



Climate Governance in the Federal Republic of Germany

Interaction between the EU, the federal state, and regional states to implement Germany's emissions reduction targets

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As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices

Bonn and Eschborn, Germany

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Project description

This report is an output of the Sino-German Cooperation on Climate Change - NDC Implementation Project, which is commissioned by the Federal Ministry for Economic Affairs and Climate Action (BMWK) as part of the International Climate Initiative (IKI) and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH together with the National Center for Climate Change Strategy and International Cooperation (NCSC) of China, NewClimate – Institute for Climate Policy and Global Sustainability (NCI) gGmbH, and Climate Analytics (CA) gGmbH.

The IKI is an important part of the German government's international climate finance commitment. Since 2022, the IKI is implemented by BMWK in close cooperation with the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and the Federal Foreign Office (AA).

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Design

Beijing Zhuochuang Advertising Co., Ltd

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Beijing, December 2023

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Acronyms and abbreviations

BMU	German Environment Ministry (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit)
BMWi	German Ministry of Economic Affairs and Energy (Bundesministerium für Wirtschaft und Energie)
COP	Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CSE	Central System on Emissions
DEHSt	German Emission Trading Authority (Deutsche Emissionshandelsstelle)
ECS	Electronic Components and Systems
EEG	German Renewable Energy Act (Erneuerbare-Energien-Gesetz)
ERDF	European Regional Development Fund
ESIF	EU Structural and Investment Funds
EU	European Union
EU ETS	EU Emissions Trading System
GHG	Greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
LTS	Long-term strategy
LULUCF	Land use, land-use change and forestry
MEE	Chinese Ministry of Ecology and Environment
NaSE	German National GHG Inventory System (Nationales System zur Emissionsberichterstattung)
NDC	Nationally Determined Contribution
NECP	National Energy and Climate Plans
QSE	Quality System for Emissions
UBA	German Federal Environment Agency (Umweltbundesamt)
UNFCCC	United Nations Framework Convention on Climate Change
VCI	German Chemical Industry Association (Verband der Chemischen Industrie)
VDD	German Industry Association for Bitumen Paper and Bitumen Roof Sheeting (Industrieverband Bitumen-Dach- und Dichtungsbahnen)
WV Stahl	German Steel Industry Association (Wirtschaftsvereinigung Stahl)
ZVEI	German Electrical and Electronic Manufacturers Association (Zentralverband der Elektrotechnik und Elektronikindustrie)

1

Introduction



1 Introduction

This paper provides additional insights into multi-level climate governance taking the example of Germany, which is organised as a federal parliamentary republic that consists of 16 regional states. Germany is also a member state of the European Union (EU) and a Party to the United Nations Framework Convention on Climate Change (UNFCCC), and its climate policy is firmly embedded in the international and European climate policy architecture. As such, Germany's national contribution to the achievement of the Paris Agreement forms part of the EU's joint Nationally Determined Contribution (NDC) which was submitted on behalf of all member states. At the national level, Germany has established a climate governance framework that provides for strong federal responsibilities with a smaller but still significant role played by the regional states.

Six years after the Paris Agreement has been adopted and with the 26th Conference of the Parties (COP) in Glasgow reiterating the urgency of the challenge, the world is still not on track to meet the targets set in Paris in 2015. To limit global warming to well below 2°C, aiming at 1.5°C, we must considerably speed up the transformation towards a climate-neutral world and promote quick and resolute action in all countries and by all actors, including government and non-government Parties.

The Marrakech Partnership for Global Climate Action, adopted at the 22nd COP in 2016, aims to catalyse climate action and voluntary collaboration between Parties and non-Party stakeholders and brought non-state and subnational climate action¹ to the fore. Even though the aggregate emissions reduction potential of subnational actors, such as local and regional governments, remains underexplored, it is likely to be significant. A recent study assessing the impact of climate commitments made by non-state and subnational actors finds that full implementation of the GHG emission reduction targets set by those actors could lead to additional emissions reductions of 2.0 to 2.5 GtCO₂e per year, compared to the baseline in 2030 (NewClimate Institute *et al.*, 2021). However, since subnational climate action does not live up to this potential, more attention must be given to the establishment of effective multi-level climate governance frameworks that can support all actors to fully exploit their potential for climate action.

The concept of multi-level governance, which describes the dynamic inter-relationship within and between different levels of governance and government, has become indispensable in the context of global climate governance. If implemented successfully, multi-level governance can bring along several benefits through the recognition that each governance level (internationally and nationally) has a specific role to play and faces challenges and opportunities to effectively drive climate action. While close collaboration between different levels of governance is needed to achieve the targets of the Paris Agreement, the interplay of policy making and implementation processes within and across governance levels is often complex and may not automatically lead to an optimal division of responsibilities.

The following chapters seek to shed some light on the interaction between the EU at the supranational level, the German federal state government and the 16 regional states with a view to implementing the German emissions reduction targets. They provide an overview of the climate policy frameworks and respective instruments existing at all three levels of governance, while placing a focus on the role and potential of regional state governments in the planning and implementation of ambitious climate action.

The work forms part of the Sino-German Cooperation on Climate Change which supports the bilateral policy dialogue on climate change between the German Environment Ministry (BMU) and the Chinese Ministry of Ecology and Environment (MEE).

¹ Non-state and subnational actors include companies, civil society, cities and regions, and are often collectively referred to as "NSAs" (Hsu et al., 2019). The focus of this paper lies on subnational actors, referring specifically to regional state governments as the first administrative unit below the federal state government.

2

Climate policy
governance in the
European Union



2 Climate policy governance in the European Union

German climate governance is strongly influenced by the climate targets and respective policies adopted at the EU level. The following three subchapters will shortly explain EU emissions reduction targets, the way these targets are reflected in the EU's climate governance framework, and the role of reporting by the member states, which serves as a major tool of coordinating EU and national climate policies.

2.1 EU's emissions reduction target for 2030 and beyond

- The EU submitted its updated NDC in December 2020, with a new GHG emissions reductions target of -55% by 2030. However, the effective emissions reduction target may vary depending on the scope of the NDC.
- The European Green Deal is the EU's long-term strategy (LTS), which includes a commitment to climate neutrality by 2050. Several aspects of the LTS are, however, already outdated and need to be revisited.
- An intermediate GHG emissions reduction target for 2040 will be proposed in 2024, together with a projected, indicative carbon budget for the EU for the period 2030-2050.

2.1.1 EU's 2030 emissions reduction goal

In December 2020 the EU submitted its updated NDC in which it committed to reducing emissions by at least 55% by 2030 in comparison to 1990 (Germany and the European Commission, 2020). This constituted a significant increase in comparison to the earlier target of reducing emissions by at least 40%, submitted to the UNFCCC in March 2015 (European Council, 2015). There are three major differences between the old and the new target.

1. **Net emissions:** The new target is defined as “net” target, meaning it includes emissions from the land use, land-use change, and forestry (LULUCF) sector. In the EU, the LULUCF sector constitutes a sink. Even if the sink is accounted for in both the base year and the target years, it still weakens the target. According to the European Climate Law adopted in June 2021, independently of how big the sink will be in 2030, a maximum of 225 MtCO₂eq can be used to account for meeting this target. This would mean an effective emissions reduction of 52.8%, excluding LULUCF.

2. **Aviation and maritime transport:** The EU's updated NDC clearly mentions that the new emissions reduction target includes emissions from international aviation. Such emissions are excluded from the NDCs of almost all other countries. While international aviation was included in the EU Emissions Trading System (EU ETS), its inclusion in the target was not mentioned in the initial NDC from 2015. The “Fit for 55” package of proposals from July 2021 aiming at implementing the new emissions reduction target indicates that while international flights between different EU member states (international intra-EU aviation) will be covered by the EU and complemented by intra-EU maritime transport, extra-EU aviation will be subject to the same emissions reduction scheme (Carbon Offsetting and Reduction Scheme for International Aviation – CORSIA) as all other international flights. If, for the sake of comparability with other emissions reduction targets, intra-EU aviation and maritime transport (which constitute international aviation and maritime transport) are excluded from the emissions reduction target, the effective emissions reduction goal is 53.9%.

3. **Brexit:** Due to Brexit, the updated NDC applies only to the EU27. The UK, due to its higher GDP per capita in comparison to the other member states, took a higher emissions reduction burden. The new NDC applies to an EU with an average GDP per capita almost 3% below the EU27+ the UK, which reflects higher ambition than could be assumed when comparing only the emissions reduction targets.

Table 1. EU's 2030 emissions reduction goal depending on the scope. Own calculation based on European Commission, 2020d; Eurostat, 2021.

	1990 (in MtCO2e)	2030 (in MtCO2e)	Emissions reduction
Emissions including LULUCF and intra-EU aviation and navigation	(in MtCO2e)	2030	-55.0%
LULUCF emissions	(in MtCO2e)	Emissions reduction	
Emissions excluding LULUCF but including intra-EU aviation and navigation	4.929	2.327	-52.8%
Intra-EU aviation and shipping	57	91	
Emissions excluding LULUCF and excluding intra-EU aviation and navigation	4.871	2.246	-53.9%

2.1.2 EU's 2050 emissions reduction target

Clean Planet for All: communication of the climate neutrality target

In November 2018, the European Commission published its communication “Clean Planet for All” which proposes the adoption of a climate neutrality target by 2050 (European Commission, 2018b, 2018a) and more urgent action. In a 1.5°C world, typical projections reach net zero GHG emissions by 2070, and become negative afterwards¹⁸ (Figure 2). The Communication was accompanied by an in-depth assessment of how this target can be met. The assessment presented eight scenarios for 2050, two of which – 1.5LIFE and 1.5TECH – result in emissions reductions by over 99%, including LULUCF. Without LULUCF, emissions reductions amount to between 91 and 95%, respectively. The main difference between these two scenarios is the much higher reliance on carbon removal technologies in the 1.5TECH scenario, which would reach almost 260 MtCO₂eq in 2050.

The main weakness of the Commission’s proposal was a delay in emissions reductions – while emissions were to decrease by around 48% in the 40 years between 1990 and 2030, they were to decrease by over 50% in half the time by 2050. This was contrary to what is possible and necessary: technologies to decarbonise a significant portion of the economy are already available and should be deployed rapidly to leave room for some emissions from the more challenging sectors post-2030.

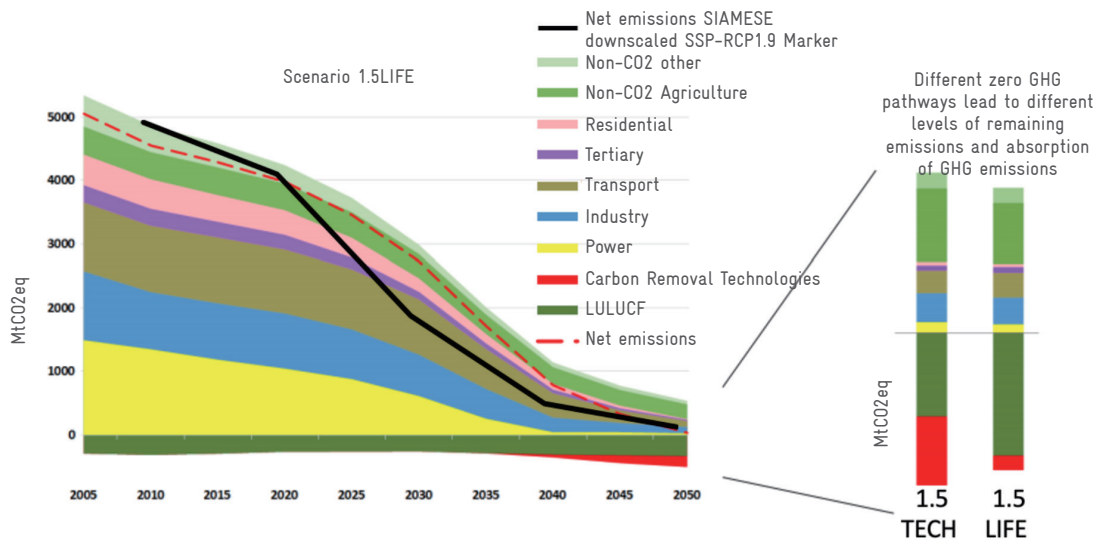


Figure 1. EU's emissions according to the Commission's proposal and downscaling of the Paris Agreement-compatible emissions pathways for the EU. Based on European Commission, 2018b; Wachsmuth, Schaeffer and Hare, 2018; Climate Analytics, 2021.

European Green Deal: the EU's long-term low GHG emissions development strategy

In December 2019, the European Commission presented its long-term strategy (LTS), the European Green Deal. It was accompanied by an agenda listing almost 50 measures aiming at accelerating emissions reductions in different sectors by either strengthening existing policies or suggesting new ones. The agenda also included the adoption of a higher emissions reduction target for 2030 (European Commission, 2019). The adoption of the target as described earlier mitigated the main drawback of the long-term strategy of postponing an acceleration of emissions reductions until after 2030.

In March 2020, the EU submitted its long-term strategy to the UNFCCC. The submission included a commitment to the climate neutrality target by 2050, reference to the EU's Communication and in-depth assessment on climate neutrality from 2018, and a statement that member states will submit their own national long-term strategies to the UNFCCC (Croatian Presidency and the European Commission, 2020). In the meantime, however, the EU's LTS is already outdated for three reasons:

- The LTS was prepared before Brexit, hence it included the UK in its assessment. With the UK leaving the EU, the potential for emissions reductions changed, requiring the update of some aspects of the in-depth assessment.
- The European Green Deal does not reflect the EU's new emissions reduction target for 2030. As the new emissions reduction target includes the phrase "at least", the new modelling can go beyond the 55% benchmark for emissions reductions in 2030.
- The modelling has become outdated due to changes in technology as well as social preferences. The costs of electric mobility are decreasing faster than expected, and development of (mostly green) hydrogen started to enjoy significant political support allowing for faster decarbonization of challenging sectors. Finally, the pandemic ignited various changes in social preferences. While the repercussions of some of them are still not clear, the acceleration in digitalization and increased acceptance for remote working create an opportunity for climate change mitigation.
- The IPCC's 6th Assessment Report presents more detailed information on emissions reductions that can be considered compatible with the Paris Agreement's temperature limit. These insights should be reflected in the EU's updated long-term strategy.

Especially the last element should play an important role in setting the emissions reductions target for 2040 as well as the intermediary targets for 2035 and 2045.

2.1.3 EU's emissions reduction target for 2040

The EU's emissions reduction targets adopted for 2020 and 2030 have been driven by politics more than by science. They have been adopted by the EU heads of states, following lengthy discussions at the national and European levels. To get the approval of some of the least ambitious countries, e.g., Poland, generous exceptions have been made that weakened the efficacy of the targets.

