chicago School (Van Horn, 2009), both American and German neoliberals are united in opposition to Keynesian planning and mixed economy ideas held to compromise market principles (Plehwe, *Forthcoming*). While supporters of decentralized renewable energy production and a larger number of competitors are keen to invoke ordoliberal ideas in support of competition to legitimize energy transition, modern heirs of ordoliberal ideas have been keener to object to regulating prizes and other command and control (read: public planning) efforts in support of renewable energy production to be discussed below.

The inclusion of key proponents of German neoliberalism in Green Budget Germany in this way is both a success and a liability. The commitment to ecological social market economy carries the neoliberal baggage of the original social market economy (‘third way’ to prevent socialist/public sector led transformation) and allowed neoliberals to infuse a particular brand of economic reasoning in environmental policy-making, with ambiguous results. One of the applications would soon show in the effort to cut back on the support for renewable energy in Germany, though this can by no means be blamed on the FÖS, which remained an organization committed to advancing environmental policy agendas in spite of the focus on environmental (market) economics. In 2008, the association was officially renamed into Forum Ökologisch-Soziale Marktwirtschaft and became internationally known as the Think Tank ‘Green Budget Germany’. We will encounter

Green Budget Germany again in the discussion of the prize of energy transition that has been evoked in order to block further movement towards energy democracy.

4. 'Free market' environmental think tanks: confronting environmental policies and contesting greener neoliberalism

A third group of think tanks has been directed to take up the challenge presented by both ecological and environmental policy think tanks. This third category of explicitly neoliberal think tanks is focused on the nexus between the (unfettered) economic growth paradigm on the one hand, and the calls for more state regulation to protect the natural environment on the other. Pro-active and precautionary environmentalism has been presented (inter alia by Deepak Lal, development economist and Mont Pèlerin president from 2008 to 2010) as a hypertrophic fad of the enemies of the market and as a part of the collectivist conspiracy against the people, a new road to totalitarianism, eco-dictatorship and ecological imperialism (compare Lal, 1998, chapter 6; Lal, 1997). The latter challenge was also taken up in the debate on the 'tragedy of the commons' (Hardin, 1968; for a comprehensive analysis of its impacts, flaws and ideology see Clark, 2010). Students drawing on Hardin in support of regulating the commons frequently overlook his white nationalist ideology and racist political activism.⁵ Likewise rarely noticed are Hardin's intentions in favour of full privatization of the commons, the prerequisite for 'Managing the Commons' as the 'promising' alternative to public efforts (Baden & Hardin, 1977). The think tank activities of Hardin's co-editor John Baden, a member of the neoliberal Mont Pèlerin Society like Depaak Lal, are instructive with regard to the employment of new third generation of so-called free market environmental think tanks (Beder, 2001) like the Property and Environment Research Center (PERC) in Bozeman, Montana (founded in 1982), or the Foundation for Research on Economics and the Environment (FREE, founded in 1985, host of the 2004 Mont Pèlerin Society Meeting in Bozeman, Montana) (Plehwe, 2012).

PERC and FREE are part of the neoliberal and corporate countermovement against the agenda developed by the ecological discourse and environmental policy coalitions. In addition to PERC and FREE, the Committee for a Constructive Tomorrow (CFACT) was founded in 1985. This corporate NGO, based in Washington DC, was set up to counter the emerging climate justice movement. The work of neoliberal 'free market' think tanks opposing the sprawling climate justice movement and other challengers has been coordinated to a certain extent by the Atlas Economic Research Foundation based in Virginia, US (Djelic & Mousavi, 2020). Much like the transnational environmental policy elite of the 1970s, these neoliberal circles and corporate sponsors have formed a transnational elite in defense of traditional (fossil) market capitalism, albeit claiming to take environmental concerns into account (Eckersley, 1993). The resulting discourse coalition has not been shy to utilize a wide range of approaches to defend status quo economics ranging from climate change denial to an exclusive emphasis on property rights and market-based instruments in environmental policy making (for see Walker, 2020 for an emphasis on fossil firms in the origins of the neoliberal networks). In Germany much like in the United States and elsewhere, members of the Atlas network include think tanks involved in spreading denial messages and think tanks that do not deny climate change, but aim at preventing ambitious mitigation strategies held to undermine free markets and sound economics.

