Implementation of the EU NDC and NECPs

Tracing Climate Justice Action in Germany and France

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About FÖS

Forum Ökologisch-Soziale Marktwirtschaft (FÖS) has been researching and disseminating information about the potential and benefits of environmental fiscal reform (EFR), the application of market-based instruments (MBI) and the removal of environmentally harmful subsidies for more than twenty years. FÖS is widely recognised among policy-makers, NGOs, companies, and trade unions for its expertise in fiscal instruments, environmental and climate policy and foremost for its capacity to evaluate and develop policy proposals in the field of EFR. Over the last years FÖS has led and participated in numerous research projects and has a proven track record in the development, analysis, and evaluation of environmental policies.

Forum Ökologisch-Soziale Marktwirtschaft

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Summary

197 countries agreed within the **Paris Climate Agreement** to limit global warming to 2°C or less. Nations signed the Paris Climate Agreement, pledging to submit **Nationally Determined Contributions** (NDCs) to the UNFCCC outlining emission reduction targets. The EU's NDC is integrated into EU regulations through the Green Deal and the **Fit-for-55 package** to achieve climate neutrality by 2050 and a 55 % emission reduction by 2030. Despite progress, the **latest Biennial Report** submitted in December 2022 indicates the EU is **falling short** of its 55 % emission reduction target, projecting instead a 39 % reduction in emissions by 2030. The goal of this study is to show the link of the EU NDC to national sustainability strategies and practical climate projects. Germany and France are assessed according to three dimensions:

- **Transparency in Target Setting**
- **Transparency in monitoring and evaluation**
- **Local action**

France and Germany's NECPs lack sector-specific emission reduction targets but include goals for renewable energy and energy efficiency. In France, energy policy adjustments are underway, which are not in line with the new European goals. The Code de l'énergie references the EU NDC and NECP. Energy efficiency efforts in France need to increase. In Germany, a complex legislative framework emphasises renewable energy expansion, but recent amendments to the Federal Climate Change Act decrease sector-specific targets. The NECP update missed the opportunity for ambitious measures, lacking transparency and public consultation.

Both countries offer monitoring and evaluation reports but do not consider the impact of projects in the area of local climate action in these reports. These reports are transparent and comprehensive, covering implementation, socio-economic impacts, and expert council evaluations. The evaluation of local climate action is limited due to the low number of case studies and is descriptive in nature. But the analysis shows that NECPs do not significantly influence projects in France and Germany, despite government support.

France and Germany have made efforts to address climate change and reduce emissions. But there are concerns if their actions are suitable to achieve climate ambition and efficiency goals and the transition to renewable energies. The EU's climate goals should take into account how policies promoting sufficiency can help meet those goals. The study highlights the need for increased transparency, ambitious measures, and public involvement to align with the international commitments of the Paris Agreement.

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List of abbreviations

AME	with existing measures
AMS	with additional measures
BBEn e.V.	Bündnis Bürgerenergie e.V.
BMWK	Bundesministerium für Wirtschaft und Klimaschutz (Federal Ministry for Economic Affairs and Climate Action)
bn	billion
BR	Biennial Report
BTR	Biennial Transparency Report
BUR	Biennial Update Report
COP	Conference of the Parties
EED	Energy Efficiency Directive
EEG	Erneuerbare-Energien-Gesetz

LPEC	Loi de programmation sur l'énergie et le climat
LULUCF	Landnutzung, Landnutzungsänderungen und Forstwirtschaft (land use, land use change and forestry)
MPG	Modalities, Procedures and Guidelines
MMS	With-Measures-Scenario
MWMS	measures that are planned but not yet implemented
mn	Million
NDC	Nationally Determined Contributions
NECP	National Energy and Climate Plan
NECPR	National Energy and Climate Plan Report
PPE	Programmation pluriannuelle de l'énergie
RED	renewable energy directive

EnEfG	Energy Efficiency Act
ESR	Effort Sharing Regulation
ETF	Enhanced Transparency Framework
EU	European Union
FCA	Forward Capacity Allocation
GHG	greenhouse gas emissions
HCC	High Council on Climate
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
KTF	Climate and Transformation Fund
LIFE	Program for Environment and Climate Action

RES	Renewable Energy System
SGB	Sozialgesetzbuch (Code of Social Law)
SNBC	National Low Carbon Strategy
UBA	Umweltbundesamt (Federal Environment Office)
UNFCCC	Klimarahmenkonvention der Vereinten Nationen
WMS	With measures Scenario

1 Introduction

1.1 International context

On 12th of December 2015, international climate politics were fundamentally changed: 197 states committed to joint efforts to mitigate climate change. The main goal: Limit global heating below 2°C by the end of the century. However, climate science studies are increasingly questioning whether the goal can still be reached (IPCC, 2023b) and point to the need to limit global warming below 2°C, to a maximum of 1.5°C to limit Risks and projected adverse impacts of climate change (IPCC, 2023a). Every step in the right direction can prevent the destruction of ecosystems, landscapes, and livelihoods. Therefore, joint international action and the rapid phase-out of fossil fuel usage are urgently needed. To ensure the national implementation of measures to reach the international climate goals, the states signing the Paris climate agreement agreed to submit Nationally Determined Contributions (NDCs) to the UNFCCC. These short documents summarise the country's national emission reduction targets, policies, and measures, and need to be updated every five years beginning in 2020 with the goal of ever more ambitious NDCs. The national targets set in the NDCs then need to be supported through national laws and policies. In the case of the EU, all Member States submitted a joint EU NDC. The EU's Intended Nationally Determined Contribution (INDC) in 2015 targeted a 40 % GHG emission reduction by 2030 compared to 1990. However, the ambition level of the current updated NDC is significantly higher and thereby contributes one of the highest additional impacts on emission reduction compared to the NDC updates of other countries and regions (den Elzen et al., 2022).