The adoption of the European Climate Law in June 2021 changes this process to some degree. The first step will belong to the European Commission, which will propose an emissions reduction target for 2040 within six months of the first global stocktake – most probably in 2024. The proposal of the new target will be accompanied with a projected, indicative carbon budget for the EU for the period 2030-2050. Ideally, this takes into consideration different elements, such as the most recent scientific evidence, the social, economic, and environmental impacts of action and inaction, as well as the availability of technologies. What does not change in comparison to the status quo is that the binding target will, in the end, be adopted by the Council. When adopted, the new target will be engrained in the European Climate Law (European Parliament and the Council of the European Union, 2021).

2.2. Implementation of the EU goals

- The responsibility for reaching the EU's GHG emissions reduction target is divided between the EU and its member states.
- Main instruments for implementation of the emissions reduction target include the EU Emissions Trading System (EU ETS) and the Effort Sharing Regulation.
- In the context of the "Fit for 55" package the European Commission proposes to increase EU's GHG emissions reduction goal for 2030 to 62%.
- Adaptation of the existing legislation to the new goal is pending adoption by the Council and European Parliament.

While the EU adopts emissions reduction targets for the whole of the EU, the responsibility for reaching them is divided between the EU and the member states. The EU has a strong governance system that ensures that the EU's targets adopted at the EU level are in fact reached or even exceeded.

The 2030 emissions reduction target submitted by the EU to the UNFCCC in March 2015 was implemented by amending a number of different pieces of legislation. The overall target of reducing emissions by 40% between 1990 and 2030 was divided into two sub-targets: one for the sectors covered by the Emissions Trading System (EU ETS) and another one for all remaining sectors. The latter target is also referred to as non-EU ETS or Effort Sharing Regulation target from the name of the document in which the distribution of this sub-target between member states is regulated. In both cases, the targets are translated to emissions reductions by 2030 in comparison to 2005 due to better data availability at the sectoral level.

For the EU ETS, the sub-target was agreed at 43% below 2005 levels. This target is reflected by decreasing an overall EU ETS emissions cap by 2.2% annually (Figure 2). The emissions allowances within the cap (EUAs) are sold by member states at a stock exchange (e.g., EEX). They need to be purchased by around 11,000 installations from the electricity and industry sectors, as well as operators of intra-EU flights. Extra-EU flights are temporarily excluded from the obligation to purchase emissions allowances reflecting their emissions.

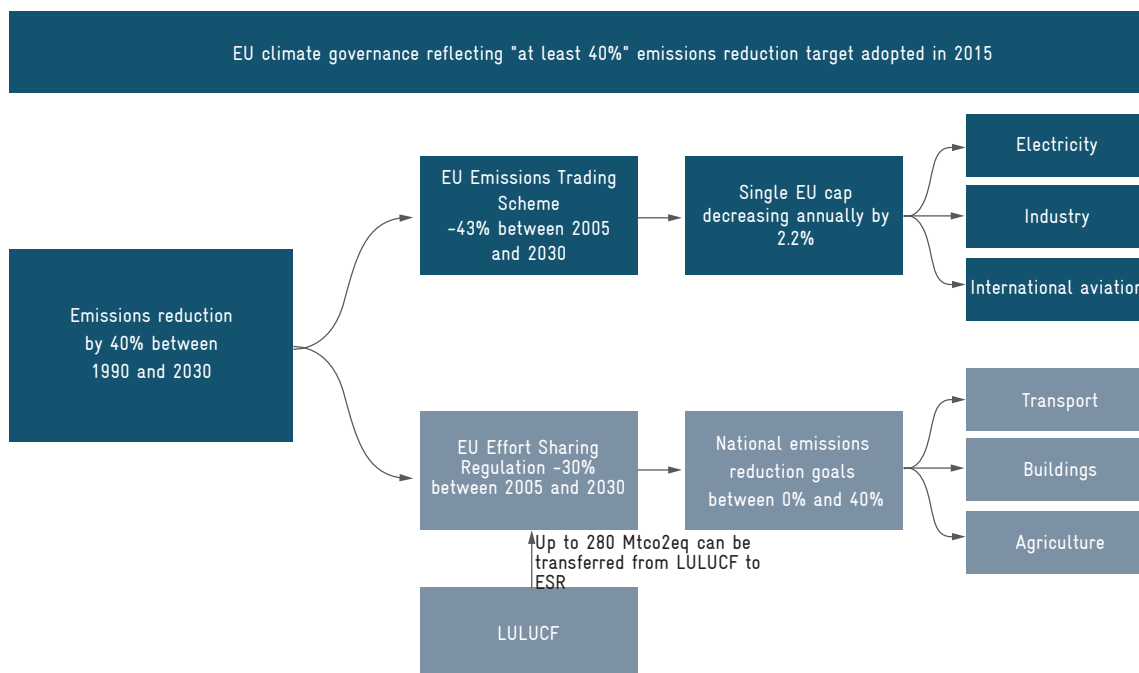


Figure 2. Distribution of the EU's emissions reduction target adopted in 2015 between different sectors. Own illustration based on European Council, 2014; European Parliament and the Council of the European Union, 2018a, 2018c, 2018d.

The proposal of amending the EU ETS directive presented by the Commission in the framework of the “Fit for 55” package in July 2021 suggests increasing the emissions reduction target to 62% (European Commission, 2021c). For this purpose, the emissions reduction rate in the EU ETS sector needs to increase to 4.2% annually. In addition, according to the Commission’s proposal, emissions from buildings and road transport currently covered by the Effort Sharing Regulation should be covered by a parallel emissions trading scheme starting in 2026, with emissions reduction at 43% below 2005 levels.

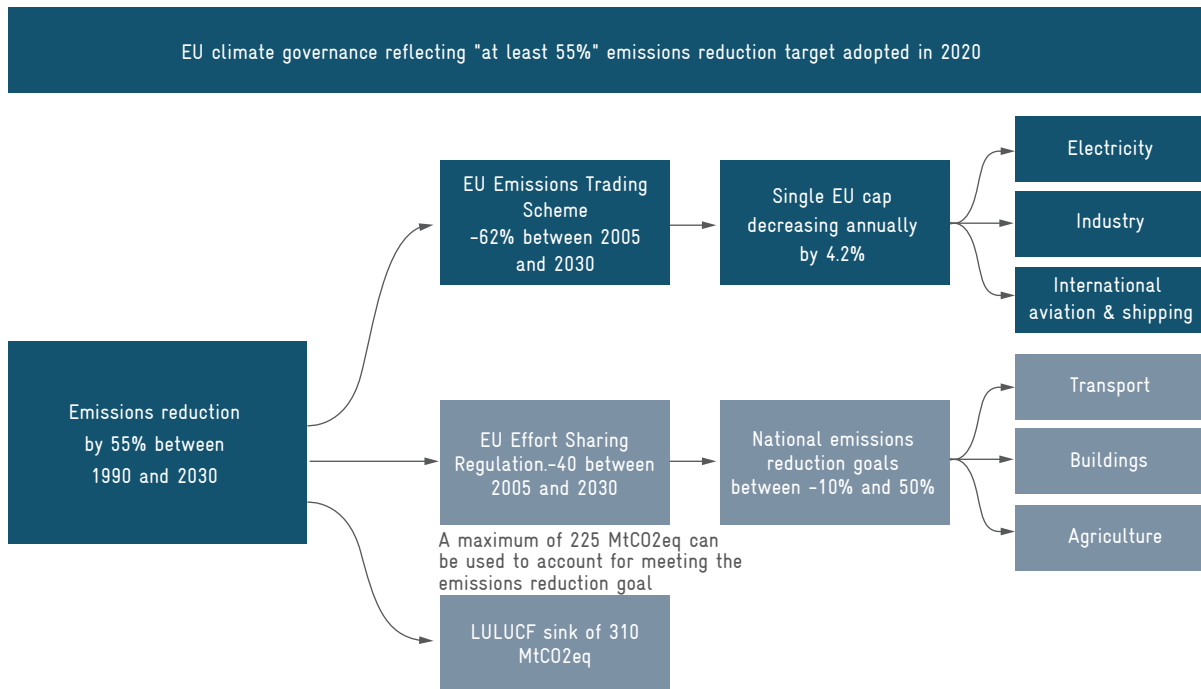


Figure 3. Distribution of the EU’s emissions reduction target adopted in 2020 between different sectors as proposed by the Commission in July 2021. Own illustration based on European Commission, 2021b, 2021c, 2021d.

The Commission’s proposals which adapt the existing legislation to the new target still need to be adopted by the Council (representing member states) and European Parliament. After each of these two institutions adopt their respective positions, they start a process of negotiations referred to as “trialogues”. After reaching a compromise, both institutions formally adopt the amended proposals, which soon after are published and become law. In some cases, member states still need to transpose EU laws into their domestic legislation.

2.3 Reporting of the member states

- The Governance Regulation of 2018 requires regular reporting by the member states.
- National Energy and Climate Plans (NECP) provide an overview of the energy system and policy framework in each member state affecting the achievement of the EU’s energy and climate goals. A first round of NECPs was submitted in 2019/2020, with an opportunity to be updated in 2024.
- Specific long-term strategies (LTS) covering a period of at least 30 years shall be submitted in 2029 and every ten years thereafter and shall be aligned with the NECPs.

To increase predictability of the member states’ climate and energy policy and facilitate its coordination with the European policy, the Governance Regulation adopted in 2018 introduced the requirement of regular reporting by the member states (European Parliament and the Council of the European Union, 2018b). These reports take the form of National Energy and Climate Plans (NECPs) and long-term strategies (LTS).

2.3.1 National Energy and Climate Plans (NECPs)

The 2018 Governance Regulation requires that member states submit integrated plans for each decade, including an overview of their energy system and policy framework affecting the achievement of the EU's energy and climate targets. The special focus of the NECPs for the period 2021-2030 was on the achievement of the EU's 2030 emissions reduction target, as well as member states' contribution to the achievement of the EU's 32% target for renewable energy in energy consumption, and improvement of energy efficiency by 32.5% in comparison to earlier projections. The 2018 Governance Regulation obliges the governments of all member states to involve public and social partners when developing their NECPs. In addition, they should give opportunity to other member states to comment on their plans before their finalisation. This is meant to decrease inconsistencies between different countries that could hinder transboundary cooperation in the achievement of the EU's targets.

The NECPs for the period 2021-2030 were to be submitted by the end of 2019 with an opportunity to update them in 2024. The update only allows for an increase in overall ambition. Should the cumulative effort expressed in the plans not be enough to meet the EU's 2030 targets, the Regulation explicitly empowers the Commission to take measures at the European level to close the gaps. To ensure timely reaction, the NECPs should also include "reference points" for the specific targets for 2022, 2025, and 2027. If member states fail to reach them, they must explain to the Commission what mitigation efforts they will introduce to close the gap in the future.

While some member states submitted their NECPs with some delay, all of the NECPs have been sent to the European Commission by summer 2020, allowing the Commission to publish their assessment together with the proposal for the new 2030 target in September 2020 (European Commission, 2020a). According to this assessment, the cumulative targets of the member states would result in an overachievement of the EU's renewable energy target: instead of the 32% share of renewables in 2030, between 33.1% and 33.7% of energy consumed in the EU would be coming from renewables that year. At the same time, the EU's energy efficiency targets would be missed: instead of decreasing energy consumption by 32.5% in 2030 in comparison to earlier projections, primary energy consumption would have decreased by 29.7% and final energy consumption by 29.4%.

The aforementioned increase of the EU's emissions reduction target to 55%, and the resulting increase of the renewable energy and energy efficiency targets will require a significant ratcheting up of the NECPs at the latest by 2024. In addition, the European Climate Law adopted in June 2021 broadened the scope of the NECPs by requiring that the member states also report on their progress towards achieving the EU's climate neutrality target. National governments should also clarify the scope of funding committed to meeting EU's energy and climate targets (European Parliament and the Council of the European Union, 2021).

2.3.2 Long-term strategies (LTS)

In addition to the NECPs, member states are asked to develop and submit long-term strategies covering the period of at least 30 years. The NECPs and the long-term strategies should be consistent with each other and be submitted simultaneously – on 1 January 2029 and every ten years afterward. In addition to specifying overall and sectoral emissions reduction targets, the long-term strategies should also include details concerning the enhancement of removals by sinks (European Parliament and the Council of the European Union, 2018b). The European Climate Law adopted in 2021 specifies that the national strategies need to be consistent with the EU's climate neutrality target by 2050. The Law also adds an additional review process by the European Commission by 30 September 2023 and every 5 years thereafter (European Parliament and the Council of the European Union, 2021).

To allow member states more time for preparation, the deadline for the submission of the first national long-term strategies was 1 January 2020. However, as of September 2021 – the last time the list was updated by the European Commission – the long-term strategies of seven member countries were still missing (European Commission, 2021a). Most of those already submitted are much shorter and less detailed than the NECPs. Also, an overall assessment of the strategies by the Commission is pending (European Commission, 2021b).

2.4 Implications of EU's climate targets for Germany

- Until the new EU climate policy architecture has been formally adopted, German climate targets are still based on the 2030 EU Climate and Energy Framework of 2014.
- In sectors covered by the EU ETS, Germany must achieve the joint GHG emissions reduction target of 43% by 2030 and in sectors covered under the Effort Sharing Regulation, Germany must reduce GHG emissions by 38% by 2030.
- Germany submitted its first NECP in June 2020.

As a member state of the EU, Germany commits to fulfil the climate mitigation targets set at the EU level and the respective national targets that are derived therefrom. The new European Climate Law is binding for the EU and all its member states. In the context of the European Green Deal and the European Climate Law, the proposed “Fit for 55” legislative package will fundamentally overhaul the EU's climate policy architecture.

Until the new EU climate policy architecture is in place and has formally been adopted by the respective institutions, German climate targets are still based on the 2030 EU Climate and Energy Framework which was established in 2014, and in which the EU set the target to achieve at least 40% GHG emission reductions from 1990 levels by 2030.

Current German climate mitigation targets deriving from EU-level targets are composed as follows: in the sectors covered under the EU ETS, Germany needs to achieve the joint emissions reduction target of 43% by 2030 over 2005. This means that emissions reductions in the energy and industry sectors are mostly regulated at EU level, with little room for German climate policy to deviate from supranational governance. Under the EU Effort Sharing Regulation, the EU has assigned Germany an individual emissions reduction target of 38% by 2030 over 2005. In this case, Germany is responsible to develop the necessary national measures and policies to limit emissions from the sectors covered. The LULUCF Regulation sets a binding commitment for each member state to ensure that accounted GHG emissions from LULUCF activities are compensated by an equivalent accounted removal of CO₂ from the atmosphere through climate action in the sector (BMU, 2020b). In 2019, Germany submitted a National Forestry Accounting Plan in which the German forest reference level was estimated to be a sink, with net emissions of -10.0224 MtCO₂e per year in the first compliance period 2021-2025 (Rock *et al.*, 2019).