CFACT has long since its founding in the United States developed a European representation. The European subsidiary of CFACT was founded by the German citizen Holger Thuss in 2004 who was also the founder of the European Institut für Klima und Energie (EIKE, founded in 2007 in

Jena, Germany). Eike has developed into the most active European think tank dedicated to obstructing climate policy, yearly posting hundreds of articles in opposition to climate and energy policies developed in Germany, Europe and in the UN context (Almiron et al., 2020). Eike's work was boosted by the rise of Germany's new right-wing political party Alternative für Deutschland (AFD), which entered both German and European parliaments from 2015. AFD was founded by social conservative and neoliberal economists and is the only party that denies climate change and the need to keep warming below 1.5 degrees. The party thus speaks to the 10–20% of German voters who are not sure about existence and causes of global warming. Stagnating at about 10–12% in election surveys, the new right-wing party is a minor force, but is firmly established in the Germany political spectrum. Beyond denial messages, both AFD and EIKE have a strong track record of objecting to the energy transition and renewables, and instead call for a revival of nuclear energy production. Both CFACT and the German Institut für Unternehmerische Freiheit, EIKE's partner in organizing Germany climate conferences featuring a wide range of denial experts, belong to the Atlas network, though EIKE itself has not been affiliated.⁶

Climate denial is also supported by small fringe groups of the German *mainstream parties*, and at times the AFD/EIKE opposition to energy transition links-up with conservative economic policy forces within the Christian and Social Democratic party. The overlapping constituencies include workers who are adversely affected by the plans to exit coal mining and workers who fear job losses in the German car industry due to the rise of e-mobility, for example (Dörre et al., 2020). But the pro-active forces that overlap with EIKE in the climate and energy political field are not only or even mainly working class related. There are also important corporate partners in the right-wing discourse coalition for a different energy transition primarily in support of 'energy security' and 'locational competitiveness', including the fossil energy producers and large industrial energy customers, as discussed earlier (Michaelowa, 2008, 2013; Stevenson, 2021).

German firms and business associations have been very outspoken in the lobbying controversies around emissions trading. German utilities and industrial firms at first opposed the introduction of European emissions trading in favour of non-binding voluntary commitments to CO₂ reductions. When it became clear that the German government would not be able to block the introduction of the European ETS, German corporations started to reluctantly embrace emissions trading in order to shape the emerging regime to their advantage (Corbach, 2016). In contrast to direct business activism with regard to European emission trading, firms and trade groups have taken a lower profile in the public controversies around renewables, leaving the field to energy economists, think tanks and campaign organizations.⁷ Attacks against the highly successful German renewable energy law and the feed-in tariff were stepped-up in the second half of the first decade of the 2000s and have been reinforced after the failure of nuclear revival efforts following the Fukushima accident. Utilities and fossil energy producers for the first time in history were losing money and were starting to shed jobs in Germany and across Europe. Together with industrial customers and energy economists, 'grey' energy trade groups advocated for alternative proposals such as capacity markets and quota models (Haas, 2017, pp. 186–187). These efforts to delay if not derail the *Energiewende* have taken a number of additional routes, all urging incremental solutions, claiming violations of established rules and emphasizing downsides of the wider energy transformation agenda (compare Lamb et al., 2020 on delay strategies).

A particular European road was taken by the experts of the Center for European Policy in Freiburg (CEP, founded in 2006), an ambitious policy think tank that examines all pieces of European communication and legislation considered relevant to advise constituencies, customers and target audiences on policy issues from a principled neoliberal perspective. CEP did a first analysis of EU

plans in support of renewables in 2007 advising against the measures.⁸ According to CEP, mandatory goals for a 20% share of renewable energy by 2020 amount to ‘downright central planning’.⁹ Subsequently, CEP research emphasized contradictions between the stipulations of the German renewable energy law and EU stipulations (Bonn et al., 2014). The study’s timing coincided with the European Commission’s (EC) case against Germany regarding EEG mechanisms exempting large energy users from cost-sharing for renewables development. These mechanisms were classified as ‘state aid’ by the Commission. The ECJ ultimately ruled in favour of the German law in 2019 on technical grounds because the redistribution regime from small to large energy customers did not involve direct public spending, but the court case and the argumentation from the CEP experts helped create uncertainty around the renewable energy law and in particular the provision of a feed-in tariff to encourage renewable energy take-up. The prospect of a possible EU determination requiring the repayment of electricity bill savings arising from the feed-in tariff certainly unnerved the industrial customers who had only grudgingly supported the renewable strategy. This role of the CEP effectively as a legal service think tank dedicated to eroding confidence in the energy transformation has so far been neglected in European lobby studies (Günaydin & Plehwe, 2020).