The EU and its Member States agreed to reduce emissions by 55 % by 2030. To achieve this goal, the Green Deal serves as the overarching strategy for achieving a climate neutral Europe by 2050. But therefore, the EU have to reduce its gross greenhouse gas emissions.

To ensure the national implementation of these climate and energy political goals, the EU Member States are obligated to submit National Energy and Climate Plans (NECPs). These document the state's actions regarding the five dimensions of the Energy Union, covering decarbonisation, energy efficiency, energy security, the internal energy market, and research, innovation, and competitiveness (European Union, 2018).

These measures involve a radical transformation of societies and economies, and especially the energy system. According to the Sustainable Development Goals, such energy system transitions should emphasise the provision of equitable access to energy, and thereby offer "affordable, reliable, sustainable and modern energy for all" as stated in SDG 7 (United Nations, 2023, p. 7). This especially applies to countries in the Global South whose energy transitions need to be supported by industrialised countries of the Global North - especially considering climate justice principles. Nevertheless, the Russian war against Ukraine and the subsequent energy crisis demonstrated that even in Europe affordable access and energy security cannot be taken for granted. Therefore, a sustainable and socially just energy transition must be at the heart of energy and climate politics in the EU.

To achieve this socially just transition, a multitude of issues need to be addressed. One key aspect of social justice is the provision of information and transparency (Diehl, 2017). Especially in the complex field of climate politics, political target setting and assessing a government's progress towards these targets need to be publicised in an understandable way. This provides a basis for international comparisons, building trust, and assessing the need for further support to achieve the climate targets (Castro & Chaianong, 2023). Therefore, under Article 13 of the Paris Agreement, the states established the Enhanced Transparency Framework (ETF). By December 2024, each state must submit a Biennial Transparency Report (BTR) monitoring the achievement of climate targets set in their NDC. These BTRs supersede the reporting mechanisms of Biennial Reports (BRs) for developed countries and less demanding Biennial Update Reports (BURs) for developing countries (UNFCCC, 2011). In the ETF, the states follow the modalities, procedures, and guidelines (MPGs) agreed on at COP24 in 2018 and finalised at COP26 in 2021. Following the criteria of transparency, accuracy, completeness, consistency, and comparability these agreements specify the information that countries need to report (UNFCCC, 2018, p. 18, 2023a). The ETF thereby contributes to the Global Stocktake, which is a global inventory process identifying the current state of greenhouse gas emissions, international climate mitigation, adaptation and related financial flows, as well as gaps and needs for further support and measures (UNFCCC, 2023b). The NECPs are also being monitored. Every 2 years from 2023 on, the EU members need to submit a progress report (NECPR) which provides information on compliance with targets for the five dimensions of the Energy Union, as well as on related policies and measures (European Union, 2022a).

Additional to these reports and measures on the national level, local climate action plays a decisive role in climate mitigation and adaptation (Fuhr et al., 2018). Energy transitions need to be implemented by regional authorities, and citizens should be involved in the process and benefit from changes, in order to increase acceptance for climate mitigation and renewable energies (Emelianoff, 2014). Many best-practice examples on the local level also show innovative approaches to climate protection. Still, the support by national and international policies and measures has been identified as an important enabling factor (Salon et al., 2014).

1.2 NDC Transparency Initiative and objective of the study

To assess the transparency of the processes in international climate politics, CIDSE launched the NDC Transparency Initiative. The main goal of this initiative is to compare case studies on the transparency in monitoring and evaluation of countries' NDCs as well as to evaluate how they are linked with national policies and local climate action. Special attention is paid to the analysis of how NDCs are used for the expansion and diffusion of renewable energies and support energy access. These studies serve as a basis to help the participating organizations of CIDSE to monitor and evaluate the implementation of NDCs, to learn from each other, and to inform advocacy opportunities in NDC-related political processes nationally and internationally.

Six country case studies have already been conducted and analysed in a meta-analysis (Castro & Chaianong, 2023). The present study analyses the national and local implementation of both the EU NDC and the NECPs of France and Germany. To provide comparability to the study of Castro & Chaianong (2023) the present study builds on its methodology. To include the specific supranational context of EU climate governance, the current study also analyses the NECPs of France and Germany and therefore the indicator set has been adapted for the NECPs and the EU-specific context.

The current study examines how the EU NDC is translated into national sustainability strategies and leads to practical climate projects. The first step is an analysis of the target setting and transparency of this process. Besides ambitious targets, sufficient monitoring and evaluation of progress are also essential for successful policymaking. Therefore, in a second step, the transparency of monitoring and evaluation are assessed. The third step is to analyse the translation of NDCs and NECPs to practical local climate action. Thus, selected renewable energy projects in Germany and France are investigated in depth and evaluated on the basis of the Renewable Energy System (RES) principles of CIDSE[1]. The study concludes with recommendations to enhance the NDC in the upcoming submission cycles in the fields of transparency, effects, and action, with an additional focus on the linkages between international, European and local climate action. Furthermore, the study identifies recommendations for the European context of the NECPs, emphasising the importance of transparency and links to local energy transitions.

2 Data and methods

The NDC Transparency Initiative launched by CIDSE and the afore described meta-analysis about the country case studies conducted by Castro & Chaianong (2023) focus transparency and local climate action, which leads to the analysis of three dimensions:

First, **transparency in target setting** covers the clarity of targets set in the NDC and NECP as well as their implementation. It covers questions on the format and elaboration of the NDC and NECP GHG emission reduction targets, as well as the ambition level in comparison to the EU NDC. Besides that, special attention is paid to the translation of these goals into national laws, financial flows and policies, and the resulting policy environment for the energy transition.