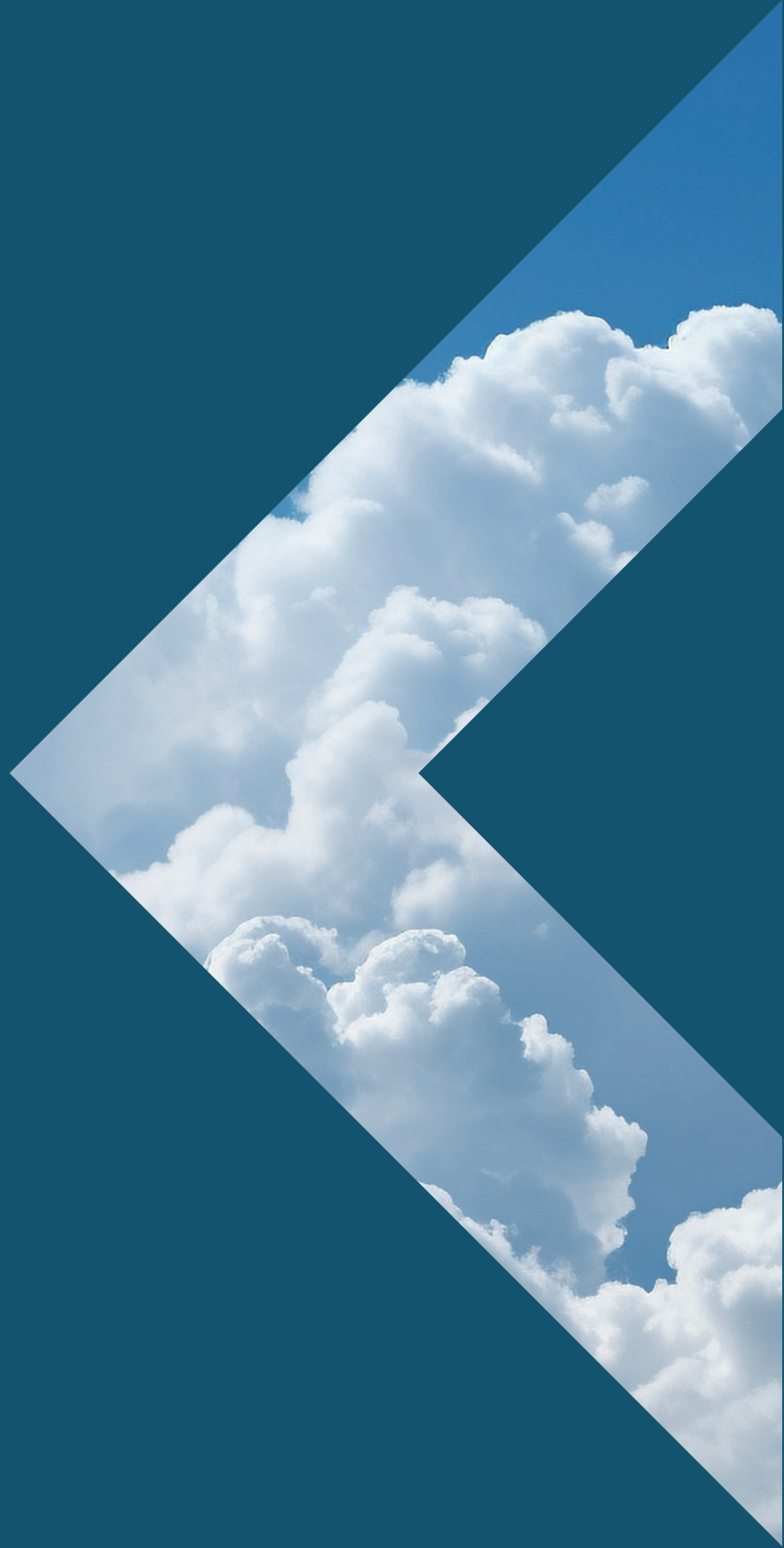
In line with the old and, potentially, also with the new targets set at the EU level, Germany committed itself in the 2021 amendment of its Climate Change Act to a total GHG emissions reduction of 65% by 2030 over 1990 and to achieve GHG neutrality by 2050. The Act further provides that the ambition of Germany's national climate targets can only be raised, not lowered (Government of Germany, 2021a).

The German Integrated National Energy and Climate Plan (NECP)

The German government approved the country's first NECP in June 2020 with slight delay, given that key legislative proposals, such as details on the coal exit, were pending approval (BMW_i, 2019a). The NECP provides a full overview of the country's climate and energy policy as well as the current status of plans in the different areas addressed. It is based on various national strategies, targets, and measures, including the 2010 Energy Concept, the 2030 Climate Action Programme, and the 2050 Energy Efficiency Strategy. It contains the targets to reduce GHG emissions by at least 55% in 2030 compared to 1990 and confirms the Government's commitment to pursue GHG neutrality by 2050; to increase the share of renewable energies in gross final energy consumption to 30% in 2030; and to reduce primary energy consumption by 30% by 2030, compared to 2008 (BMW_i, 2019b). The first progress report on the implementation of the NECP, which is to be developed under the leadership of the Ministry of Economic Affairs and Energy, is due in 2023 (BMW_i, 2020).

3

Climate policy
governance in Germany:
an overview



3 Climate policy governance in Germany: an overview

Germany is a federal state with two closely interlinked political levels. Institutions at the federal state level comprise of the federal cabinet with the Chancellor and the federal ministries, the directly elected federal parliament (*Bundestag*) and the federal council (*Bundesrat*) which represents the 16 regional states² (*Bundesländer*), together constituting the federal system. Each regional state has its own constitution, parliamentary system, and other administrative elements of government.

Climate and energy policy in Germany is primarily a matter of the federal state. Regional states and municipalities have limited legal authority to complement national climate and energy legislation through initiatives at the subnational level. Yet, they are important implementers of climate action on the ground.

3.1 Institutional framework at the national level

-
- Climate change appeared on the German political agenda in the mid-1980s.
 - Germany's climate policy architecture is built around three pillars: the 2050 Climate Action Plan (long-term strategy), the 2030 Climate Action Programme (measures) and the Climate Change Act (legal framework).
 - Germany's first, non-binding GHG emissions reduction targets were mentioned in a coalition agreement of 2002 and were later incorporated in the Energy Concept of 2010.
 - Germany's current binding GHG emissions reduction targets are enshrined in the first amendment to the Climate Change Act: -65% by 2030, -88% by 2040 and climate neutrality by 2045.
 - Monitoring of progress against these targets is ensured at different levels and through different mechanisms, including the National GHG Inventory System and specific monitoring processes for the Energy Concept and the Climate Change Act.
 - Several independent expert groups and advisory bodies exist at the national level to steer climate and energy policy: the Energy Transition Monitoring Commission, the Scientific Platform for Climate Protection, the Council of Experts on Climate Change and the Action Alliance on Climate Protection.
-

3.1.1 Climate policy framework and targets

The origin of German climate targets

The issue of climate change appeared on the political agenda in Germany in the mid-1980s. At that time, Germany proactively supported the development of a global climate policy and a corresponding climate regime under the roof of the United Nations (Weidner, 2008). In 1986, shortly after the accident of the Chernobyl nuclear power plant, the Ministry of Environment, Nature Conservation, and Nuclear Safety (BMU) was created which brought increasing public attention to environmental issues and climate change in the country. One year later, the first Climate Enquête Commission³ investigated the topics of ozone depletion and climate change and made concrete proposals

² The German term "Bundesländer" can be translated in different ways; in this paper, the term "regional states" is used to refer to this level of governance which is the first administrative unit below the federal state government.

³ Enquête commissions consist of parliamentarians and scientific experts and aim to facilitate the parliamentary discussion on complex long-term issues (Watanabe and Mez, 2004).

for action. In its third report, the Commission recommended to reduce Germany's CO₂ emissions by 30% until 2005 and by 80% until 2050, compared to 1987 levels (Watanabe and Mez, 2004).

In the late 1990s, Germany succeeded in gradually reducing its CO₂ emissions and played a prominent role in climate policy at the international and EU levels. Hosting the first Conference of the Parties (COP1) in Berlin, the German government strengthened its 25% target by changing the base year from 1987 to 1990 (Watanabe and Mez, 2004).

In 1998, general elections led to a new coalition government between the Social Democrats and the Greens. The coalition agreement put special emphasis on environmental and climate policy and included plans for an ecological tax reform, the promotion of renewable energies and energy efficiency, and the phase-out of nuclear energy.

In 2002, the Federal Parliament unanimously ratified the Kyoto Protocol. Later that year, the Social Democrats and the Greens formed a second-term coalition government and agreed on a medium-term target of reducing GHG emissions by 40% until 2020 (Watanabe and Mez, 2004). In the following years and up until today, an accelerated development of climate policies and measures led to the gradual concretisation and strengthening of Germany's emissions reduction targets (Figure 4). In the following, key milestones and respective policy documents accompanying the process are briefly presented.

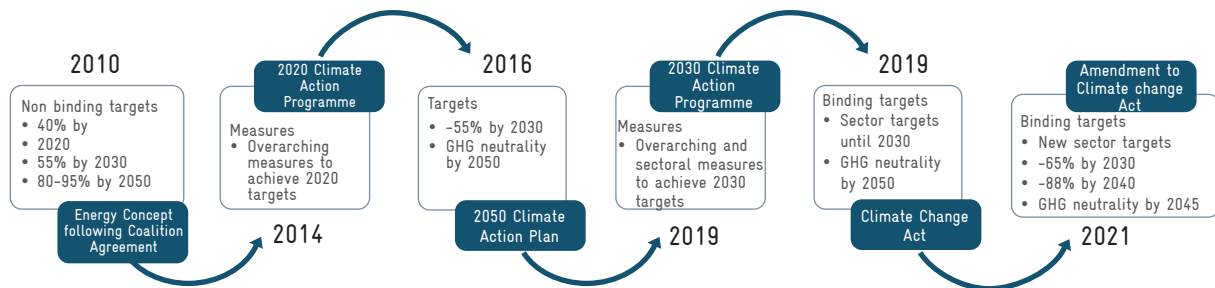


Figure 4. Development of German climate targets after 2010.

2050 Energy Concept (2010)

In 2010, the German government adopted the Energy Concept for an Environmentally Sound, Reliable and Affordable Energy Supply which set out a long-term energy strategy up to 2050. Apart from specific targets for renewable energy and energy efficiency, the 2050 Energy Concept includes four gradual, non-binding emissions reduction targets in line with the coalition agreement of 2002: to reduce GHG emissions to 40% below 1990 levels by 2020, to 55% by 2030, to 70% by 2040 and to 80-95% by 2050 (BMW_i and BMU, 2010). The Concept furthermore establishes a monitoring process which serves to review the progress in achieving the goals set. The Energy Concept gave the official starting signal for the German energy transition.

2020 Climate Action Programme (2014)

In 2014, the German government developed and passed the 2020 Climate Action Programme to ensure that Germany achieved the target of 40% GHG emissions reductions by 2020 as established in the coalition agreement of 2002 and the 2050 Energy Concept. For that purpose, the 2020 Climate Action Programme mapped all emitting sectors according to the source principle, assessed each sector's emissions reduction potential and developed measures for each sector to realise the necessary emissions reductions. The implementation of the Programme was guided by the Action Alliance for Climate Protection, which serves as a dialogue platform between civil society and the government. Furthermore, the government established a monitoring mechanism for the Programme in which the Ministry of Environment had to prepare annual climate action reports outlining the progress of implementation, the latest emissions trends, and anticipated reductions. These reports were included in the annual monitoring reports on the energy transition, developed by the Ministry of Economic Affairs and Energy (BMU, 2014a). The monitoring mechanism is being continued and has been formalised in the 2019 Climate Change Act.

2050 Climate Action Plan (2016)

Germany adopted the 2050 Climate Action Plan in 2016, being one of the first countries to submit a long-term strategy (LTS) to the UNFCCC, as requested under the Paris Agreement. The Plan confirms the country's medium-term target to reduce emissions by at least 55% by 2030 compared to 1990 levels and establishes a long-term target for the country to become climate-neutral by 2050. The Plan furthermore lays down 2030 milestones for different areas of action (energy, buildings, transport, trade and industry, agriculture and forestry), describes transformative development pathways until 2050, and establishes a learning process to enable the progressive raising of ambition. The Plan is accompanied by a programme of measures, the 2030 Climate Action Programme. As such, it is meant to provide guidance for strategic decisions in and across sectors until mid-century. The 2050 Climate Action Plan considered the EU climate target of 2014 and is expected to be updated in 2022, including the increased level of ambition of the joint EU climate target of 2021 (BMU, 2016). The update of the 2050 Climate Action Plan is to be followed by an update of the 2030 Climate Action Programme.

2030 Climate Action Programme (2019)

In October 2019, the German government adopted the 2030 Climate Action Programme as a successor to the 2020 Climate Action Programme and to guide the implementation of the 2050 Climate Action Plan. The programme outlines sector-specific measures for CO₂ reductions in seven sectors: energy, industry, buildings, transport, agriculture and forestry, land use, and waste management (Government of Germany, 2019a).

A central element of the Programme is the introduction of a CO₂ emissions price for the transport and heating sectors, which are not covered under the EU Emissions Trading System (EU ETS). The CO₂ price took effect in 2021 with an initial price level of EUR 25 per tonne CO₂, which is set to rise to EUR 55 by 2025. Revenues generated from this scheme are to be reinvested in climate change mitigation measures or redistributed to German citizens (Government of Germany, 2019b).

The 2030 Climate Action Programme continues the monitoring process as established by the 2020 Climate Action Programme, with support of an independent Council of Experts. In addition, the government-led Climate Cabinet examines once a year if the measures are effective and if annual sectoral targets as specified in the Climate Change Act have been achieved (Government of Germany, 2019b). The Climate Action Programme is updated in tandem with the Climate Action Plan.

Climate Change Act (2019)

The first iteration of the Climate Change Act was adopted by the German government in December 2019. It reaffirmed the emissions reduction targets at the EU level at that time and enshrined Germany's target of a 55% reduction in total GHG emissions compared to 1990 by 2030 and climate neutrality in 2050 in law (Government of Germany, 2019c). It furthermore defined binding annual emissions reduction targets for major economic sectors between 2020 and 2030, in line with the EU goals (Table 2). Each line ministry assumes responsibility for complying with its respective sector targets as established in the Act (Government of Germany, 2019d).

In case targets are missed or overshot, the Act states that the disparity will be spread out evenly over the remaining annual emissions budgets of the sector until 2030. If a target is missed, the responsible line ministry is obliged to take necessary and immediate action (UBA, 2020c). According to the first iteration of the Act, the German government would set annual emissions levels for periods after 2030 in 2025, in line with the goals of the Act and the requirements of the EU (Government of Germany, 2019d).

Table 2. Germany's GHG emission reductions per sector: status in 2019 and 2030 targets, as per the Climate Change Act of 2019.