Additional campaigns against the renewable energy law were launched by the Initiative for a New Social Market Economy (INSM, founded in 2000). This campaign organization was set up by the metal employers industry federation in support of neoliberal reforms of the German welfare state and runs on a substantial yearly budget of €7–8 million. INSM attacked the high cost of the alleged ‘subsidies’ for renewables (INSM, 2012) and advocated switching to a quota model for renewables that was also proposed by the RWI Institute in Essen, a high-end Leibniz-Society research facility (see below). Other government advisory bodies came out in support of switching to the quota model, notably the Monopolies Commission (Monopolkommission, 2013) and the German Council of Economic Experts (Sachverständigenrat, 2014). Last but not least the Think Tank of the German Industry Associations, Institut der deutschen Wirtschaft (IW with offices in Köln and Berlin) published similar positions, which cannot come as a surprise since the IW is the official consultant of the campaign organization INSM. The German feed-in tariff of course had proved to be much more effective than the quota system implemented in UK or Sweden, for example. The feed-in tariff provided a secure investment climate not only for the production of electricity, but also upstream for the producers of machines and equipment. While critics of the feed-in tariff decried the lack of competition due to the regulation of prices (quite common in the traditional fossil energy market), the regime can be considered to acknowledge ordoliberal ideas pertaining to state efforts to ensure a competitive market: it has been successful in creating new forms of local competition for renewable energy in what had been a highly centralized oligopolistic fossil fuel energy market. Secure returns, put in place through the feed-in tariff, helped support the emerging renewable energy market, creating a more equal playing field for a very diverse group of competitors. Despite this, spurious (and self-interested) claims that price fixing was necessarily anti-competitive, made by the dominant incumbent firms and their allies in academic and think tank circles, were effective in shaking confidence, and slowing down the growth of renewables.

The role played by the academic research institute RWI is particularly worrying. With the establishment of its ‘Environment and Energy’ department, under the leadership of Manuel Frondel, the RWI allowed this energy economist to launch a campaign against the renewable energy law and the feed-in tariff. Between 2006 and 2011, the institute published at least seven studies, which discussed the alleged inefficiency of renewables and state support. In 2010, Frondel presented an RWI study

calculating the cost of supporting renewables at 64 billion Euros, for example, whilst failing to account for the benefit of falling electricity prices with the rising share of renewables, and other aspects.¹⁰

Arguably the biggest flaw in the RWI study was the failure to mention the sponsor of the study, the U.S. Institute for Energy Research (IER), which is a climate change denial think tank funded by oil and coal corporations including the Koch family. The link was uncovered by German TV format *Monitor* in 2010 (Kemfert 2013, p. 83). This scandal did not have a negative impact on Frondel's academic career as an economist and energy expert, however. He continues to work jointly with the industry campaign organization INSM, lately weighing-in for emission trading and against CO₂ taxes, for example.¹¹ While organizations like RWI and INSM generally keep their distance from the local climate denial think tank in Germany, the EIKE, the transnational obstruction strategy has clearly been effective in recruiting reputable neoliberal academics in institutes like RWI where it is important to defend the status quo against the *Energiewende* and wider pressures for Energy Democracy.

Emphasizing the allegedly high cost of the feed-in tariff and the resulting burden for the average German citizen (6.5 cents per kwh in 2021) was another cornerstone in the campaign against the feed-in tariff. In 2013, preceding the 2014 EEG reform that got dismantled the feed-in tariff, Germany's economics minister Peter Altmaier jumped on the 'energy poverty' bandwagon, publishing fantasy numbers of the future cost of continuing the feed-in tariff. With this the neo-liberal campaign against the feed-in tariff entered the field of propaganda: Green Budget Germany was one of the organizations that revealed that in fact there was no study supporting the figures that were cited by the campaign organizations and the minister (Morris & Jungjohann, 2016, p. 366). Both the CEP in Freiburg and the corporate campaign organization INSM are part of the global Atlas network. While not dedicating efforts to global warming denial, the evidence of opposition to ambitious mitigation efforts in the name of competitiveness and efficient policy making is overwhelming.

Ending the feed-in tariff in 2014 led to the decline in the growth rate of solar and wind energy production in Germany. The simultaneous introduction of new rules for wind turbines, including requirements for them to be distanced from settlements, added additional regulatory constraints on the expansion of renewable energy. In 2019 the German Coal Commission decided that all German coal-fired plants should close by 2038 (which itself unlikely to be compatible with the Paris agreement). Yet the following year a brand-new 1.1 GW coal fired power station went online in Datteln, maintaining coal emissions for decades.