Second, **transparency in monitoring and evaluation** looks at monitoring reports that evaluate the success of climate political measures. It considers future-oriented as well as ex post assessments of compliance with international obligations. Besides questions on the availability, format and content of existing monitoring reports, this chapter also compares the planning and reality of the implementation of the energy transition envisaged in the EU NDC and NECPs.

Third, the dimension of **local climate action** analyses how local action enhances international climate targets. Therefore, best practice examples of government- or private-funded energy projects are analysed and considering parts of the background of CIDSE's RES principles. By assessing national support for local projects as well as their impact on national emission reduction, the interlinkage of the different levels of governance is analysed.

The analysis primarily consisted of an extensive literature review mapping the design and implementation of the EU NDC in France and Germany. At the international and European level, the data consists of the EU NDC, the respective NECPs as well as official communications to the UNFCCC on implementation (BRs). Additionally, the national and regional level policies, regulations and measures serving the fulfilment of NDCs and NECPs as well as their implementation and monitoring are analysed.

The documents were analysed using an indicator system which was adapted from the meta-analysis of Castro & Chaianong (2023). It includes indicators for each of the three afore mentioned dimensions. This system has been adapted to the European context and is complemented by additional factors, for example the ambition level of climate targets, as well as an analysis of congruence between the plans and reality of the NECP/NDC-related energy

[1] These are guiding principles for effective energy systems which were developed within the context of a study by CIDSE. They include the following factors: recognising planetary boundaries, participatory processes and local ownership, contributing to needs of vulnerable communities, prioritizing equitable access and distribution, increasing efficiency, respecting human rights and address gender impact of energy poverty, ensuring good governance including transparent mechanisms and inclusive participation (CIDSE, 2018).

transition. Each of these indicators is given one of three ratings: "-" (worst rating), "0" (neutral) or "+" (best rating). The ratings for each indicator can be found in Table 1.

Official literature is especially scarce in the field of local climate action. Therefore, informal expert interviews were conducted to identify best practice examples, as well as their characteristics and their embeddedness in energy policies. The interviews were conducted with experts from Bündnis Bürgerenergie e.V. (BBEn e.V.), which is an association serving as a platform and representative of local citizen energy projects, and experts from Klima-Bündnis, which is a network of 2.000 municipalities in 25 European states dedicated to promoting local climate action. Four project examples (two per EU member state) were selected as part of the analysis. In France and Germany, both governmental funded and privately funded energy projects were identified. The project selection was therefore divided into state and private funding but followed no specific or afore defined criteria. It was a subjective selection resulting of the expert interviews. As two project examples were considered and analysed for Germany and France, the evaluation of local climate action is limited and is descriptive in nature.

Infobox "Renewable Energy for the People" (REP)

The network of social justice organizations CIDSE has develop concrete criteria on how the energy system needs to be designed so that they are able to have increased co-benefits for people and nature. An empiric analysis of renewable energy projects identified criteria for an energy system to contribute to a good standard of living within the planetary boundaries:

1. **management**: a renewable energy system is planned, built and controlled by transparent mechanisms and with the participation of all stakeholders
2. **welfare orientation**: profits from sale of electricity do benefit local development
3. **gender equality**: gender-specific injustices are conquered by renewable energies
4. **access**: energy services primarily benefit people who previously have no or only very limited access to energy
5. **planning**: positive interactions are examined during the planning stage and promoted wherever possible; particularly pricing systems are used to promote education, health, food security, information and communication
6. **reliable energy supply**: the energy mix in the decentralized energy system is flexible and adapted to local conditions e.g. the availability of renewable energy sources (such as sun, wind, water, wood, geothermal energy) - there is no one-size-fits-all approach.

Although the REP Principles were taken into account in the analysis of the local action projects, the analysis was not aligned with the criteria.

Table 1: Table of indicators – Transparency in target setting

Dimension	No.	Indicator	Description	Status
Transparency in Target Setting	1	**Availability of GHG target in the NDC/NECP**	Yes, national-level and sectoral targets	+
			Yes, only national-level target	0
			Yes, only for some sector(s), or no GHG targets	-
	2	**Type of GHG target in the NDC/NECP**	Baseline target (reductions compared to emissions in 1990/2005)	+
			Trajectory target (emissions in 2030 will be X MtCO2)	0
			Business as usual target (reductions compared to BAU in 2030) / Intensity target (tCO2/GDP)	-
	3	**Ambition level of the NECP compared to the EU NDC/1.5 °C limit**	High ambition level with ambitious targets reflecting the fair share of the country concerned	+
			Targets comparable to EU NDC targets	0
			Insufficient targets that are lower than the fair share of the country	-
	4	**Availability of neccesary information to understand the target in the NDC/NECP**	Yes, the necessary information is available in the NDC	+
			No, the necessary information is not available in the NDC	-
	5	**Translation of NDC/NECP target into national laws, financial flows and policies**	NDC target referred to in national laws	+
			NDC target referred to in national policies or strategy documents (but not in a law)	0
			NDC target has not been translated into any national laws or policies	-
	6	**Enabling environment for ambitious climate action - policy instruments adopted to implement NDC/NECP**	The case study suggests that there is a well-developed policy support system for implementing the NDC in the energy sector	+
			The case study suggests that there is some policy support for implementing the NDC	0
			The study suggests that most mitigation-related policies are not directly in response to the NDC, or that there are few effective mitigation policies	-