Sector	Annual emissions in 2030 in MtCO _{2e}	2019 status (cut from 1990 levels)	2030 target (cut from 1990 levels)
Energy	175	45.5%	62.5%
Industry	140	33.8%	50.7%
Buildings	70	41.9%	66.7%
Transport	95	0.6%	42.1%
Agriculture	58	24.4%	35.6%
Waste & other	5	76.3%	86.8%
Total	543	35.7%	56.6%

(does not include emissions from LULUCF; based on Government of Germany, 2019b, §4(1))

While establishing clear sector targets, the Climate Change Act does not address any tangible obligations for the sectors themselves, defining responsibility solely as ministry action. Moreover, the Act does not provide a breakdown of targets at the subnational level.

Together with the 2050 Climate Action Plan and the 2030 Climate Action Programme, the Climate Change Act makes up the centrepiece of German climate policy architecture (Figure 5).



Figure 5. Core components of the German climate policy architecture.

Box 1: Decision of the federal constitutional court

In a historic decision, the federal constitutional court, on 29 April 2021, called on the German government to distribute climate action efforts up to 2050 more appropriately across the current and future generations.

The case

While the 2019 Climate Change Act outlined targets and emission budgets for certain economic sectors until 2030, provisions for the time after 2030 were dropped during the legislative process which underpinned the Act. As such, the Act merely required the federal state to define annually decreasing emission budgets for periods after 2030 in 2025, but not earlier.

Environmental associations and individuals considered these provisions insufficient to fight climate change and, in February 2020, raised legal challenges against the Act at the federal constitutional court. They claimed that the federal state would breach its obligation to actively protect their fundamental rights and that the Act would thus be unconstitutional (Bodle and Sina, 2021a).

The decision

The constitutional complaint and the court's decision relate to article 20a of the German Constitution, which imposes a duty on the state to protect the environment "also [...] towards future generations". Based on this article, the federal state has a duty to take measures which may ultimately limit the fundamental rights of the people. Accordingly, the more climate change progresses, the greater is the legal weight of the federal state's duty to protect the climate.

Against this background, the court's decision states that while the 2019 Climate Change Act does fulfil the federal state's duty to actively protect fundamental rights of present generations against the impacts of climate change, it does not sufficiently protect future generations against the potential restrictions of their freedoms that will become necessary as climate change progresses. The central argument brought forward by the court is based on emissions budgets: in order to limit global warming to well below 2°C, only a certain total amount of emissions is available. The more of its total emissions budget Germany consumes by 2030, the greater the risk that after 2030 the federal state will have to restrict fundamental rights more strictly to fulfil its duty laid down in Article 20a. Given that the emissions levels defined in the 2019 Climate Change Act would already consume a large part of the total emissions budget available to Germany until 2050, the court ruled that the Act must be amended to initiate the transition to climate neutrality more timely and reduce the risk that fundamental rights will be severely restricted after 2030 (Bodle and Sina, 2021b).

Amendment to the Climate Change Act (2021)

In May 2021, the German federal cabinet adopted a draft law to amend the Climate Change Act in compliance with the federal constitutional court's ruling. The draft law was adopted by the Federal Parliament and passed the federal council in June 2021 and entered into force in August 2021.

The amendment to the Climate Change Act provides for an increase in the medium-term target from 55% to 65% emissions reductions by 2030 compared to 1990 levels (Government of Germany, 2021b). A new medium-term target of reducing emissions by 88% compared to 1990 levels has been set for 2040. Furthermore, Germany strives to reach climate neutrality already by 2045.

The amendment retains the system of annual emission budgets for individual sectors up to 2030, with these levels being significantly reduced in comparison to the provisions made in the original Act. The majority of the additional emissions reductions will have to come from the energy and industry sectors, which continue to be the highest emitting sectors (Figure 6).

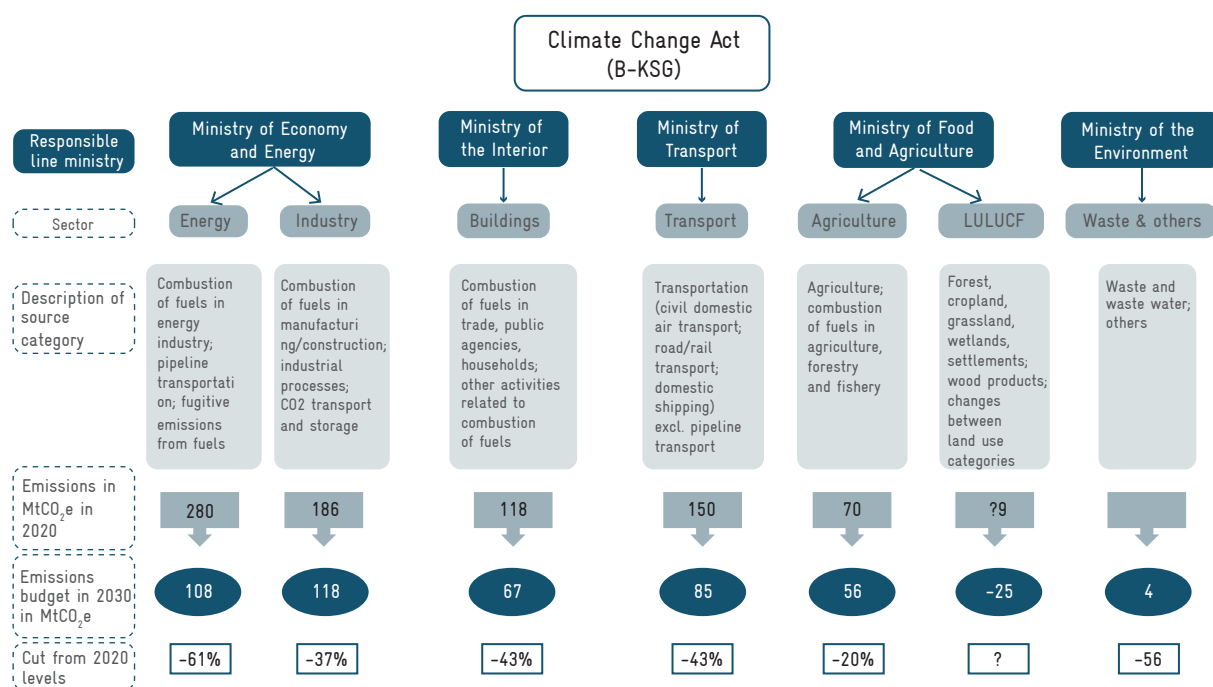


Figure 6. Responsibilities and emissions budgets in 2030 for different sectors, according to the amendment to the Climate Change Act of 2021 (not taking into account potential changes of responsibilities in the federal cabinet resulting from the elections in late 2021).

Moreover, the amendment includes concrete, economy-wide reduction targets for each year for the period from 2030 up to 2040 (Table 3). How these will be divided across the different sectors will be decided in 2024, when the new EU climate policy architecture has been formally adopted. The amendment also states that emissions reduction targets for the years from 2041 to 2045 will be determined in 2035 (Government of Germany, 2021a).

Table 3. Annual emissions reduction targets for the years 2031 to 2040 (economy-wide).

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Annual emissions reductions compared to 1990	67%	70%	72%	74%	77%	79%	81%	83%	86%	88%

(Source: Government of Germany, 2021)

Besides concrete emissions reduction targets for economic sectors, the amendment stresses the relevance of natural carbon sinks, such as forests, soils, and peatlands. It includes specific targets to improve the absorption capacity of natural sinks. Germany sets sink targets of -25 million CO₂e by 2030, -35 million CO₂e by 2040, and -40 million CO₂e by 2045 for the land use, land use change and forestry sector (Government of Germany, 2021a).

The updated targets also consider the new EU climate target for 2030. While a decision on the implementation of the EU agreement is still pending, the German government decided to anticipate the target to the extent possible and to adjust the Climate Change Act later. The amendment therefore provides for an evaluation of the Act in 2022 in line with European regulations (BMU, 2021).

2022 Climate Emergency Programme (2021)

As a result of the revisions of the Climate Change Act and to meet its more ambitious targets, the German government passed the 2022 Climate Emergency Programme. Through this Programme, the government plans to provide an additional EUR 8 billion to facilitate the transition to a coal-free industry, advance green hydrogen and steel, scale up energy-efficient buildings refurbishment and support climate-friendly transport (German Ministry of Finance, 2021a).

More than half of the budget, or EUR 4.5 billion, is to be invested in the promotion and retrofitting of energy-efficient buildings. An additional EUR 1 billion will be allocated to building sustainable social housing. The Programme also allocates EUR 1 billion to new infrastructure, almost a third of which (EUR 300 million) is to be invested in biking lanes. The overall industrial transition is an important pillar of the Programme, too, with EUR 650.2 million earmarked for incentive programmes such as climate protection contracts with the industry to offset additional costs of sustainable production. The measures will be implemented over a period of five years, starting in 2022 (German Ministry of Finance, 2021b).

Financing climate and energy policies in Germany – the Energy and Climate Fund

The Energy and Climate Fund (EKF) is the central funding mechanism for climate action at the national level. The EKF was established in 2010 as a special fund to finance Germany's energy and climate policy measures. Out of the government's EUR 54 billion of total funding for implementing climate and energy measures in Germany until 2023, EUR 38.9 billion are distributed through the EKF alone. Most prominently, the measures funded through the EKF comprise energy-efficient building refurbishment as well as supplementary measures for emissions savings in the building sector (EUR 13.1), the promotion of electromobility (EUR 9.3 billion), and energy efficiency and decarbonisation of the industry (EUR 2.4 billion) (German Ministry of Finance, 2019a).

The EKF is primarily financed through proceeds from the EU ETS and from the recently established German carbon pricing scheme in the transport and housing sectors. This is complemented by a federal subsidy. The government also plans an emissions-sensitive reform of the vehicle tax and the air traffic tax, with additional revenues benefitting the fund (German Ministry of Finance, 2019b).

Political steering of climate policies in Germany – the Climate Cabinet

The Climate Cabinet (Klimakabinett) was established by the federal government in May 2019 in the form of a cabinet committee with the objective to intensify and politically steer the government's climate policy commitment. The Climate Cabinet is a high-level political body which is headed by the Chancellor and comprises the ministers for environment, interior, economy and energy, food and agriculture, and transport; the head of the federal chancellery and the head of the federal press office. The intensified exchange between the ministers of the ministries concerned aims to promote and accelerate an understanding at the highest political level and to support planning, coordination and decision making. One of the first tasks of the Cabinet was to prepare the legislative process for the Climate Change Act, which existed as a draft at that time. Furthermore, the Climate Cabinet discusses and evaluates the proposals of the responsible line ministries for legal regulations, measures and programmes to achieve the sectoral 2030 climate targets (German Bundestag, 2019).

The Climate Cabinet is furthermore involved in the monitoring of the 2030 national climate targets. It annually reviews the effectiveness, efficiency and accuracy of the measures introduced in the 2030 Climate Action Programme. If a sector does not meet its statutory targets, the responsible ministry submits an emergency programme to the Climate Cabinet for readjustment within three months of the Expert Council's confirmation of the emissions data. On this basis, the Climate Cabinet decides how the 2030 Climate Action Programme is to be jointly adjusted so that the underlying targets are achieved (Government of Germany, 2019b).

Implications of the 2021 federal elections on Germany's climate governance framework

The federal elections held in Germany in September 2021 led to a new federal government formed by the Social Democrats, the Greens and the Free Democrats, the so-called "traffic light coalition". With climate change running as a central theme throughout the election campaign, the new coalition treaty with the title "Daring more progress – Alliance for Freedom, Justice and Sustainability" places the topics of climate change and sustainable energy at the top of the political agenda. Notably, the coalition treaty refers to the Paris Agreement and provides that the federal government will "align [its] climate, energy and economic policies nationally, in Europe and internationally with the 1.5°C path and activate the potential at all levels of government" (SPD/ DIE GRÜNEN/ FDP, 2021). The plans and measures outlined in the treaty affect the climate governance framework within Germany and are likely to have an impact on governance at the European and international level, too.

Super ministry & climate check mechanism

With the Ministry of Economy and Climate Protection, a new "super ministry" is being created which will be led by the Greens. For the first time, Germany has a dedicated climate ministry which will oversee the rollout of renewable energies and place the country on an emissions reduction path that is compatible with its climate neutrality target. While this ministry does not have a veto power on legislative proposals from other departments, as intended by the Greens, a "climate check" mechanism will be established which will require every ministry to check its own law proposals regarding their climate impacts and compatibility with the Paris Agreement. With the Ministry for Agriculture and the Ministry for the Environment, two more climate-relevant departments will be led by the Greens, while the Finance Ministry and the Transport Ministry will be headed by the Free Democrats. Given the major differences that exist between the two parties, it is not clear yet how smoothly the different departments will collaborate to ensure that the national climate and energy targets are met.

Creation of a Climate and Transformation Fund

Equally unclear is the question of financing the plans and measures outlined in the coalition treaty. While the new government foresees to invest around EUR 50 billion per year into climate protection measures, this number is not included in the agreement. In terms of mechanisms, however, there is the plan to restructure the Energy and Climate Fund (EKF) into a Climate and Transformation Fund and to channel resources from unused credit lines under the 2021 budget to this fund.

Climate as a topic in German foreign policy

A novelty under this coalition treaty is the reference to “climate foreign policy” which suggests that climate change will be an important topic of German foreign policy, likely influencing international and European climate policy as well as the European Green Deal. For example, the new coalition plans to promote an EU-wide carbon floor price under the EU ETS and a European CO₂ price in the buildings and transport sector. Furthermore, it supports the creation of an international “climate club” which will aim at achieving a global, uniform CO₂ price and at introducing common border adjustment.

Implications for climate governance at the regional state level

The role of regional states in German climate governance is only marginally touched upon in the new coalition treaty. Cooperation between the federal level and regional states is foreseen with regards to planning the use of two percent of German land for onshore wind power; develop Germany's maritime economy; and in establishing a (green) hydrogen economy and building the respective infrastructure. In addition, the coalition treaty states that the investment capacity of regional states is to be strengthened and that municipal investment activity, especially when aiming at promoting climate protection and transformation, will be further supported by the federal state. It can be presumed that while the distribution of roles in the German climate governance framework remains unaffected under the new government, a more ambitious climate policy course at the national level may also encourage regional state and municipal governments to step up their ambition to the limits of their abilities.

3.1.2 Monitoring and reporting

Monitoring of progress against the Germany's emissions reduction targets is ensured at different levels and through different mechanisms. At the core of the monitoring process is the regular reporting on GHG emissions which is central to the compliance with reporting requirements under the UNFCCC and under the EU Climate Monitoring Mechanism. This quantitative exercise is complemented by several processes and tools that monitor the implementation of policies and measures and actual progress against Germany's climate and energy targets (Figure 7). Monitoring and reporting processes at the international, the EU and the national level are closely interrelated.