While it has been impossible to stop the energy transition, industry interests and neoliberal allies have succeeded in delaying the expansion of renewables and the phasing out of fossil fuels. Shaping the process in this way, effectively to lengthen the transition period, is critically important from the perspective of the incumbent firms. Blocking the rise of decentralized renewable production, onshore wind and solar in particular, restrains the threat of sources of competition, while capital-intensive renewables energy production especially in the form of offshore wind parks, can be developed by the incumbent energy sector firms. To close the circle, opposition to onshore wind energy has been mobilized by EIKE and AFD constituencies in conjunction with conservative environmental groups and front groups funded by commercial interests (Redelfs, 2021; Kwasniewski, 2021). The preferred neoliberal energy 'transition' stalls distributed renewable energy, prolongs fossil fuels where possible, and (re)captures energy markets for the utility-scale renewables run by the existing energy corporates.

A key aspect of the strategy is the turn towards neoliberal environmental economics and market instruments. It has already been mentioned briefly that energy economist Frondel of RWI

supported the INSM campaign in favour of emission trading and in opposition to CO₂ taxes, which are both economic instruments. CO₂ taxes of course have a more direct impact by clearly adding a government-calculated price tag to CO₂ emissions, whereas emission trading produces a much more uncertain outcome in terms of pricing and emissions reduction. Of course, the government has a strong interest in policy that is most likely to deliver emissions reduction, not least as reduction targets are set by the state. This ultimately explains the government's preference for a tax-based carbon pricing system price rather than the trading mechanism. In contrast, emissions trading is strongly preferred by industrial interests as a 'market' mechanism that will minimize carbon prices. Within the European Emissions Trading System energy corporates were able keep the carbon price low (and ineffective) by using the free certificates given to incumbent emitters, and through many other means of negating the market instrument (including international offsets, joint implementation etc., compare Gilbertson & Reyes, 2010, 55f.).

Most important for the discussion of the renewable energy law, economists have argued that there is no longer a need for a dedicated regime in support of energy conversion since emission trading allegedly takes care of all the necessary transformation processes. The renewable energy law is held to be superfluous and even counterproductive since it interferes with the 'market', for instance by effectively lowering the price for CO₂ certificates (Frondel & Schmidt, 2006). In making this argument, our RWI authors omitted the fact that CO₂ reductions achieved through the EEG regime were reduced from the overall CO₂ budget to take care of such perverse effects and to secure the effectiveness of the regime (Kemfert & Diekmann, 2009).

5. Conclusions: status quo ante and preparing for the next stage of energy conversion

This chapter focused on three different categories of think tanks and related discourse coalitions to examine and explain the present conundrum of German energy transition and climate politics: Energiewende introduced by the Öko-Institut, environmental modernization promoted by Green Budget Germany and neoliberal 'environmental' economics exemplified by CEP in Freiburg and the employer campaign organizations INSM, for example. Germany is rich in all three segments of think tanks, ecological, environmental modernization and neoliberal economic approaches to environmental questions, which all link competing varieties of academic expertise, communication and policy capacities, and interest and advocacy groups. Although Germany was early to introduce new ideas and policy proposals in support of the transition to renewable energy and energy democracy through think tanks and citizen movements, the rise in the share of renewables has been slowed in the 2010s and the trajectory of Energiewende has been stalled. As argued here, the project has been derailed by a combination of moderate and reactionary influences emphasizing economic competitiveness concerns. While climate denial efforts by organizations like EIKE play a role in the far-right spectrum of German politics mostly, the mobilization of neoliberal perspectives to curtail regulatory approaches like the feed-in-tariff proved successful to stall the expansion of renewables in the second half of the 2010s. The article illustrates the capacity of the neoliberal brand of 'environmental' economics and think tanks that aim at aligning neoliberal concerns with competitiveness and environmental policy demands. These efforts play out to subordinate ecological goals to economic goals, competition and growth. While ecological modernization strategies advanced by organizations like Green Budget Germany place a much stronger emphasis on environmental policy goals and can still be considered to be in conversation with more radical ecological reform movements, neoliberal environmental economics has nevertheless become a

dominant discourse utilized to delay the exit from fossil fuels and to block the movement towards decentralized energy production. It appears to be critical for the future of environmental economics to more clearly distinguish between genuine environmental economics and economics only nominally concerned with environmental policy goals. The claims of economists to have the one and only ‘silver bullet’ approach to deal with environmental concerns in any case needs to be soundly rejected in support of a spirit of trans- and interdisciplinary collaboration concerning ecological needs with economic concerns being just one of many rather than claiming the hierarchical top. Future research on the ecological modernization projects like the European Green Deal needs to address the limits of European competition and state aid policy, for example, in order to enable a wider range of policy options to enable ambitious mitigation and energy democracy.