Table 2: Table of indicators – Transparency in monitoring and evaluation

Dimension	No.	Indicator	Description	Status
Transparency in monitoring and evaluation	7	**Information on emission pathways and projections, and/or GHG inventory in the BUR/BR**	Detailed information onf both emission pathway/projection and GHG inventory is available	+
			Non-detailed information for both aspects (or either one of them) is available	0
			Information on both aspects is not available	-
	8	**Information on enabling environment for climate and measures described in the BUR/BR**	Detailed information for most or all measures is available	+
			Non-detailed or partial information , or only for some measures, is	0
			Information is not available	-
	9	**Information on achievement or progress in implementation of reported policies and measures in the BUR/BR**	Detailed information for most or all measures is available (including GHG emission reductions)	+
			Non-detailed or partial information, or only for some measures, is available	0
			Information is not available	-
	10	**Information on individual (local) projects or climate actions/initiatives in the BUR/BR**	Detailed information is available (such as GHG emission reductions)	+
			Non-detailed information is available	0
			Information is not available	-
	11	**Availability of national-level monitoring/ evaluation report**	Yearly monitoring/evaluation report (for some or all measures)	+
			Irregular monitoring/evaluation report (for some or all measures)	0
			No monitoring/evaluation report	-
	12	**Content of monitoring/evaluation report**	Detailed monitoring/evaluation report (e.g., activities, general assessment, expected emission reductions, impacts, lessons learned; for some or all measures)	+
			Non-detailed monitoring/evaluation report (including only some of the above aspects for some or all measures)	0
			Only general outlook in monitoring/evaluation report	-
	13	**Format and length of monitoring/evaluation report**	Standardized format and same length for each climate measure	+
			Semi-standardized format and length for each climate measure	0
			No unification of format and length for each climate measure	-
	14	**Accessibility of monitoring/evaluation report**	Available online in the official government website in English or another major UN language	+
			Available online, but only in national language	0
			Not available online	-
	15	**Evidence of independent evaluation. Is there a separate body evaluating the reported achievements?**	Yes, there is a national separate body to evaluate the reported achievements, and it has been done regularly	+
			Yes, there is a national separate body to evaluate the reported achievements, but it has been done irregularly	0
			No, there is no national separate body to evaluate the reported achievements	-

Table 3: Table of indicators – Local Climate Action

Dimension	No.	Indicator	Description	Status
Local Climate Action	16	**Availability of governmental support for local climate actions**	NDC-related support from the government (including for small-scale projects) is available	+
			NDC-related support from the government is available, but not for smallscale projects	0
			No support from any sources is available or has been used in analyzed local actions	-
	17	**Contribution of local climate actions to the country's emission target**	Reduction goals (for the local climate actions) are defined clearly	+
			Reduction goals (for the local climate actions) are not defined clearly, but partial information on their mitigation effect is given	0
			The contribution to the national emission target is not mentioned	-
	18	**Existence of local community participation or consultation processes in decision-making of climate actions**	Local community participation is mandatory	+
			Local community participation is voluntary an encouraged or not actively encouraged	0
			Participation is not planned or allowed	-
	19	**Continuity and comprehensiveness of local consultation process for climate actions**	Comprehensive and continuous consultation process	+
			Either comprehensive or continuous consultation process	0
			Neither comprehensive nor continuous consultation process	-
	20	**Co-benefits of local climate actions**	Several local co-benefits (such as job creation, health improvements, pollution reduction, energy access for vulnerable groups) are considered	+
			Only a few local co-benefit(s) are considered	0
			No local co-benefits are considered	-

3 The EU NDC with reference to the UNFCCC

Before analysing France and Germany, this chapter analyses the transparency of the EU NDC and its embeddedness in the UNFCCC framework.

The target of the EU NDC is a decrease of greenhouse gas emissions by 55 % in 2030 compared to the baseline level of CO_2 emissions in 1990 (Europäische Union, 2020). The introduction to the updated EU NDC refers to existing legislation and covers clear sector targets. It describes policies such as targets to reduce emissions from passenger cars. Further it contributes targets like enhancing energy efficiency and developing renewable energy. An economy-wide target is also given.

Table 4: Indicator evaluation for transparency in target setting of the EU NDC

No.	Indicator	Score EU
1	Availability of GHG target in the NDC	0
2	Type of GHG target in the NDC	+
3	Availability of neccesary information to understand the target in the NDC	0
4	Translation of NDC target into laws, financial flows and policies	+
5	Enabling environment for ambitious climate action - policy instruments adopted to implement NDC	+

Design of the EU NDC regulations

Information regarding the NDC is given in a table format where quantification of the target is based on national totals reported in the National Inventory Reports of each Member State. The EU uses IPCC methodology to provide consistent and comparable GHG data. However, there is a lack of clarity on specific accounting modalities as well as the inclusion of international aviation and navigation (de Villafranca Casas et al., 2021). Additionally, information on the emission levels of the reference year (1990) is missing, which is problematic for calculating the absolute level of GHG emissions that should be achieved in the EU. Referring to possible updates to the National Inventory Report methodologies and resulting changes aren´t completely transparent.

Embedding the NDC in EU regulations

Whether these goals are translated into specific policies and measures on the EU level is also important. Figure 1 shows the multi-levels of energy and climate governance on the international (Paris Agreement), European (Green Deal and Fit-for-55) and national levels (Code de l'énergie and EEG). In Europe, climate protection is considered within the **Green Deal**. The EU member states have agreed on climate neutrality by 2050 and a GHG e**mission reduction of 55 % by 2030** compared to 1990 with the European climate law. With the "Fit-for-55" package, the goals of the Green Deal are to be transferred into legal acts (Europäischer Rat – Rat der Europäischen Union, n.d.). The Green Deal is an overarching strategy and contains the **European Climate Law**, which sets up the legal foundation for the EU climate targets. By adopting the targets set in the EU NDC, namely the goal of climate neutrality by 2050 and a 55 % emission reduction by 2030 (Article 2 and Article 4) it serves as framework of the European Union contributing to the Paris Agreement (European Union, 2021, subparagraph 8, 2023). It seeks to set an enabling environment for national and supranational climate action in the EU. It underlines the importance of the NECPs and their evaluation for the assessment of the measures implemented by the member states. We consider the soft governance of the Fit-for-55 via the Governance Regulation deficient, since the obligations can only be enforced in court to a limited extent. Individual sanction mechanisms have not been implemented (Schlacke et al., 2022).