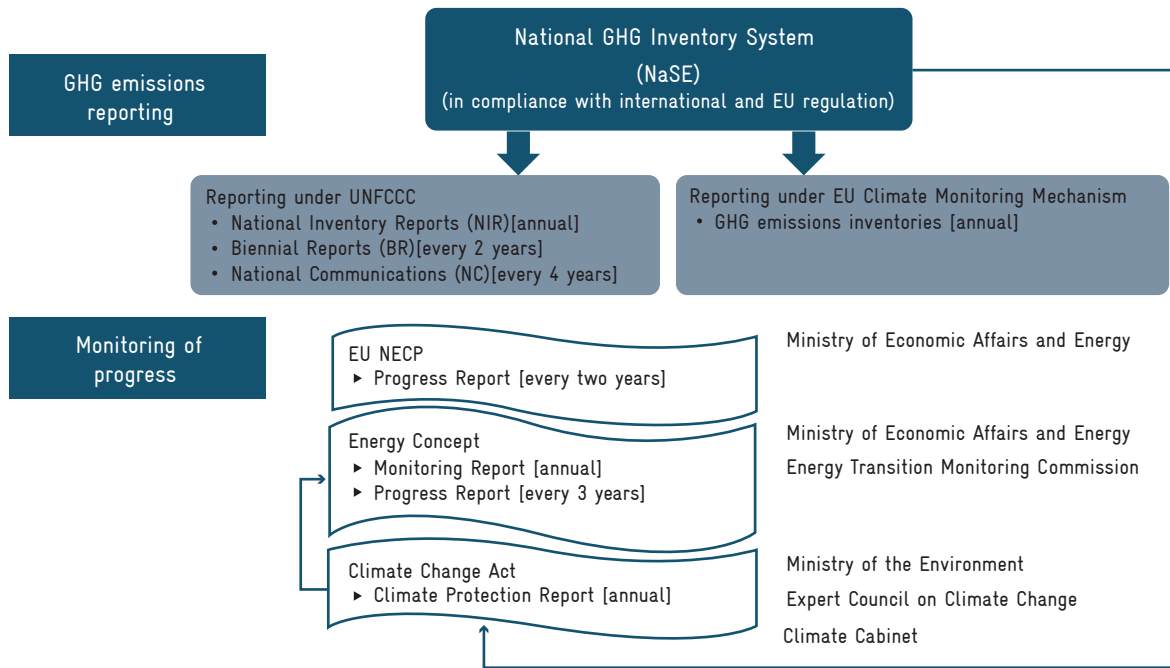


Figure 7. Overview of monitoring and reporting instruments in Germany.

3.1.2.1 International reporting: Germany's National GHG Inventory System

Germany established a national GHG emissions inventory system (NaSE) in 2007, in line with the requirements of the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories and the Kyoto Protocol. The system furthermore fulfils the principles of the 2013 European Climate Reporting Regulation (EU, 2013).

To establish the NaSE, the State Secretaries of seven federal ministries (environment, economy and energy, agriculture, transport, buildings, finance, defence) signed an agreement in 2007. The agreement provided for the creation of a *National Co-ordinating Committee* headed by the Ministry for the Environment and including representatives of all participating federal ministries. The Federal Environment Agency (UBA), as a subordinate agency to the Ministry for the Environment, was appointed as *Single National Entity* to coordinate GHG emissions reporting at the national level. UBA's tasks include planning, preparing, and archiving inventories from all economic sectors and carrying out quality control for major process steps. Two key instruments used for emissions reporting include the Central System on Emissions (CSE), used for central storage and processing of methods, activity data and emissions factors, and the Quality System for Emissions (QSE) that provides the necessary framework for good inventory practice, defining responsibilities and quality objectives (UBA, 2020a). Figure 8 provides an overview of the NaSE.

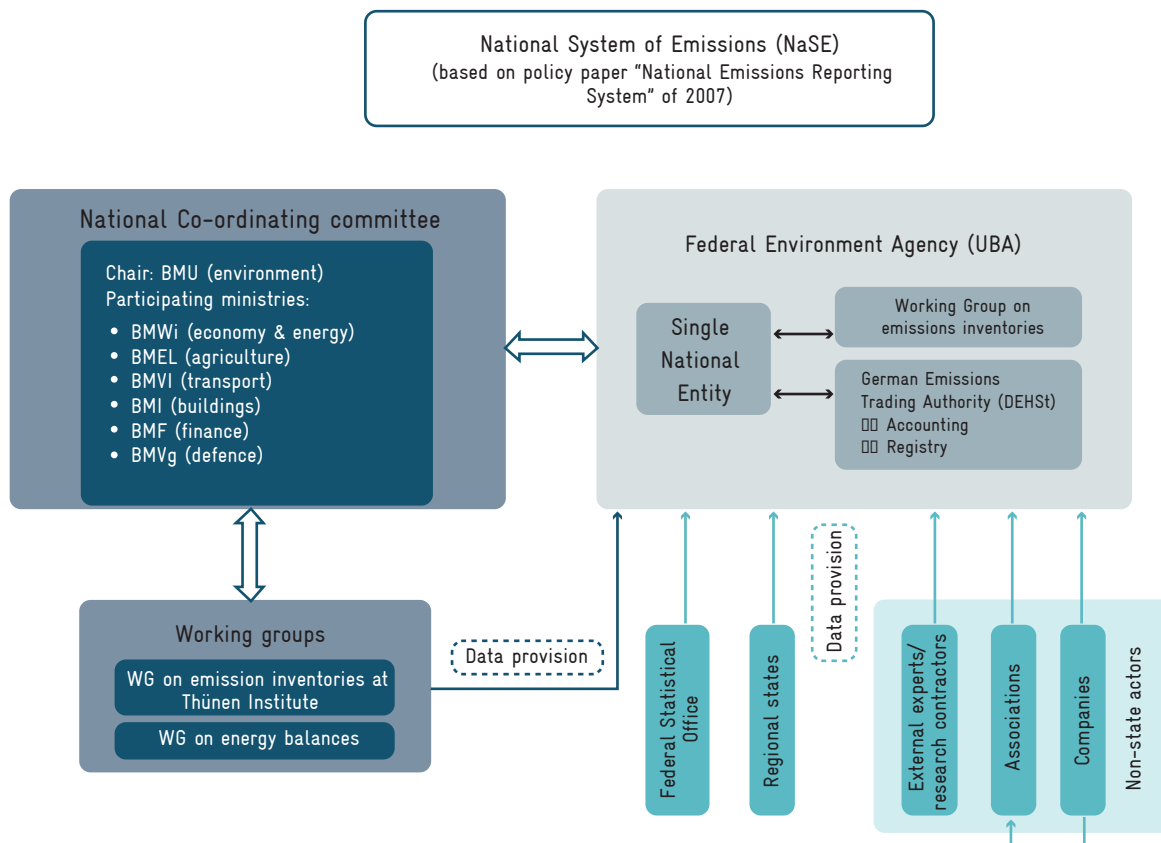


Figure 8. Structure of the German National System of Emissions (NaSE) (adapted from UBA, 2020a).

Data for the national GHG inventory is provided through statistic offices at the federal or regional state level or from other public sources, or is made available by non-state actors, such as companies and business associations. While there is no official law regulating the national GHG inventory system and data collection in Germany, data provision is organised through official cooperation agreements or voluntary commitments, especially with the private sector. Where these voluntary commitments expire, they are replaced by formal cooperation agreements (UBA, 2020b).

Cooperation agreements with industry to facilitate data flow

Currently, agreements with five associations and three enterprises are in place (UBA, 2020b):

- 2009: Agreement with the German Chemical Industry Association (VCI) and German producers on data provision in the categories ammonia and nitric acid
- 2009: Agreement with producers of adipic acid located in Germany
- 2009: Agreement with the German Industry Association for Bitumen Paper and Bitumen Roof Sheeting (VDD)
- 2011: Agreement with the German Steel Industry Association (WV Stahl)
- 2012: Agreement with the Electronic Components and Systems (ECS) division of the German Electrical and Electronic Manufacturers Association (ZVEI)

The cooperation agreements take the form of legal contracts between the industry body concerned and UBA. The existing agreements are continuously updated in light of changing reporting requirements or where data gaps appear. Thus, the agreements provide a reliable long-term framework for data collection and help improve data quality as a fundament for robust GHG emissions reporting over time (Röser, 2017).

3.1.2.2 National reporting: reporting processes for the Energy Concept and the Climate Change Act

At the national level, two monitoring mechanisms are of relevance in the context of the German climate governance system: the monitoring process on the energy transition, established through the 2010 Energy Concept, and the climate monitoring process, provided for in the Climate Change Act.

Monitoring progress on the Energy Concept: Monitoring Report and Progress Report

A monitoring process titled “Energy of the Future” was established by the German cabinet shortly after the adoption of the 2050 Energy Concept in 2010. The process serves to review progress in achieving the goals set out in the Concept as well as the implementation status of the corresponding measures, to facilitate corrective action if necessary. To this end, the German government appointed the independent Energy Transition Monitoring Commission to review and comment on the annual *monitoring reports* and triennial *progress reports* which are prepared by the Ministry of Economic Affairs and Energy (BMWi). The monitoring reports focus on providing a fact-based overview of the energy turnaround, while the progress reports contain a more comprehensive analytical component and, if necessary, propose measures to overcome obstacles to achieving the targets. In February 2021, the German government published the 8th Monitoring Report for the reporting years 2018 and 2019 (Löschel *et al.*, 2021a).

Monitoring progress on the Climate Change Act: Climate Protection Report

The 2019 Climate Change Act provides that the federal government prepares an annual Climate Protection Report which describes the development of GHG emissions in the various sectors and the status of implementation of respective measures.

For that purpose, UBA compiles emissions data in each sector for the previous year based on the methodological requirements at the international and EU levels. The emissions data is published in March each year (starting 2020) and sent to the Council of Experts on Climate Change. The Council of Experts reviews and evaluates the emissions data and develops respective recommendations with a view to achieving the national climate targets, by June each year (Government of Germany, 2019, §5, 11, 12).

In case a sector exceeds the annual emissions as determined in the Climate Change Act, the responsible ministry must submit an emergency programme within three months after publication of the evaluation of the emissions data by the Council of Experts (Government of Germany, 2019, §8)

In March 2021, UBA for the first time submitted emissions data in accordance with the requirements of the Climate Change Act. The assessment shows that a positive trend of decreasing emissions continues: in 2020, emissions decreased by 8.7% compared to 2019; which is a decrease of 40.8% compared to 1990. This means that the target for 2020 was overachieved. Good progress was recorded in the energy industry (amongst others through the coal phase out). According to UBA, around one third of emissions reductions can be attributed to the COVID-19 pandemic (in particular in the transport and energy sectors). Still, two thirds of emission reductions can be attributed to structural changes.

Table 4. Permitted and actual emissions in 2020, according to UBA assessment.

Sector	Permitted GHG emission levels (in MtCO ₂ e)	Actual GHG emissions in 2020 (in MtCO ₂ e)
Energy	280	221
Industry	186	178
Buildings	118	120
Transport	150	146
Agriculture	70	66
Waste management & others	9	8.9

Source: <https://www.bundesregierung.de/breg-de/aktuelles/klimaschutzziel-2020-erreicht-1876954> (accessed: 16/06/2021).

The annual Climate Protection Reports are included in the annual monitoring reports on the energy transition, developed by the Ministry of Economic Affairs and Energy.

3.1.3 Advisory bodies

Several independent expert groups have been established over the past years to steer climate and energy policies and progress in Germany both politically and scientifically.

Energy Transition Monitoring Commission

The Energy Transition Monitoring Commission (*Energiewende Monitoring Kommission*) was appointed in October 2011 by the German government to accompany the monitoring process towards the targets of the 2050 Energy Concept and the energy transition. The independent expert commission consists of four renowned energy experts who review and comment on the annual Monitoring Reports and triennial Progress Reports to be prepared by the Ministry of Economic Affairs and Energy. The statements of the Monitoring Commission are published together with the reports developed by the government (Löschel *et al.*, 2021b).

Scientific Platform for Climate Protection

The 2050 Climate Action Plan provides for the creation of a Scientific Platform for Climate Protection (*Wissenschaftsplattform Klimaschutz*), which was established in June 2019. Being an independent, competent, and interdisciplinary body of experts, the Platform supports the German government with scientific expertise in the short-, medium-, and long-term assessment and evaluation of climate measures as well as in the implementation and further development of Germany's long-term climate strategy. The Platform is headed by a steering committee consisting of eight scientists who together guide its activities. More concretely, the steering committee formulates position papers and statements on climate relevant issues and commissions studies or analyses. The steering committee maintains a regular exchange with the German government and a dialogue with civil society. Direct addressees include the Climate Cabinet and other stakeholders involved in implementing the climate targets in the political sphere, as well as civil society, for example through regular exchange with the Action Alliance on Climate Protection (WPKS, 2020).

The Scientific Platform for Climate Protection is also mentioned in the Climate Change Act, which determines that the Platform shall be "consulted" in the development of (forthcoming) Climate Action Programmes (Government of Germany, 2019, §9).

Council of Experts on Climate Change

The Council of Experts on Climate Change (*Expertenrat für Klimafragen*), which is provided for in the Climate Change Act, consists of five members of different disciplines which are appointed for a period of five years by the German government. Its main objective is to evaluate the GHG emissions data compiled by UBA together with the assumptions underlying the information on the emissions reduction effect of sectoral emergency measures and the Climate Action Programme (Government of Germany, 2019, §11 and 12).

Based on these activities, the Council of Experts provides recommendations to the German government regarding permissible annual emissions levels in the Climate Change Act, updates of the Climate Action Plan and updates of the Climate Action Programme. In addition, the Federal Parliament and the Cabinet can request the Council of Experts to prepare special reports on climate related topics (BMU, 2020a).

Action Alliance on Climate Protection

The Action Alliance on Climate Protection (*Aktionsbündnis Klimaschutz*) was established by the German government in 2015, shortly after the adoption of the 2020 Climate Action Programme. It serves as a consultative body and stakeholder engagement platform which comprises representatives of all sections of civil society and municipalities. It aims to strengthen the communication on climate issues between the civil society and the government as well as to support the implementation of climate measures as provided for in the two Climate Action Programmes. The regional states have an active observer status in the Action Alliance (Government of Germany, 2019b).

From 2020 onwards, regular discussions are planned to take place in the meetings of the Action Alliance, to talk about how its members can support the implementation of measures in the individual sectors and with a view to sector coupling and cross-sectoral measures (Government of Germany, 2019b).