Notes

1. The Social-Democrat Green Coalition terminated the end of nuclear energy in 2000 in conjunction with the commitment to rapidly expand renewable energy, but the Christian-Democrat-Liberal coalition government reversed the decision in 2010. The Fukushima meltdown eventually led Chancellor Merkel to reconsider the extension of nuclear energy production returning to the original phase-out schedule (Radkau & Hahn, 2013).
2. Konrad’s father Helmuth James Graf von Moltke was a member of the Kreisauer Kreis behind the failed coup. His mother Freya escaped to South Africa with her children and later moved to the United States. Konrad’s history and work is recalled by the German Ecologic Institute, which was inspired by the work of von Moltke (see <https://www.ecologic.eu/1401>).
3. As confirmed in interviews with founder of Ecologic, R. Andreas Kraemer, and with Udo Ernst Simonis, former director of environmental policy research unit at the Berlin Social Science Center, conducted by the author
4. An overview of the record of the two red-green coalition governments in the environmental policy field is provided here: <https://www.upi-institut.de/bilanz.htm> (last accessed 14 May 2021).
5. An excellent review of the two sides of Hardin’s writing has been provided by the Southern Poverty Law Center: <https://www.splcenter.org/fighting-hate/extremist-files/individual/garrett-hardin>, last accessed 26 October 2021.
6. Atlas has removed its detailed directory from the website (<https://www.atlasnetwork.org/partners>), but information can be retrieved up to Spring 2017 via [achrive.org](https://www.archive.org).
7. All the firms and business associations were involved in multi-level lobbying strategies within the institutions. Compare Ydersbond (2012) for details of the ‘economic’ and the ‘renewable’ coalition and numerous internal divisions.
8. It is unclear if and to which extent funding for CEP has been secured from fossil interest groups. A major economic link of CEP is at evidence with the co-chair of the Council, Christoph Ehlers, who held positions in banking and runs a legal consulting organization to support startups. The website does not include information on funding that can be conservatively estimated in the range of €2–3 million per year for the four locations in Freiburg, Berlin, Paris and Rome (based on staff salary).
9. https://www.cep.eu/fileadmin/user_upload/cep.eu/Analysen_KOM/KOM_2006_848_Fahrplan_erneuerbare_Energien/cepAnalyse_KOM_2006_848_Fahrplan_fuer_erneuerbare_Energien.pdf.
10. <https://www.photovoltaik.eu/article-444463-30021-die-luege-vom-teuren-oekestrom-.html>.
11. <https://www.insm.de/insm/presse/insm-veranstaltungen/2019/fruehstuecksdialog-klima-und-umweltpolitik>.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributor

Dieter Plehwe is a senior research fellow at the Berlin Social Science Center and Privatdozent at University of Kassel Department of Political Science. He obtained his PhD (Dr Phil) in Political Science at Philipps-University Marburg in 1997 (Deregulation and transnational integration in North America). He has worked at the WZB since 1996 in different units, including the Department Inequality and Social Policy, the Project Group Modes of Economic Governance and the Department Organization and Internationalization. He also held guest professorships and lecturer positions in Vienna and Yale University as well as research positions at the Harvard Center for European Studies and the International Center of Advanced Studies at NYU. His main research interests include private authority and neoliberalism, contested politics around climate change and socio-economic transformations. Dieter has recently published the edited volume ‘Nine lives of Neoliberalism’ (London: Verso, with Quinn Slobodian and Phil Mirowski) and the ‘Online Dossier Lobbyismus’ of the German Federal Agency for Political Education. He serves as one of three main editors of the Journal Critical Policy Studies and has developed an online repository and blog on think tank networks (www.thinktanknetwork.net).