Expansion of renewable energies

For enabling the implementation of these goals, the **Fit-for-55 package** entails a multitude of proposals to adapt EU legislation to these ambitious targets. In the energy sector, the package also tackles the goals of energy efficiency and decarbonization by amending directives. Latter is achieved by amending the **renewable energy directive (RED)**. It describes the renewable energy expansion as part of fulfilling the Paris Climate Agreement (European Union, 2022b). The RED III enacted in September 2023 raises the goal of **renewable energy final consumption in 2030** from 32 % to **42.5 %** (Council of the European Union, 2023). The target of a share of 45 % up to 2030 is included but remains a mere declaration of intent. According to a study of CAN Europe, a more ambitious goal of 50 % renewable energies up to 2030 would be needed to fulfil the goals of the Paris Climate Agreement. The share of renewable energy has to reach 80 % in 2035 (Climate Action Network Europe, 2020). Apart from these targets, the directive also includes measures to enable the expansion. Since the Clean Energy Package in 2018, the RED recognises the important role of **renewable energy communities**, which are defined as a group of entities jointly producing and distributing renewable energy for mainly social and environmental benefits instead of financial profit. The directive sets a legal foundation for citizen energy projects, encourages EU member states to provide funding programs for renewable energy communities as well as obligates them to simplify bureaucratic procedures. In this case, the EU has initiated improvements for renewable energy projects that seek to improve social justice and participation (Friends of the Earth Europe, 2019). The revised directive seeks to simplify permitting procedures for renewable energy projects in general and recognises renewable energy as overriding public interest.

Implementation energy efficiency in the EU

Additionally, the EU adjusted its targets regarding energy efficiency. The amended **Energy Efficiency Directive (EED)** seeks to **reduce final energy consumption in the EU by 11.7 % in 2030** compared to the estimated final energy consumption for 2030 estimated in 2020 – a weak goal compared to the 14.5 % goal suggested by the European Parliament (EURACTIV, 2022). The directive plans that national indicative goals shall be set by the member states in their updated NECPs accordingly (European Union, 2023). The directive serves to fulfil the Paris climate agreement as well as to implement the European Green Deal.

These goals are relevant for the national energy and climate plan (NECP) as the EU's European planning and monitoring instrument (BFM - Bundesfinanzministerium, 2019). The NECP is intended to contribute to improved coordination of European energy and climate policy, especially to implement the EU 2030 targets for renewable energy and energy efficiency (BMWK, 2020).

These exemplary directives and laws show that European targets encourage ambitious actions, especially on the national level. However, barriers to a just energy transition still exist. Therefore, EU regulation regarding the electricity market design is currently under revision. These revisions serve to strengthen the role of renewable energies in the energy market, also to protect consumers from rising prices for fossil energies. It therefore incentivises more flexible solutions like demand response and storage for green energies. With two-sided contracts for difference, energy providers and consumers are to be protected from rising energy prices and unforeseen financial loss. These will supersede national regulations like the market premium for direct marketing of renewable power in Germany which only safeguard facility operators. Additionally, long-term contracts for renewable energies are incentivised, which serves price stability (European Commission, 2023).

EU´s Biennial Report for the UNFCCC

To elaborate on whether the EU fulfilled its NDC, it needs to deliver a Biennial Report (BR) to the UNFCCC. The latest Report BR5 has been submitted on 20th of December 2022, deadline for submitting was 31st of December 2022. It includes a summary and an analysis of the GHG inventories that each member state needs to conduct following the methodology of the Governance regulation. Latter is in line with the UNFCCC regulations on inventories. Emission trends are depicted with tables including the respective emissions and their classification according to the different sectors and nation states. Additionally, remarkable trends are described and analysed, including e.g. a separate analysis of emission reductions caused by the COVID-19 pandemics. Similarly, also emission projections are included by summarizing the projections each member state submitted to the EU. National projections are made based on the comparison of a scenario with existing measures and one with additional planned measures. These projections are summed up and lead to a 39 % reduction of emission levels by 2030. Even though these scenarios do not include the updated, more ambitious targets of the EU Green Deal, the reductions stay clearly below the target of 55 % emission reduction, but strong cross-sectoral sufficiency policies can support achieving the EU goals (Clever - A Collaborative Low Energy Vision for the European Region, 2023). Even though these scenarios do not include the updated, more ambitious targets of the EU Green Deal, the reductions stay clearly below the target of 55 % emission reduction. Further analyses include the projections by sector and by emitted gas.

Policies and measures implemented and planned at the EU level are described in 38 pages, covering cross sectoral measures and institutions, such as the EU Emission Trading System (ETS), the effort sharing regulation concerning national emission reduction targets for sectors not covered by the ETS, as well as EU-wide strategies and funds, like the Program for Environment and Climate Action (LIFE). The following pages then explain and contextualise implemented measures on the EU level in the different policy sectors as well as some that are yet to be approved. Measures in the energy sector include for example the previously mentioned Fit-for-55 package and the revisions of energy political directives. A total number of 70 measures is then listed in a table according to the Common Tabular Format including descriptions and objectives, instrument type and implementation status. Information on expected emission reductions is only included for a part of the measures. These are derived from impact assessments of the European Commission. According to the European Union, these assessments in some cases cover several policies at once, which is why for several individual measures, emission reductions are lacking.

4 Emission levels and the energy mix in France and Germany

The chapter discusses France´s[2] and Germany´s climate and energy policies and their compliance with the EU NDC and NECP guidelines.