3.2 Climate policy at a regional state level

- German climate governance is characterised by a strong federal level with a less significant role played by regional state governments.
 - Nevertheless, regional state governments have central legal, executive, and financial powers to engage in German climate policy, through influencing decision making at the national level (shared rule) or through regulating in their own jurisdictions (self-rule).
 - The Climate Change Act entitles regional states to establish their own climate laws and targets. To date, ten regional states have adopted a climate law and six regional states have developed climate-related strategies, programmes and plans which often include a GHG emissions reduction target.
 - Regional states are key implementers of national and EU level legislation and dispose of financial resources and several other instruments for that purpose.
 - Key sectors for regional level climate action include the energy sector, agriculture, and land use and forestry, while the regional level is less well represented in the industry and waste sectors.
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3.2.1 Building blocks for regional state level climate governance

German climate governance is characterised by a strong and committed federal level with a less significant role played by subnational governments, including regional state governments⁴. Yet, the inclusion of regional states into the federal state's climate policy-making and implementation is of crucial importance. Not only have regional states several options to influence climate-relevant legislation at the national level (shared rule) and pass own legislation for their jurisdictions (self-rule), but they are also key implementers of the climate and energy legislation that has been formulated and decided upon at the national and the EU level. To actively engage in German climate governance, regional states are equipped with central legal, executive, and financial powers and capacities:

Legal powers

Regional states can co-determine national climate legislation to a certain extent through giving consent to legislative items that require approval or through expressing a veto for legislative items that do not require approval of the federal court (shared rule). Regional states can furthermore regulate independently in their jurisdiction in areas of concurrent legislation or in climate relevant areas where regional states have exclusive legislative powers (self-rule). In addition, the Climate Change Act explicitly entitles regional states to establish their own climate laws, including setting regional climate targets, emission pathways and/ or emission budgets, as long as these do not contradict the national law.

Executive powers

Regional states are represented at the federal level through the federal council (shared rule), which is the second parliamentary chamber, and which ensures participation of all regional states in legislation and administration in the German federal state. Apart from that, each regional state in Germany has its own constitution and a parliamentary system of government, administrative departments, and other elements of government. This allows regional states not only to legislate but also to execute national and regional legislation in their jurisdiction (self-rule). Regional states are thus crucial for the implementation of climate and energy policies that have been set at different governance levels. In the case of renewable energies, for example, the implementation of targets put in place at the EU level and adopted at the German federal state level ultimately depends on land use regulations implemented by the regional states.

Financial powers and capacities

Fiscal powers are largely concentrated at the federal level. With regard to taxation, for example, the federal state has exclusive legislative power for most tax types. Environmental taxes and levies, including the energy tax, electricity tax, vehicle tax, and air transport tax are decided upon and set at the federal state level. The federal state also collects revenues from the auctioning of emissions allowances. The regional states participate in tax legislation to the extent that they can express their consent or a veto in certain cases (shared rule). In a few areas, regional states can impose own taxes or duties, such as a water withdrawal charge or a wastewater levy (self-rule). Regional states in Germany cannot, however, introduce strong financial instruments, like a carbon tax or an emissions trading system, which are regulated at the federal level.

Regional states have their own budgets and have significant revenue and expenditure autonomy. Their budget is largely composed of fiscal revenues from taxes which are imposed at the national level as well as of revenues from their own taxes and levies. While regional states can manage their budgets autonomously and decide where to place political priorities, additional resources targeted at supporting local climate action are available at the federal state level and at the EU level. This grants significant financial capacities to regional states when it comes to the implementation of ambitious mitigation and adaptation action.

⁴ The term regional states refers to the German term "Bundesländer" and is used to describe the first administrative unit below the federal state level.

3.2.2 The role of regional states in climate legislation

3.2.2.1 Self-rule: distribution of legislative powers in climate-relevant policy areas

In 2006, a reform of the federal system reorganised legislative powers of the federal state and regions in the area of environmental policy. Since then, the main legislative power in the area of climate policy is at the national level (German Bundestag, 2016a).

Since the reform, several legislative items in the area of environmental policy fall into the space of “concurrent legislation”, and many of these items do not require the fulfilment of the necessity principle anymore, which once served the creation of equivalent living conditions across the federal state. This allows full regulation by the federal government, for example, with regard to air pollution control, noise prevention, or waste management. Still, some of the environment-related legal matters generally regulated by the federal government are subject to a newly created legal construct of “alternative legislation”, meaning that regional states can make differing arrangements even if the federal state has exerted its legislative competence. This is the case, for example, with regard to water supply, nature protection, landscape conservation or regional planning and development. An exception are “core legislative items” which are exempted from alternative legislation (German Bundestag, 2016b).

Table 5. Competencies of federal state and regional states with relevance for climate legislation.

Form of legislation	Main competence	Climate-relevant area
Concurrent legislation (without necessity principle)	Full regulation by federal state	Incl. support of agricultural and forestry production, food security, coastal and deep sea fishing and coastal protection, urban land use planning and land law, ocean and coastal shipping, railways, air pollution control, noise prevention, waste management
Concurrent legislation (with necessity principle)	Full regulation by federal state, if this serves the creation of equivalent living conditions across the federal state	Incl. economic law, transfer of land into public ownership, law of food including animals used for its production, road transport and infrastructure
Alternative legislation	Divergent regulation by regional states	Incl. nature protection and landscape conservation, distribution of land, regional planning, water supply
Exclusive legislation	Full regulation by regional states	Incl. municipal law, regional planning law, building codes

(Source: GG, Art. 72 & 74)

Thus, despite the dominance of the federal state in climate legislation, there is room for climate relevant subnational regulation and regional states can regulate independently:

- a) in areas of concurrent legislation, where the federal state has not regulated exhaustively;
- b) in areas of concurrent legislation, where regional states have the competence to diverge from federal law through alternative legislation; and
- c) in climate-relevant areas where regional states have exclusive legislative powers, including municipal law, regional planning law, and building codes.

In these areas, regional states are largely independent from federal state legislation and can take action where the federal state has no competence. Importantly, regional states can ensure the engagement of municipalities in the implementation of climate action (UBA, 2020d).

3.2.2.2 Shared rule: involvement of regional states in national climate legislation

Apart from the official organisation of legal competencies through the German Constitution, different cooperation platforms exist which contribute essentially to the coordination between the federal government and regional states in the context of national climate legislation. This includes committees, working groups, and ministerial conferences which enhance either vertical coordination (between the federal state and regional states) or horizontal coordination (between regional states), carried out in a bilateral or multilateral format (Monstadt and Scheiner, 2016).

In 2017, the government established a Standing Committee on Climate Protection within the framework of the federal-regional state working group “Climate, Energy, Mobility – Sustainability”. The standing committee ensures a regular and intensive exchange between the federal government and the regional states about the elaboration and implementation of climate targets, concepts and action programmes as well as about monitoring, participation processes, climate legislation and support programmes (Government of Germany, 2019b).

Furthermore, regional states are involved in the implementation and updating of the Climate Action Programme through regular ministerial conferences of the Ministries of Economy, Interior, Transport and Agriculture (Government of Germany, 2019b).

Finally, subnational governments are involved in the national climate legislation processes through the Action Alliance on Climate Protection.

3.2.3 Regional state level climate change laws

While the Climate Change Act does not include a breakdown of national emissions reduction targets to regional states, it explicitly entitles regional states to establish their own climate laws, including setting regional climate targets, emission pathways and emission budgets – as long as these do not contradict the national law. The Act furthermore provides that the federal state and regional states must collaborate “in a proper way” in order to achieve the targets set at the federal state level (Government of Germany, 2019, §14).

Status of regional climate change laws adopted to date

Regional state climate laws predate the 2019 Climate Change Act at the federal state level. Two of the first regional states to adopt a climate law were North Rhine Westphalia and Baden-Wuerttemberg in 2013. Five other regional states followed (Rhineland-Palatinate, Bremen, Berlin, Schleswig-Holstein and Thuringia) before the Climate Change Act was passed.

Today, all regional states have adopted a climate or energy law (10), strategy (1), concept (2), or an equivalent plan or programme (3), most of which include or plan to include a GHG emissions reduction target (the only exception being Saarland). Seven regional states aim to achieve climate neutrality by 2050 (Bavaria, Berlin, Brandenburg, Hesse, Lower Saxony, North Rhine Westphalia, Rhineland-Palatinate) and one (Thuringia) between 2050 and 2100. Almost all regional states have developed an implementation plan and 14 regional states established a monitoring mechanism to manage and report on progress. In 10 regional states, an independent advisory board or expert council has been created to accompany the implementation of the climate law (Table 6).

Purpose and scope of regional climate change laws

The main purpose of establishing a climate law or equivalent document at the regional state level is to provide a contribution to climate protection, through the reduction of GHG emissions, and a legal framework for the implementation of measures to achieve the planned emissions reductions. They can also provide planning and investment security for the private sector, and are – in this context – often set in relation to the level of ambition at the national and international level (Schilderoth and Papke, 2019).

While regional state climate laws or equivalent documents are widespread, the content and structure of these laws differ considerably with regard to ambition, gases covered, monitoring mechanisms included and other elements. Yet, certain key elements can be found in most documents, including:

- a) quantitative emissions reduction targets,
- b) measures to achieve these targets (i.e., implementation plan),
- c) a monitoring and reporting process, and
- d) the involvement of an independent advisory body.

Several regional states also highlight the role model character of the public sector by including a target for a climate neutral administration in their respective climate laws.

As is the case at the federal state level, regional state governments can only establish targets which are legally binding to the regional state government itself. Binding obligations cannot be imposed on individuals or companies (e.g., in the form of emissions budgets) since this would collide with respective regulations at the federal level (e.g., the emissions trading scheme). Yet, regional state climate laws can refer to the responsibility of individuals and they can allocate certain duties of a binding nature to municipalities, which also fall in the responsibility of the regional states (UBA, 2020d).

Ambition loop between regional states and the federal state

The process of elaborating and adopting climate change laws at the regional state level – which started well before the process of developing a national climate law – is likely to have supported the development of the Climate Change Act, as several structural elements from early regional state documents can be found in the Act. At the same time, new climate regulation at the national and the European level is likely to have influenced more recent climate laws or document updates at the regional state level, which tend to be more ambitious than their forerunners. This development suggests an “ambition loop” between the different levels of government in setting emissions reduction targets.

Table 6. Climate change legislation in German regional states.

Regional state	CO ₂ primary energy usage in MtCO ₂ ⁵ (2015)	Year	Type of document	GHG emissions target (BY1990)	Climate neutrality target	Climate neutral administration	Concept for implementation	State advisory board	Monitoring
Baden-Wuerttemberg	67.5	2013 2020 [amendment]	Climate protection law	25% by 2020 42% by 2030 90% by 2050		By 2040	Integrated energy and climate concept (IEKK) targets, instruments and strategies are laid out per sector (electricity, heating, mobility, land use/agriculture, resources)	Advisory Council for Climate Protection	Short monitoring report (annually) Extensive report (3 years) Adaptation report (5 years)

5 3051.AEE_Renews_Kompakt_42_Energieverbrauch_Klimaschutz_Bundeslaender_nov18.pdf (unendlich-viel-energie.de)

Regional state	CO ₂ primary energy usage in MtCO ₂ ⁵ (2015)	Year	Type of document	GHG emissions target (BY1990)	Climate neutrality target	Climate neutral administration	Concept for implementation	State advisory board	Monitoring
Bavaria	76.8	2020	Climate protection law	55% by 2030	By 2050		11-points-plan containing 96 measures in three pillars: mitigation, adaptation, R&D. Action areas of communal climate protection, energy savings/efficiency, natural carbon sinks, and sector-specific climate agenda.	Bavarian Climate Council	Climate report (2 years)
Berlin	16.5	2016 2017 [amendment] 2021 [draft amendment]	Energy transition law	[draft] 40% by 2020 65% by 2030 80% by 2040 95% by 2050	By 2050		2030 Energy and climate protection programme coal use phase out, fossil fuels reduction, energy-efficient refurbishments of buildings, public transport infrastructure and electric mobility, renewable energy sources in industry and business	Climate Protection Council	Monitoring report (2 years) Implementation report (4 years) Digital monitoring and information system (diBEK)
Brandenburg	56.0	2012 [2022]	Energy strategy 2030 [Climate Plan]	72% by 2030	[By 2050]		Energy strategy 2030 grid expansion, storage technologies, affordability of energy, measures for the participation of several interest groups to promote acceptance, R&D		Monitoring system for implementation of 2030 Energy Strategy
Bremen	13.4	2015	Climate Protection and Energy Law	40% by 2020 80-95% by 2050 (excl. steel production)				Scientific Advisory Board	Annual monitoring report
Hamburg	15.4	2020	Climate Protection Law	55% by 2030 95% by 2050		By 2030 [excl. buildings]	Hamburg Climate Plan sector-specific targets 2030, four major transformation pillars: heating transition and building efficiency, mobility transition, decarbonization of economy, climate adaptation	Advisory Board for Climate Protection	Monitoring report (2 years)
Hesse	48.9	2017	Climate Protection Plan	30% by 2020 40% by 2025 55% by 2030 90-100% by 2050	By 2050	By 2030	Climate Protection Plan Hesse 2025 (IKSP) outlining 140 concrete measures for climate protection and adaption		Annual monitoring report

Regional state	CO ₂ primary energy usage in MtCO ₂ ⁵ (2015)	Year	Type of document	GHG emissions target (BY1990)	Climate neutrality target	Climate neutral administration	Concept for implementation	State advisory board	Monitoring
Lower Saxony	66.0	2020	Climate Protection Law	55% by 2030 100% by 2050	By 2050	By 2050 [70% by 2030]	Climate Protection Strategy 2021 periodic targets, targets to reduce primary energy consumption, measures to reach (interim) goals, R&D of climate-protective technologies	Climate Competence Center	Update of the strategy incl. monitoring report (5 years)
Mecklenburg-Western Pomerania	10.0	1997 2010 [second update] 2019 [third update]	Climate Protection Concept Climate Protection Action Plan Climate Protection Action Plan	[Second update] >40% by 2020			Climate Protection Action Plan 2019 The action plan outlines eight areas of action: energy savings, energy efficiency, renewable energies, rural areas, agriculture and forestry, moorland protection, tourism and health economy, urban land use planning and construction, transport and logistics, and research, development, communication		
North Rhine Westphalia	259.4	2013 2021 [draft amendment]	Climate Protection Law	[draft] 55% by 2030	[draft] By 2050	By 2030	Climate Protection Plan 2015 outlining 220 concrete measures for climate protection and adaption, with a focus on: expansion of renewable energy, energy and resource efficiency, reducing energy usage (industry, households, buildings), low-carbon technologies, sustainable mobility, climate neutral building stock	Expert Council on Climate Protection North Rhine-Westphalia	Monitoring report (5 years)
Rhineland-Palatinate	26.1	2014	Climate Protection Law	40% by 2020 90-100% by 2050	By 2050	By 2030	Climate Protection Concept of Rhineland-Palatinate outlining around 100 point of actions in different areas of climate protection and adaption with a designated section on civil participation	Advisory Board for Climate Protection	Short monitoring report (2 years) Monitoring report (4 years)
Saarland	21.6	2008	Climate Protection Concept				Additional programmes accompany the concept, focusing on the energy sector		

Regional state	CO ₂ primary energy usage in MtCO ₂ ⁵ (2015)	Year	Type of document	GHG emissions target (BY1990)	Climate neutrality target	Climate neutral administration	Concept for implementation	State advisory board	Monitoring
Saxony	49.2	2012 2021 [update]	Energy and Climate Programme	[2012] 25% by 2020 (BY2009)			Energy and climate programme The programme outlines nine areas of action: climate-conscious state administration, municipal climate protection and climate adaptation, energy supply, industry and commerce, mobility, buildings, environment and land use (water, soil, LW, FW, nature conservation), health and disaster control, research and knowledge transfer		Monitoring report (2 years)
Saxony-Anhalt	25.1	2019	Climate and Energy Concept	31,3 MtCO ₂ equivalent by 2020			Climate and energy concept Saxony-Anhalt (KEK) extensive concept identifying five major fields of action (energy, buildings, transport, industry and business, agriculture and land use), no emissions targets		Annual monitoring report
Schleswig-Holstein	17.3	2017	Climate Protection and Energy Transition Law	40% by 2020 55% by 2030 70% by 2040 80-95% by 2050		2050	Individual climate protection strategies have been or are being developed for the action areas construction, procurement, green IT, and mobility	Advisory Council for Energy Transition and Climate Protection	Short monitoring report (annually) Extensive monitoring report (twice per LP ⁶ , 2 years) Report to administration (per LP, 4 years)
Thuringia	9.9	2018	Climate Protection and Adaptation Law	60-70% by 2030 70-80% by 2040 80-95% by 2050	2050-2100	2030	Integrated Energy and Climate Strategy outlining concrete measures for climate protection and adaption, sector-specific targets for energy, industry, mobility, households, agriculture, trade, commerce, services	Advisory Board for Climate Protection and Adaptation	Monitoring report (5 years)

Source: Own compilation based on internet research.