ORCID

Dieter Plehwe  <http://orcid.org/0000-0002-8563-0946>

References

- Almiron, N., Boykoff, M., Narberhaus, M., & Heras, F. (2020). Dominant counter-frames in influential climate contrarian European think tanks. *Climatic Change*, 162(4), 2003–2020. <https://doi.org/10.1007/s10584-020-02820-4>
- Baden, J., & Hardin, G. (Eds.). (1977). *Managing the Commons*. W. H. Freeman and Company.
- Becker, S., Beveridge, R., & Röhring, A. (2016). Energy transitions and institutional change: Between structure and agency. In L. Gailing, & T. Moss. (Eds.), *Conceptualizing Germany's energy transition: Institutions, materiality, power, space* (pp. 21–41). Springer. <https://eui.idm.oclc.org/login?url=http://doi.org/10.1057/978-1-137-50593-4>
- Beder, S. (2001). Research note – Neoliberal think tanks and free market environmentalism. *Environmental Politics*, 10(2), 128–133. <https://doi.org/10.1080/714000530>
- Bernstein, S. (2001). *The compromise of liberal environmentalism*. Columbia University Press.
- Bonds, E. (2011). The knowledge-shaping process: Elite mobilization and environmental policy. *Critical Sociology*, 37(4), 429–446. <https://doi.org/10.1177/0896920510379440>
- Bonn, M., Heitmann, N., Reichert, G., & Voßwinkel, J. S. (2014). *Entwurf der Leitlinien der Europäischen Kommission für staatliche Umwelt- und Energiebeihilfen 2014–2020*. Centrum für Europäische Politik.
- Böcher, M., & Töller, A. E. (2011). *Umweltpolitik in Deutschland. Eine politikfeldanalytisch orientierte Einführung* (Kurs Nr. 03900 der FernUniversität Hagen).
- Brulle, R., & Aronczyk, M. (2019). Environmental countermovements: Organised opposition to climate change action in the United States. In A. Kalfagianni, D. Fuchs, & A. Hayden (Eds.), *Handbook of global sustainability governance* (pp. 218–230). Routledge.
- Clark, J. (2010). The tragedy of common sense part one: The power of myth. *Capitalism Nature Socialism*, 21(3), 35–54. <https://doi.org/10.1080/10455752.2010.507501>
- Coase, R. H. (1960). The problem of social cost. *The Journal of Law and Economics*, 3, 1–44. <https://doi.org/10.1086/466560>
- Corbach, M. (2016). *Energiepolitischer Lobbyismus in Deutschland. Eine Fallanalyse zur Einführung des Emissionshandels*. Freie Universität Berlin (Dissertation).
- Dörre K., Holzschuh M., Köster J., & Sittel J. (Eds.). *Abschied von Kohle und Auto? Sozial-ökologische Transformationskonflikte um Energie und Mobilität*. Campus.
- Eckersley, R. (1993). Free market environmentalism: Friend or foe? *Environmental Politics*, 2(1), 1–19. <https://doi.org/10.1080/09644019308414061>

- Engfeldt, L.-G. (2009). *From Stockholm to Johannesburg and beyond*. Government Offices of Sweden, Ministry of Foreign Affairs.
- Fischer, F. (1993). Policy discourse and the politics of Washington think tanks. In F. Fischer & J. Forrester (Eds.), *The argumentative turn in policy analysis and planning* (pp. 21–42). Duke University Press.
- Frondel, M., & Schmidt, C. M. (2006). *Emissionshandel und Erneuerbare-Energien-Gesetz: Eine notwendige Koexistenz? RWI Positionen*. RWI Essen. http://www.rwi-essen.de/media/content/pages/publikationen/rwi-positionen/Pos_010_Emissionshandel.pdf
- Geels, F. W. (2014). Regime resistance against low-carbon transitions: Introducing politics and power into the multi-level perspective. *Theory, Culture & Society*, 31(5), 21–40. <https://doi.org/10.1177/0263276414531627>
- Gilbertson, T., Reyes, O., & Peinelt, E. (2010). *Globaler Emissionshandel: Wie Luftverschmutzer belohnt werden - Analyse, Kritik, Perspektiven*. Brandes & Apsel.
- Günaydin, K., & Plehwe, D. (2020). *The neoliberal legal turn. The Center for European Politics (CEP) and its new type of legal service provision*. http://thinktanknetworkresearch.net/blog_ttni_en/the-neoliberal-legal-turn/
- Haas, T. (2017). *Die politische Ökonomie der Energiewende: Deutschland und Spanien im Kontext multipler Krisendynamiken in Europa*. Springer VS.
- Hajer, M. A. (1993). Discourse coalitions and the institutionalization of practice: The case of acid rain in Britain. In F. Fischer & J. Forrester (Eds.), *The argumentative turn in policy analysis and planning* (pp. 43–76). Duke University Press.
- Halkos, G., & Psarianos, I. (2015). *The effect of including the environment in the neoclassical growth model* (MPRA paper no. 68050). <https://mpra.ub.uni-muenchen.de/68050/>
- Hardin, G. (1968). The tragedy of the commons. *Science*, New Series 162(3859), 1243–1248.
- Hirschl, B., & Vogelwohl, T. (2019). Energiepolitik in Deutschland und Europa. In J. Radtke & W. Canzler (Eds.), *Energiewende. Eine sozialwissenschaftliche Einführung* (pp. 69–95). Springer.
- INSM. (2012). *Aspekt 2: Wirtschaftlichkeit*. Updated November 5, 2012. Retrieved January 23, 2020, from <https://www.insm.de/insm/themen/soziale-marktwirtschaft/energiewende-radar/aspekt2-wirtschaftlichkeit>
- Kemfert, C. (2013). *Kampf um Strom. Mythen, Macht und Monopole*. Murmann.
- Kemfert, C., & Diekmann, J. (2009). Förderung erneuerbarer Energien und Emissionshandel: wir brauchen beides. *DIW*, 27(11), 169–174. https://www.diw.de/documents/publikationen/73/diw_01.c.96064.de/09-11-3.pdf
- Krause, F., Bossel, H., & Müller-Reißmann, K.-F. (1981). *Energiewende: Wachstum und Wohlstand ohne Erdöl und Uran*. S. Fischer.
- Kwasniewski, N. (2021) *Netzwerk mit Unterstützung der Industrie: Die Anti-Windkraft-Bewegung*. SPIEGEL Wirtschaft. <https://www.spiegel.de/wirtschaft/windenergie-so-verhindert-die-anti-windkraft-bewegung-neue-anlagen-a-46d88419-3b1d-427d-b6c0-cf696fec283c>.
- Lal, D. (1997). Ecological imperialism. In J. Morris (Ed.), *Climate change – Challenging the conventional wisdom*. Institute of Economic Affairs (EA Environment Unit). http://www.policynetwork.net/uploaded/pdf/climate_change_book.pdf
- Lal, D. (1998). *Unintended consequences*. MIT Press.
- Lamb, W. F., Mattioli, G., Levi, S., Timmons Roberts, J., Capstick, S., Creutzig, F., Minx, J. C., Müller-Hansen, F., Culhane, T., & Steinberger, J. K. (2020). Discourses of climate delay. *Global Sustainability*, 3, e17, 1–5. <https://doi.org/10.1017/sus.2020.13>
- Lovins, A. B. (1977). Energy strategy: The road not taken? In *Foreign affairs. Soft energy paths. Towards a durable peace*. Harper (Original work published 1976).
- McCormick, J. (1989). *Reclaiming paradise: The global environmental movement*. Indiana University Press.
- Meadows, D. H., Meadows, D. L., Randers, J. & Behrens III, W.W. (1972). *The Limits to Growth*. Universe Books.
- Medvetz, T. (2012). *Think-tanks in America*. University of Chicago Press.
- Meyer, J.-H. (2011). *Appropriating the environment. How the European institutions received the novel idea of the environment and made it their own* (KFG working paper 31). Free University Berlin.
- Michaelowa, A. (2008). German climate policy between global leadership and muddling through. In H. Compston (Ed.), *Turning down the heat* (pp. 144–163). Palgrave.