[2] Especially in the context of the UNFCCC, France needs to report on different regions – the "Kyoto" area considering all French territories that are part of the EU, and the "convention" area which also includes over sea regions. Due to comparability to Germany as well as due to the way higher CO_2 impact, the study at hand focusses on the "Kyoto" area and the continental part of France.

In 2022, France emitted 410 Mt CO_2eq, which is a 25 % reduction compared to 1990 (Gouvernement, 2023). Almost a third of the CO_2 emissions in 2022 can be allocated to the transportation sector, followed by the agricultural (19 %), the industrial (18 %), and the building sectors (16 %) (CITEPA, 2023). With 11 % of the greenhouse gas emissions, of which 6 % come from electricity generation, the energy industry emits a fairly low share of GHG emissions, which is largely due to the significant focus on nuclear energy. Even at its lowest point since 1988, this energy sector still produced 71 % of the primary energy in 2022 (Ministère de la Transition écologique, 2023a). Concerning the total energy mix, fossil fuels contribute 47 %, which is the lowest level in the G20 (Climate Transparency, 2022). But in the future, France's demand for energy, especially electricity, will increase due to upcoming electrification of industry, transport and society. The network operator RTE forecasts an increase of 25 to 40 % for 2035 compared to 2022 (Schmitz-Bauerdick, 2023).

Fossil fuel production plays an insignificant role in France. The last coal mine was closed in 2004 and remaining coal power plants were to be closed in 2022, although due to the energy crisis caused by the Russian war in Ukraine, two coal power plants are still in use (Da Sois, 2022). The Climate Transparency Report rates France as a frontrunner for its phase-out of coal in the power sector (Climate Transparency, 2022). The minor role of coal together with a high percentage of nuclear energy leads to a relatively low level of CO_2 emissions in the electricity sector. This also suits the industry structure of France, where a strong service sector has developed while carbon-intensive industries relocated outside France (Climate Transparency, 2022). At the same time, the rate of expansion of renewable energies remains too slow. France is the only EU member that failed to reach its own goals set in the context of the European energy transition for 2020, only achieving them in 2022 (République francaise, 2023).

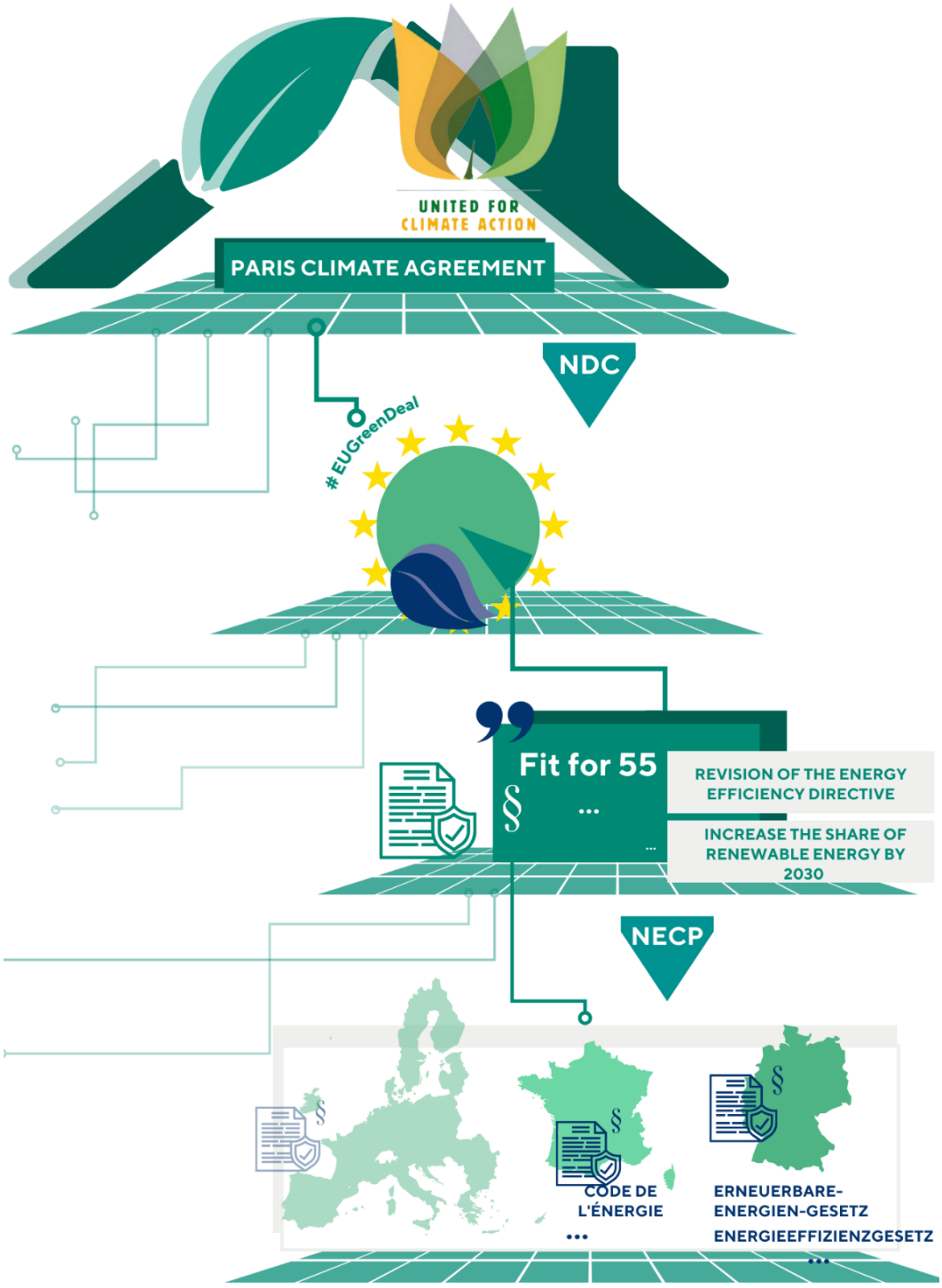
But in the area of energy sufficiency[3] France has a pioneering role (Zell-Ziegler et al., 2023). Beside nuclear power and renewable energies, energy sufficiency is a pillar of France's decarbonization strategy (Messad, 2023). Firstly, energy sufficiency was addressed in 2001 and is an objective of national energy policy since 2015. The inflection point came in 2021 when various think tanks published complete climate neutrality scenarios with sufficiency measures. The Ukraine crisis intensified this trend, particularly due to the difficulties regarding energy supply. The French government promoted energy-saving efforts through an energy sobriety plan published in October 2022. The plan aims to save 10 % of the national final energy consumption by the end of 2024 (compared to 2019) (Hummel, 2022; Messad, 2023; Paul Messad, 2022; Zell-Ziegler et al., 2023). The "la sobriete energetique" (energy saving) is based on voluntary measures and not on binding legislation (Hummel, 2022). France has planned a total of 15 measures in the area of energy savings (Messad, 2023).