6 LP = legislative period

3.2.4 The role of regional states in policy implementation

Despite the dominant role the federal state plays in the regulation of many climate-relevant policy areas, regional states are key implementers of national and EU level legislation. It is important to note, however, that neither the EU nor national level climate targets are binding to regional states.

Regional states dispose of several instruments that allow them to enhance climate action at the regional state level. This includes, for example, the creation of targeted support or funding programmes; the establishment of regional energy or climate agencies; the provision of information services, or the targeted promotion of research and development. In order to make use of these instruments and drive ambitious climate action on the ground, regional state governments must carefully plan their budgets and earmark the necessary resources.

3.2.4.1 Resources for regional climate action

Resources from regional states' budgets

Resources for enhanced regional climate action mostly stem from the budget of regional states' ministries. Regional governments can deploy these resources in the form of subsidies or grants for specific climate-related projects and programmes. Furthermore, they can steer expenditures and investments falling within their jurisdiction, such as for infrastructure expansion, research and development or for education, and ensure these investments are compatible with national and regional climate targets.

Box 2: Budgetary resources of regional states

The financing system in Germany is highly complex and the economic and financial power of the 16 regional states (still) differs significantly.

The constitutional rules governing public finances in Germany follows two principles: the “principle of fiscal autonomy and efficiency” , and the “principle of solidarity” of federal units. In accordance with the principle of fiscal autonomy, regional states are financially liable for the responsibilities that fall into their remit. They can draw on specific tax revenues for that purpose, including income- and corporate tax (separate taxes, distributed according to the performance principle) and value added tax (community taxes, distributed according to the solidarity principle). In addition to tax revenues, those regional states that are financially weak are vertically supported with additional funds from the federal state (Behnke, 2020a).⁷

Additional resources from the federal state's budget

In addition to the budgetary resources, there are targeted initiatives in which the federal state allocates funds to certain regional states which are earmarked for climate mitigation or adaptation action. An example is the structural enhancement law and the related investment law to support the coal phase out in North Rhine Westphalia, Saxony-Anhalt, and Saxony, through the provision of EUR 14 billion until 2038 (Government of Germany, 2020c).

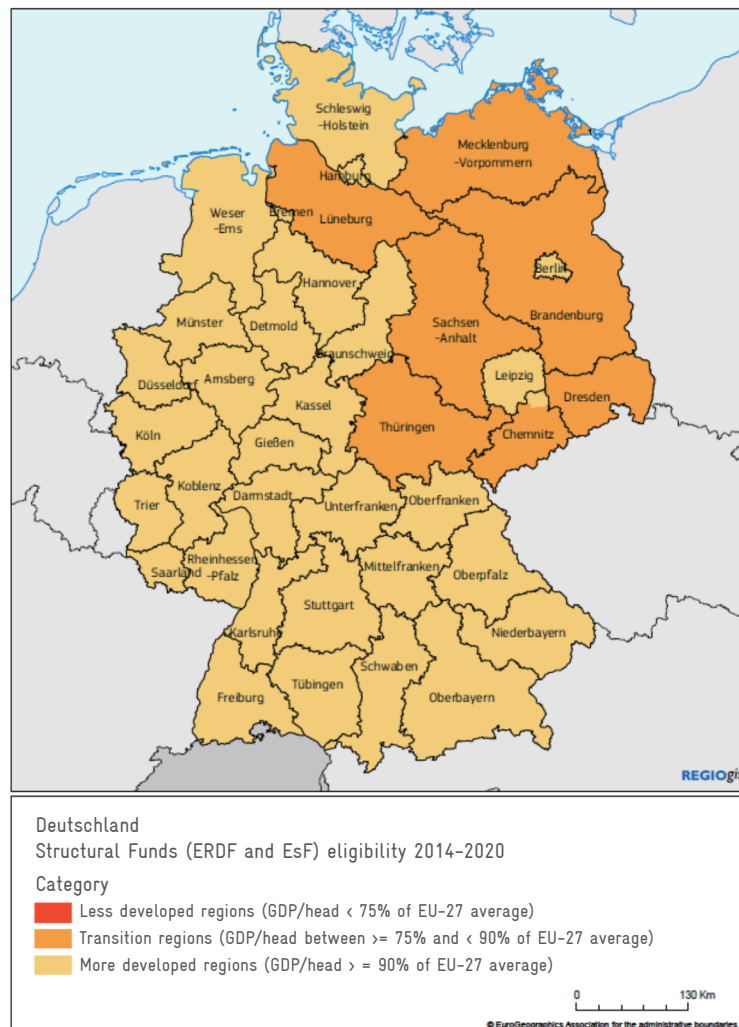
⁷ Until 2019, the German federal financial compensation system consisted of two components: horizontal compensation between financially strong and weak regional states, and vertical compensation by the federal state. The horizontal compensation was abolished with the entering into force of the latest reform of the financial compensation system on 1st January 2020 (Behnke, 2020b).

Resources from the EU

An important contribution to climate protection in the regional states is made by the EU Structural and Investment Funds (ESIF), in particular the European Regional Development Fund (ERDF) programmes of the Member States. From the four ESIFs⁸, the regional states are expected to invest around EUR 2.9 billion per year for climate protection in the current funding period 2014-2020, especially for the thematic objective of promoting efforts to reduce CO₂ emissions in all sectors of the economy (BMU, 2014b).

EU-funding under the ESIF has the following priority objectives (European Commission, 2020b):

- Reduce regional disparities in competitiveness;
- Promote research and innovation;
- Support the energy transition and increase the use of renewable energies;
- Exploit labour market potentials, strengthen social inclusion and increase educational achievements



Source: https://ec.europa.eu/regional_policy/en/information/publications/maps/2014/structural-funds-2014-2020-erdf-and-esf-eligibility-germany (accessed: 17/06/2021).

⁸ The European Structural and Investment Funds consist of four funds: EU Fund for Regional Development; EU Social Fund; EU Agricultural Fund for Rural Development; EU Fisheries Fund.

In Germany, the use of funds under the ESIFs is largely implemented at the level of the regional states within the framework of so-called “regional operational programmes”. The individual programmes address different objectives in order to meet the different regional conditions (European Commission, 2020c).

The implementation of the next funding period running from 2021 to 2027 is still pending the formal approval of the new political agreement at the EU level.

3.2.4.2 Instruments to guide regional climate action

Over the past years, regional state governments in Germany have shown increasing awareness for climate and energy related topics and have actively engaged in the implementation of climate and energy policy by making use of different instruments.

Energy and climate agencies

Several regional states have established regional energy agencies or energy and climate agencies to promote the development of renewable energies and drive climate action in the respective jurisdiction. The objective of these agencies is to support the energy and climate policy at the regional state level, providing a range of services, such as the development and management of energy contracting projects; the development of regional state level energy and climate strategies; policy consultation; educational projects at schools; know-how transfer; trainings; the development and implementation of funding instruments and programmes, to name but a few. The specific focus of these agencies, the services offered, and their financing models differ, with some receiving institutional support from regional state ministries while others finance their activities through consultancy projects or donations (AEE, 2021). Depending on their strategic orientation and their financial and personnel endowment, regional state agencies can play an important role in promoting climate protection and driving the energy transition in their respective jurisdictions. They can give orientation to or have full ownership of several of the below discussed instruments and activities.

Funding programmes and financing instruments

Regional states can set up their own funding programmes to support climate mitigation and adaptation action in their jurisdiction. Resources can come from the regional states’ budgets, the ESIFs and through regional state development institutions, which forward public funds in the form of loans and grants to assist regional state and/ or municipal governments in the execution of their duties. Some of the regional state level support programmes for climate action can be combined with national or municipal funding regulations, to facilitate the cumulation of funds. Target groups of dedicated regional state level funding programmes are municipalities, the private sector, or consumers who develop project ideas for climate mitigation and adaptation.

Besides dedicated funding programmes, regional states and their respective development institutions can also develop new green financing instruments. In North Rhine Westphalia, for example, the regional development bank (NRW.BANK) issues green bonds since 2013. The 11th green bond, with a volume of EUR 500 million, was emitted in July 2021 and supports wind energy, solar PV as well as energy efficient building refurbishment and river restoration in the region (NRW.BANK, 2021).

Data collection and monitoring systems

A core element of effective climate action is the availability of robust and reliable data. Regional state governments can commission the development of a data management system at the regional state level, which helps collect and process climate and energy relevant data from a range of public and private stakeholders. In an initial phase, such a system could help, for example, to monitor and evaluate the energy consumption of public buildings and other government properties, before being rolled out to also cover businesses and households. More broadly, effective data management could help detect emissions sources and mitigation potentials as well as track progress against climate and energy targets. This, in turn, can provide a solid basis for policy making and good governance.

Awareness raising campaigns

At the regional state level, programmes, projects, and campaigns can be designed that target certain sections of the population, such as

energy efficiency programmes at the workplace or at home; climate protection theme weeks in schools; or consulting services for businesses and organisations. Dialogue platforms can be established that serve to convey information and raise interest in climate and energy related topics. While such actions can have an impact on emissions and positively influence adaptation to climate change, they also help securing and strengthening public support behind climate policies and (unpopular) measures.

Promotion of vertical and horizontal networks

To allow for closer coordination between the different levels of governance in the federal system, regional state governments can seek to build networks across governance levels to deal with specific climate-related issues. This can ensure that challenges and needs for the implementation of measures at the local level are understood and addressed at the regional state and national level, for example through provision of additional resources. Apart from vertical integration, it can also be conducive for regional governments to seek horizontal cooperation between regional states, for example, with regard to the further development of the energy system or interregional transport infrastructure. Regional state governments can furthermore actively engage in network building with the private sector and academia, to discuss challenges and opportunities for businesses and keep up with the state of the art in research as a fundament for robust policy making.

Apart from domestic cooperation, engagement of regional states in global networks, such as the Under2Coalition in the framework of The Climate Group, can facilitate knowledge sharing across subnational governments of different countries. Such international horizontal cooperation can help identify global best practices and global peers, so that subnational governments with similar circumstances can partner on how to reduce emissions in a way that minimises costs and maximises benefits in their respective jurisdictions. An example is the cooperation and regular exchange between North Rhine Westphalia and Minnesota on topics related to renewable energy and energy efficiency, which includes the development and implementation of joint projects, such as the Climate Smart Municipalities programme (WIRTSCHAFT.NRW, 2018).

Agenda setting & framing

By making use of their agenda setting powers⁹, for example through federal-regional state cooperation formats or through the involvement of the Federal Council in legislative processes, regional state governments can ensure that climate-related problems or preferences of the electorate in their jurisdictions are put on the agenda of the federal government. Active framing¹⁰ of specific climate-related issues, for example, in public consultation processes or during electoral campaigns, can help get the support of the electorate and at the federal level for a certain policy course.

3.2.4.3 Key sectors for regional climate action

Regulation of the economic sectors, including with regard to climate action, is largely the responsibility of the federal state, which is often guided by respective regulation at the EU level. Yet, regional states have opportunities to shape policies and measures in these sectors as well, within the remits of the EU and federal state level guidelines.

Table 7 depicts main climate-related policy instruments implemented at different levels of government (EU, federal state, and regional states) in seven economic sectors. This overview shows that while there is strong engagement across the three governance levels in the energy sector, including energy supply, transport and buildings, other sectors are less well covered. Beyond the energy sub-sectors, regional states seem to be involved in agriculture and LULUCF related regulation, where less policy making takes place at the national level. Regional state level regulation is lacking, however, in the industry and waste sectors. This is remarkable given that regulation in the industry sector has a huge impact on local conditions and the attractiveness of a regional state, for example, for the settlement of new green industry.

⁹ Agenda setting can be defined as the ability to influence the importance given to topics on the public agenda.

¹⁰ Framing can be defined as influencing the way an audience perceives a problem or an issue.

Table 7. Policies and measures at different levels of government and across sectors in Germany.

Governance level	Energy	Industry	Agriculture	Transport	Buildings	LULUCF	Waste
EU	<ul style="list-style-type: none"> RE & EE targets EU ETS in power sector Energy tax Directive on end-use EE and energy services Co-generation Directive 	<ul style="list-style-type: none"> EU ETS in heavy industry sector EU MAC Directive EU F-Gas Regulation 	<ul style="list-style-type: none"> CAP Reform Regulations NEC Directive Nitrate Directive 	<ul style="list-style-type: none"> EU ETS in civil aviation sector* EU ETS in road transport sector* CO₂ emissions standards for cars and vans Sustainable aviation fuels* Sustainable maritime fuels* 	<ul style="list-style-type: none"> EU ETS in buildings sector* Energy Performance of Buildings Directive Eco-Design Directive Labelling Directive 	<ul style="list-style-type: none"> Net removals target: 310 MtCO₂e by 2030 CAP Reform Regulations 	<ul style="list-style-type: none"> Waste Management Framework Directive
Federal state	<ul style="list-style-type: none"> RE & EE targets ETS in power sector** Energy tax (effect in power sector)** EEG levy Energy labelling** Energy audits for SME and non-SME** Feed-in premium for CHP** 	<ul style="list-style-type: none"> ETS in industry sector** Energy tax (effect in industry sector)** Revision of Road Traffic Licensing Regulation to limit HFCs in cars** HFC phase-down** SF6-bans** 	<ul style="list-style-type: none"> Energy tax (effect in agriculture sector)** Increase manure in biogas plants Improve nitrogen use efficiency/Reduce nitrogen surplus** 	<ul style="list-style-type: none"> ETS in transport sector** Energy tax (effect in transport sector)** CO₂ price on transport fuels Subsidies for electric mobility** Adjustment of GHG-quota and implementation of a lower bound for advanced biofuels** Extension of heavy duty vehicles toll Development of charging infrastructure 	<ul style="list-style-type: none"> ETS in buildings sector** Energy tax (effect in buildings sector)** CO₂ price on heating fuels MEPS for buildings and renovations** Support for efficient heat pumps and solar heating Support for efficient district heating Measures to increase EE in heating systems** Support for diffusion of EE technologies 		<ul style="list-style-type: none"> Funding of landfill aeration Separate collection of biological waste**
Regional states	<ul style="list-style-type: none"> RE targets (not binding) EE targets (not binding) Spatial planning/distance regulations Support programmes for RE and EE 		<ul style="list-style-type: none"> Increase of organic farming** Reduction of ammonia emissions** Conservation of organic soils (agriculture)** 	<ul style="list-style-type: none"> Strengthening public transport Smart infrastructure development Concepts for charging infrastructure 	<ul style="list-style-type: none"> Concepts for district heating Building regulations Subsidies for efficient heat pumps and solar heating systems 	<ul style="list-style-type: none"> Improved land use planning Conservation of grassland** Conservation of organic soils (LULUCF)** 	

* New mechanisms planned under "Fit for 55 package"; expansion of the EU ETS is planned for 2026, including strengthening of the already existing EU ETS in the civil aviation sector.