- Michaelowa, A. (2013). The politics of climate change in Germany: Ambition versus lobby power. *WIREs Climate Change*, 4(4), 315–320. <https://doi.org/10.1002/wcc.224>
- Monopoly Commission ‘Sektorgutachten Energie’. (2013). *Wettbewerb in Zeiten der Energiewende (ehem. SG 65)*. German. <https://www.monopolkommission.de/de/gutachten/sektorgutachten-energie/114-sektorgutachten-energie-4.html>
- Morris, C., & Jungjohann, A. (2016). *Energy democracy: Germany’s Energiewende to renewables*. Palgrave Macmillan.
- Morton, T., & Müller, K. (2016). Lusatia and the coal conundrum: The lived experience of the German Energiewende. *Energy Policy*, 99, 277–287. <https://doi.org/10.1016/j.enpol.2016.05.024>
- Moss, T., & Gailing, L. (2016). Introduction. In L. Gailing, & T. Moss. (Eds.), *Conceptualizing Germany’s energy transition: Institutions, materiality, power, space*. Springer. <https://eui.idm.oclc.org/login?url=http://doi.org/10.1057/978-1-137-50593-4>
- Nowotny, H., Scott, P., & Gibbons, M. (2001). *Re-thinking science: Knowledge and the public in an age of uncertainty*. Polity Press.
- Nowotny, H., Scott, P., & Gibbons, M. (2003). Introduction. ‘Mode 2’ Revisited: The New Production of Knowledge. *Minerva*, 41(3), 179–194.
- Plehwe, D. (2012). ‘Umwelt-think tanks’ – Denker oder Lenker. In H. Leitschuh, G. Michelsen, U. E. Simonis, J. Sommer, & E. U. von Weizsäcker (Eds.), *Wende überall?* (pp. 93–100). Jahrbuch Ökologie 2013.
- Plehwe, D. (2015). The politics of policy think-tanks: Organizing expertise, legitimacy and counter-expertise in policy networks. In F. Fischer, D. Torgerson, A. Durnová, & M. Orsini (Eds.), *Handbook of critical policy studies* (pp. 358–379). Edgar Elgar.
- Plehwe, D. (Forthcoming). The economic state and the ordoliberal critique of Keynesianism. Anti-economic state or just a different type of economic state? In T. Biebricher, P. Nedergaard, & W. Bonefeld (Eds.), *The Oxford handbook of ordoliberalism*. Oxford University Press.
- Plehwe, D., & Slobodian, Q. (2019). Landscapes of unrest: Herbert Giersch and the origins of neoliberal economic geography. *Modern Intellectual History*, 16(1), 185–215. <https://doi.org/10.1017/S1479244317000324>
- Radkau, J., & Hahn, L. (2013). *Aufstieg und Fall der deutschen Atomwirtschaft*. oekom.
- Redelfs, M. (2021). *Die Gegner der Energiewende*. Greenpeace Recherche. www.greenpeace.de/files/publications/gegner_der_windkraft.pdf
- Renewables. (2021). *Global status report*. Retrieved October 16, 2021, from https://www.ren21.net/wp-content/uploads/2019/05/GSR2021_Full_Report.pdf
- Roose, J. (2002). *Made by Öko-Institut*. Öko-Institut.
- Rüb, F. W. (Ed.) (2014). *Rapide Politikwechsel in der Bundesrepublik*. Nomos.
- Rucht, D. (1980). *Von Wyhl nach Gorleben. Bürger gegen Atomprogramm und nukleare Entsorgung*. C.H. Beck.
- Sachverständigenrat. (2014). Chapter 10 in *Energiepolitik: Warten auf die dringendnotwendigen Weichenstellungen*. In *Jahresgutachten 2013/2014*.
- Salles-Djelic, M. L., & Mousavi, R. (2020). How the neoliberal think tank went global: The atlas network, 1981 to the present. In D. Plehwe, Q. Slobodian & P. Mirowski (Eds.), *Nine lives of neoliberalism* (pp. 257–282). Verso.
- Saloma, J. S., III. (1984). *Ominous politics. The new conservative labyrinth*. Hill and Wang.
- Scheydt, S. (2007). Wandel durch Annäherung. *Brand eins*, 9(12), 38–46.
- Schmelzer, M. (2012). The crisis before the crisis: The ‘problems of modern society’ and the OECD, 1968–74. *European Review of History: Revue europeenne d’histoire*, 19(6), 999–1020. <https://doi.org/10.1080/13507486.2012.739148>
- Schmitter, P. C., & Streeck, W. (1999). *The organization of business interests: Studying the associative action of business in advanced industrial societies* (MPIFG discussion paper 99/1). Max Planck Institute For the Study Of Societies.
- Smith, J. A. (1991). *The Idea Brokers: Think Tanks and the Rise of the New Policy Elite*. Free Press.
- Solow, R. M. (1973). Is the end of the world at hand? *Challenge*, 16(1), 39–50. <https://doi.org/10.1080/05775132.1973.11469961>
- Spangenberg, J. (2012). NGOs between influence and participation overkill. In O. Renn, A. Reichel, & J. Bauer (Eds.), *Civil society for sustainability – A guidebook for connecting science and society* (pp. 5–17). EHV.