Germany reduced its GHG emissions by 40.4 % compared to 1990 and now emits a total of 746 Mt CO_2eq per year (European Environment Agency, 2023; Expertenrat für Klimafragen, 2023a; UBA, 2023d). Major responsibility for emissions is shared between the industrial (22 %), the building (15 %) and the transportation sectors (19.8 %) (UBA, 2023a). However, by far the most emissions are produced by the energy sector, which represents 34.3 % of all GHG emissions in Germany (CITEPA, 2023; UBA, 2023a). This is mainly due to the large role of coal for energy production in Germany, which still contributes 20 % to the primary energy mix and makes up 33 % of electricity production in 2022 - compared to the 46.3% share of renewable energy production (Destatis, 2023; UBA, 2023c). Coal energy will also be used up to the 2030s,with western regions phasing-out coal-based energy by 2030, while eastern regions are still set on a 2038 target (BMWK et al., 2022). Nuclear energy is not contributing to the energy mix anymore as the nuclear power phase-out was completed in 2023 - not least due to protest movements and widespread societal opposition to nuclear energy since the 1980s (Bundesamt für die Sicherheit der nuklearen Entsorgung, 2023).

Both Germany and France, as well as the European Union have signed and ratified the Paris Agreement, which obliges them to submit their NDCs to the UNFCCC. The EU submitted the EU NDC in 2020 and will submit its updated NDC by 2025. To track national contributions to the goals of the EU's Energy Union, both Germany and France have to submit and update their NECPs. France submitted its first final NECP in March 2020, with Germany following in June 2020. Updated NECPs should have been submitted by 30th June 2023. With a delay of over four months, they published them in November 2023.

[3] A set of measures and everyday practices to avoid demand for energy, materials, land and water while ensuring human well-being, within planetary boundaries (IPCC, 2023a).

Figure 1: Embedding the EU NDC at EU and national level with France and Germany as country cases



Source: Own representation FÖS

5 Overview and discussion of country case studies

In the following chapter the NDCs and NECPs as well as their implications will be analysed in the German and French contexts. First, it will assess the extent to which Germany and France set transparent climate-related targets in the international context as well as the NECPs and how these targets find their way into national legislation. Furthermore, the monitoring and evaluation of each country's climate policies will be analysed. The chapter will close with an evaluation of how these inter- and supranational plans translate into local climate action, using an in-depth analysis of best-practice examples. To analyse the three dimensions the different indicators (listed in Table 1-3) will be used and supplemented by further information. Figure 1 shows how the EU NDC is embedded at EU and national levels, which are explained in chapter 3.

5.1 Country Case study France

5.1.1 Transparency in target setting – France

The indicators of the dimension transparency in target setting for France are described in the following section. The scores for the individual indicators are shown in Table 5: Indicator evaluation for transparency in target setting for France (NECP)Table 5 (p. 18) and the reasons are given in the text.

The French NECP and its emission reduction targets

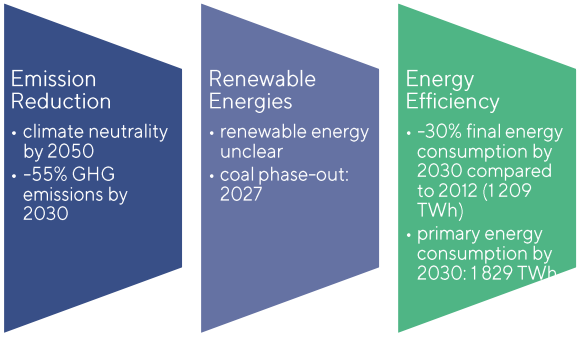
France published its draft updated NECP at the end of November 2023. It describes goals, policies and measures to contribute to the goals of the European Energy Union. The publication of this draft also constitutes the first publication of the broad guidelines of the new national climate and energy political strategies that are to be in line with the new European goals. The NECP sets a goal of a **55 % net reduction of GHG emissions by 2030** compared to 1990. Even though this target is more ambitious than the as of now legally binding goals, it is not ambitious enough to stay on a 1.5°C-compatible pathway. According to Climate Analytics, a target of -62 % would be necessary (Climate Analytics, 2023). The NECP only mentions a sector-specific goal for the transport sector. It also mentions the Effort Sharing Regulation which obliges France to reduce its GHG emissions by 47.5 % by 2030 compared to 2005 in the sectors that are not covered by the EU-ETS (Europäische Union, 2023). The NECP maintains the goal of reaching carbon neutrality by 2050, but now also includes emissions from international aviation and maritime transport, so it is more ambitious now.