** Policy instruments at the national and regional state level that are linked to a policy instrument at EU level.

Source: EEA (2020) Climate change mitigation policies and measures (PaM) database. European Environment Agency. Available at: <https://www.eea.europa.eu/data-and-maps/data/climate-change-mitigation-policies-and-measures-1> (accessed: 30/07/2021).

3.2.4.4 Monitoring regional climate action

Besides the monitoring of progress regarding renewable energy expansion as established through the 2021 amendment to the EEG, no official monitoring process exists that requires regional states to monitor their climate action in any specific way. This is also related to the fact that no direct obligations for regional states arise from the federal state climate law. Yet, several regional states have established individual monitoring processes to track progress against their specific targets set in the regional state climate laws (compare Table 7). Furthermore, regional states are involved in the monitoring mechanism established at the federal state level through the 2020 Climate Action Programme which has been continued since then. In that case, a participatory process is ensured through close collaboration of the federal government with the Action Alliance on Climate Protection in the preparation of the annual monitoring reports.

Box 3: Example for effective coordination between the federal state and regional states – the case of renewable energy expansion

In Germany, the federal government sets the course for the expansion of renewable energy in line with the respective targets established at the EU and the national level. However, regional states have different opportunities to promote the expansion of renewables and accompany the necessary structural changes through influencing certain factors that favour the development and integration of renewable energies in their jurisdictions. These include, beyond natural resource endowment, settlement-structural as well as economic and political factors or the targeted support of research and development. More precisely, regional states can influence the framework conditions for renewable energies through removing institutional and administrative barriers, for example, in spatial planning and in construction law, including distance regulations and approval procedures. Regional state governments can also engage in economic policy making and support the creation of framework conditions that attract renewable energy industry and help generate green jobs. Furthermore, they can support system integration of renewables through targeted support programmes and measures that are directed, for example, at reforming district heating systems or at making the buildings sector climate proof. In their direct engagement with the federal government, regional state governments can advocate for infrastructure improvement to enable the use and integration of renewables across jurisdictions (Schill, Diekmann and Püttner, 2019).

Renewable energy expansion in Germany is guided by the Renewable Energy Act (EEG). Through the 2021 amendment of the EEG, coordination between the federal government and regional states becomes more important. In March 2021, the Ministry for Economic Affairs and Energy together with regional state representatives established a cooperation committee. Moreover, according to Art. 98 of the 2021 EEG, all regional states must submit an annual monitoring report (by August each year) to the cooperation committee in which they relay information about the status of renewable energies in their respective jurisdiction. The report presents the state of affairs with regard to a) the percentage of land that is made available for onshore wind (and how much of it is already being used through wind power plants); b) plans regarding the integration of onshore energy use in spatial and construction planning; and c) the status of approval of onshore wind parks. This is meant to help the federal government determine whether renewable energies are being expanded in the required speed (Government of Germany, 2020a).

The cooperation committee evaluates all monitoring reports and presents its own monitoring report to the federal government (by October each year). The federal government elaborates a progress report which is submitted to the federal parliament and council, with the first one due in December 2023 and then every four years. The progress report presents to what extent Germany has achieved its renewable energy targets and gives recommendations for action regarding adjustments to expansion trajectories, tender volumes and trajectories for the amount of electricity to be produced (Government of Germany, 2020b).

The trend towards more regional management of renewable energy expansion and energy production is also supported through instruments such as a tender quota for the Southern regions of Germany or a reference yield model. The latter aims at enabling wind energy production throughout the federal territory through allowing wind generated electricity to be remunerated at different rates, depending on their location. At the same time, however, the 2021 amendment to the EEG fails to announce clear space allocations for the regional states in order to achieve the 2030 and 2050 renewable energy targets set at the national level. At least 2% of land would need to be made available in all regional states to enable the expansion of onshore wind (Windwärts, 2020). In that sense, binding targets for regional states could be conducive to achieving the expansion rates needed to fulfil Germany's climate and energy commitments.

Box 4: Coal phase-out in Germany and the role of regional states

Coal continues to make up a large part of German power generation which, overall, accounted for more than a quarter of all GHG emissions in Germany in 2018 (DIW, 2018). Thus, reducing coal dependency in power generation has become an imperative in achieving German and European climate targets. The federal parliament and council have developed a comprehensive coal phase out plan attempting to align the energy transformation whilst ameliorating its potential detrimental social effects.

As a result of negotiations between different stakeholders, particularly the mainly affected regions and operators, the German Coal Phase-out Law and Structural Enhancement Law represent a compromise poising political, social and corporate interests. The Coal Phase-out Law determines that coal fired generation is to be reduced gradually to a capacity of 15 GW of each lignite and hard coal by 2022 and of 8 GW each by 2030 until phasing out entirely by 2038 (Federal Government of Germany, 2020a). However, the law does not specify exact individual phase out dates or further interim goals for plants or regional states. Reviews are to be carried out in 2026, 2029 and 2032 to evaluate and consequently determine whether an earlier phase-out of up to three years is possible (Bundestag, 2020).

In conjunction with the actual Coal Phase-out Law, the Structural Enhancement Law lays down financial assistance of up to EUR 14 billion for investments in the lignite regions North Rhine Westphalia, Saxony and Saxony-Anhalt to support imminent structural change. Moreover, the federal government commits to supporting regions by means of additional measures such as expanding research programmes or infrastructure projects with up to EUR 26 billion until 2038 (Federal Government of Germany, 2020b).

In addition, the Ministry for Environment launched a programme for sustainable structural change in lignite regions. The primary focus of the programme is on investment measures such as the near-natural design of areas and bodies of water, as well as on sustainable tourism and projects promoting environmental justice particularly in urban contexts.

North Rhine Westphalia is the largest emitter among the German regional states and plays a key role in the German coal phase-out. As for all other coal regions, the local industry is either directly involved in mining or adjacent to it, such as the supplier industry.

Given the historic tradition and rooted linkages of regional states and coal, mining has significant social meaning which goes beyond the economic value it has for each affected region. This deep-rooted history plays into the intricacies of a nation-wide coal phase-out which has sparked unease, particularly by workers most affected and often already living under precarious conditions. Additionally, the decision of the Minister of Finance to offset German investment contributions against EU assistance as well as an overall non-transparency in determining investment decisions have further sparked concerns by affected communities (Geißler, 2021).

Crucial for the success of the coal phase out in the long run is the development and effective implementation of a comprehensive strategy for a "just transition", which aims to minimise the burden on people living and working in the most affected regions through active policy and financial support and accompanies the shift of local economies towards sustainable economic pathways.

3.3 Political economy considerations

Beyond the constitutionally anchored powers and capacities to shape climate and energy policy at different governance levels, there are several other factors that also influence the success of multi-level climate governance in Germany and that are rooted in the political culture and socio-economic structure of the country. All factors need to be looked at in their entirety in order to understand the historic and potential future outcomes of climate policy in Germany.

Challenges faced by cooperative federalism in the climate policy arena

Germany is characterised by a system of cooperative federalism, as opposed to a system of competitive federalism, such as in the United States. The federal system thus supports the cooperation between regional states and helps create equal living conditions, while seeking to minimise the differences. Political and economic competition between regional states is thus limited. Yet, this system of cooperative federalism has often been criticised for increasing the costs of policy-making, reducing governmental problem-solving capacity and for causing stalemates (Monstadt and Scheiner, 2014). This is particularly the case in policy areas where heterogeneous subnational interests due to considerable variation in regional economic structures play a role. In the German climate policy arena, the economic benefits and costs related to federally agreed climate and energy policies are distributed unequally among regional states. As such, the conflict between economic interests and climate-related regulation frequently leads to tension between regional states in Germany.

The role of economic interests for decision making at the regional state level

Climate policies, including GHG emissions reductions targets, have very different implications for individual regional states, due to their different economic structures. High-carbon regional states, including Brandenburg, North Rhine-Westphalia, Saarland, Saxony, and Saxony-Anhalt, are characterised by energy-intensive industries, a traditionally high share of coal-based power generation and consequently high CO₂ emissions per capita from electricity consumption. For these regional states, ambitious climate policies present a real challenge as they imply the need for significant restructuring of the economy and high investments. Hence, in the past, high-carbon regional states presented climate policy approaches that prevented threats to the existing coal industry and emphasised the importance of energy efficiency and carbon capture and storage. In a similar manner, those regional states that had a large share of nuclear power generation (e.g., Bavaria, Baden-Württemberg, Hesse) had, for a long time, underlined the relevance of nuclear power as a climate policy option (Monstadt and Scheiner, 2014). More recently, however, several regional states, including economically disadvantaged states such as Brandenburg, Mecklenburg-Western Pomerania, Thuringia and Schleswig-Holstein, adopted comparatively ambitious climate policies, also with a view to the development of renewable energy which is considered to be an economic opportunity for these regions.

The role of party politics for decision making at the regional state level

In the German political system, party interests play a major role in policy formulation and implementation. Challenges can arise, for example, if legislative reforms are characterised by a strong polarisation between the different parties and require the approval of both the federal parliament and the federal council. As such, party preferences can be superimposed on interests of regional states and the veto power of the federal council can be used for party politics (Monstadt and Scheiner, 2014). With regard to climate policy, different party positions are reflected in the individual regional states' governments. Even though there is, by and large, a cross-party consensus with a view to overall emissions reduction targets, parties favour different policy options to achieve these targets. In general, regional states governed by the Social Democrats or the Greens enact more ambitious climate policies than those regional states with a more conservative government. However, the gradual convergence of political parties on topics such as the relevance of climate change policy, the expansion of renewable energy, and the nuclear and fossil-fuel phase out – which have, traditionally, been focal points of political polarisation – can help prevent stalemates and may even offer opportunities for more ambitious climate action in the future.

4

Key takeaways



4 Key takeaways

The EU provides a strong climate governance framework that provides a direction of travel for its member states. The European Green Deal, serving as the union's long-term strategy, and the joint NDC provide long and medium-term emissions reduction targets that are binding for the member states. Each member state needs to develop the necessary policies and strategies to achieve the set targets and is held accountable for their achievement. In doing so, they can be more ambitious, but not less, than what has been decided at the European level. Thus, while negotiation processes are often arduous and resource-intensive, they provide a robust framework that member states can refer to and take as a foundation for developing their own climate and energy targets.

Climate governance at the German federal state level shows a high degree of formalisation. The Climate Action Plan and the Climate Change Act reflect the long and medium-term emissions reduction targets set at EU level and are accompanied by programmes for implementation. Monitoring and reporting processes regularly and transparently evaluate the progress made towards climate and energy targets at the national, European, and international level and provide the basis for subsequent revisions. While the EU framework requires that German targets are in line with European targets, there is a lack of a mechanism that would ensure that Germany's federal state climate and energy targets are sufficiently fair and ambitious to put the world on track to achieving the 1.5°C target.

Formalisation of climate governance at subnational governance levels is less strong and may keep regional states from filling in ambition gaps left at the federal state level. As per the Constitution, regional states have less legislative power to shape climate and energy policy than the federal state. This can lead to a limited sense of ownership and responsibility at the regional state level and to reduced engagement to fill in governance gaps or insufficient ambition at the federal state level. While regional states have some, but limited, influence over national decision making (shared rule) and regulation in their own jurisdiction (self-rule), including the establishment of own climate laws, they are under no legal obligation to do so. Given that federal state level climate and energy targets are not broken down to the regional state level, regional state governments cannot be held accountable for their achievement, either.

Even though regional state governments have limited power to engage in climate legislation, they are key actors for climate policy implementation. The German federal state depends on structures at the regional state level to develop and carry out measures to meet the requirements of European and national law. Consequently, regional states can make use of resources and instruments that allow them to actively engage in climate action. Again, regional state governments are not legally obliged to act and can decide at their own discretion whether to use resources and instruments for climate action, or not. The decision may be influenced by socio-economic structures at the regional state level and respective prioritisation on political agendas.

Regional states have equal legislative powers in Germany's climate governance framework but differ with regard to capacities and interest to actively engage in climate action. Diverse economic structures, financial capacities, and party positions within regional state governments mean that resources and instruments available to drive climate action are used to different degrees, with some regional state governments being more progressive and ambitious than others. Furthermore, despite the system of cooperative federalism, horizontal collaboration between regional state governments is largely lacking and prevents regional states from combining and using their powers and capacities in an optimal way to facilitate the necessary transitions.

The outcomes of German multi-level climate governance are influenced by scientific advisory groups and industry associations, which often pull in opposite directions. While scientific advice for federal state level climate action is required by law, the practical impact of lobby organisations often outweighs scientific recommendations. The channels and mechanisms through which industry associations drive decision making are thereby often not transparent. However, it is likely that active lobbying – frequently used to weaken climate ambition – happens at all governance levels while not all subnational governments provide the necessary resources to establish advisory bodies that monitor and facilitate progress towards climate and energy targets.

Multiple opportunities exist to strengthen the role and responsibility of regional states in the German climate governance framework and leverage their potential to contribute to achieving Germany's and the EU's climate and energy targets. These include, e.g., effective promotion of the formalisation of climate governance at the regional state level to increase ownership and the sense of responsibility for climate action of regional state governments. Ideally, this would further support the "ambition loop" between climate action at the federal and regional state levels. A second opportunity lies in strengthening horizontal cooperation between regional state governments with similar interests and conditions as well as transparent collaboration between regional state governments with advisory bodies and industry associations. In order to reveal all potential opportunities and ways to make use of them, however, in-depth analysis and targeted investigation is needed in the future.

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