- Stefes, C. H. (2014). Energiewende: Critical junctures and path dependencies since 1990. In F. W. Rüb (Ed.), *Rapide Politikwechsel in der Bundesrepublik* (pp. 47–70). Nomos.
- Stevenson, H. (2021). Reforming global climate governance in an age of bullshit. *Globalizations*, 18(1), 86–102. <https://doi.org/10.1080/14747731.2020.1774315>
- Stone, D. (2007). Garbage cans, recycling bins or think-tanks? Three myths about policy institutes. *Public Administration*, 85(2), 259–278. <https://doi.org/10.1111/j.1467-9299.2007.00649.x>
- Strong, M. (2000). *Where on Earth are we going?* Texere.
- Van Horn, R. (2009). Reinventing monopoly and the role of corporations: The roots of Chicago law and economics. In P. Mirowski & D. Plehwe (Eds.), *The road from Mont Pèlerin* (pp. 204–237). Harvard University Press.
- Walker, J. (2020). *More heat than life: The tangled roots of ecology, energy, and economics*. Palgrave MacMillan.
- Weidner, H. (1996). *Umweltkooperation und alternative Konfliktregelungsverfahren in Deutschland. Zur Entstehung eines neuen Politiknetzwerkes*. Wissenschaftszentrum Berlin für Sozialforschung.
- Ydersbond, I. M. (2012). *Multi-level lobbying in the EU: The case of the renewables directive and the German energy industry*. Fridtjof Nansen Institute.