A major transparency gap concerns the share of renewable energy. Whereas the EU RED III defines a target of 45 % renewable energy by 2030, France only mentions a target of reaching a **58 % share of "decarbonized energy"** in gross final energy consumption – which could also include the use of nuclear energy (EURACTIV, 2023). The, as of now, legally binding former goal sets a 33 % share for renewable energies by 2030. The **lack of a goal for renewable energy consumption** is also criticized by the Climate Action Network and could also lead to criticism by the European Commission, forcing France to add a renewable energy target in the final version of the NECP (EURACTIV, 2023). The NECP further describes the goal of **reducing final energy consumption by 30% by 2030** compared to 2012 which is in line with the EU target. The French NECP provides for an overview on these goals, including comprehensive figures and tables. Still, as the new guidelines are preliminary the data needs to be interpreted with care.

National emission reduction goal

The current emission reduction goal is described in Article L100-4 of the **Code de l'énergie**, which also mentions the need for consistency regarding the energy political targets of national strategies and laws as well as the NECP. Figure 2 shows the targets of the draft updated NECP of France. The Code de l´énergie describes the targets of a 40 % reduction of GHG emissions by 2030 compared to 1990, which would not be in line with the European goals. Still, as the draft updated NECP refers to the goal of a net emission reduction by 55 %, the targets of the Code de l'énergie are likely to also be adjusted accordingly. According to Climate Analytics, a reduction of 62 % by 2030 would be necessary (Climate Analytics, 2023). In addition to decarbonization, the Code de l'énergie mentions other national targets contributing to the Energy Union, such as renewable energy expansion.

Figure 2: National targets concerning emission reduction, renewable energies and energy efficiency - France



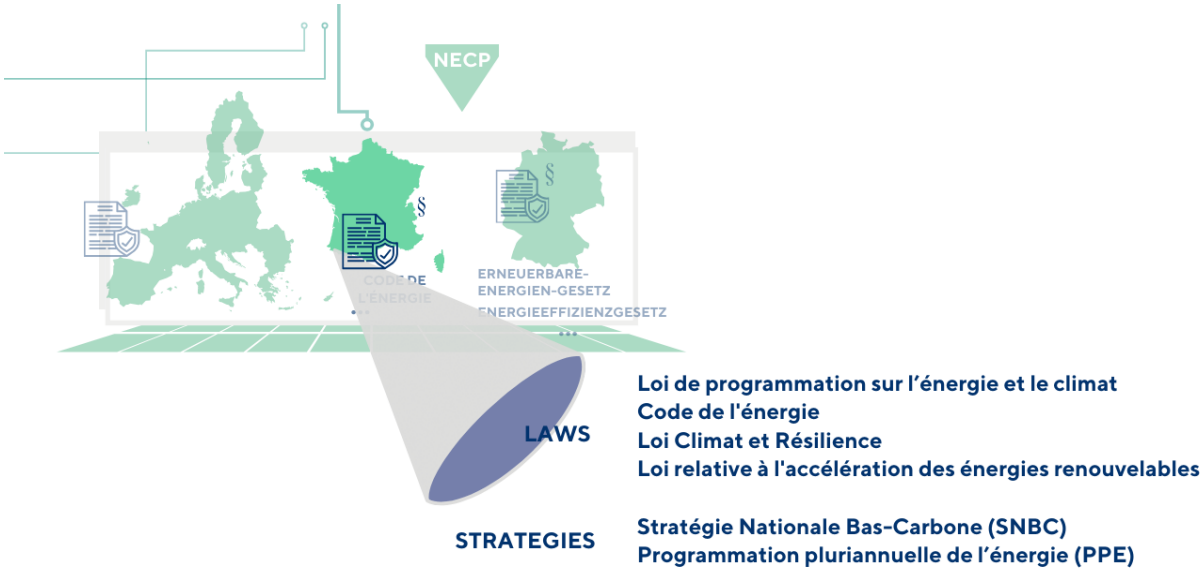
Source: Own representations FÖS

Basis of climate and energy policies in France

Figure 3 shows French laws and strategies of climate and energy policies. The **Loi climat et résilience** is an important

and recently implemented law based on suggestions by the French climate citizen council (the Convention Citoyenne pour le Climat). It is coherent with the Paris Agreement, the European Green Deal and the ESR. The law refers to emission reduction goals is not directly linked to the EU NDC or the NECP. It includes measures in several sectors, such as an obligation to install photovoltaic systems on newly built houses and a ban on renting out apartments with the worst energy efficiency standard. However, it was mostly judged as insufficient for meeting the emission reduction targets and criticised as the implementation deadlines would be too late, with the impacts of the single measures regarding emission reduction hardly elaborated on, and the recommendations of the citizen council largely watered-down (Haut Conseil pour le Climat, 2021; Vie Publique, 2021).

Figure 3: Laws and strategies of climate and energy policies in France



Source: Own representations FÖS

The foundation of energy and climate policies in France is set out in the energy and climate strategy of France, with the **Loi de programmation sur l'énergie et le climat (LPEC)** setting overarching goals and priorities for national energy policies. The law should have been published in July 2023, but the publication has been delayed (hellio, 2023). The National Low Carbon Strategy (**stratégie nationale bas-carbone, SNBC**) and the **Programmation pluriannuelle de l'énergie (PPE)** complement the energy and climate strategy.

The SNBC includes an overview on goals, policies, climate scenarios, and monitoring strategies regarding climate change mitigation in France, with a focus on the long-term goal of achieving climate neutrality until 2050. The current SNBC 2 provides for an emission reduction of 43% in 2030 (Ministère de la Transition écologique, 2020a). It refers to the Paris Agreement and France's responsibility to contribute to this goal, especially to climate justice. Besides that, it mentions the EU reduction goals. The SNBC and the PPE build the basis of the NECP. The SNBC is re-evaluated every five years. Currently, the process to design the SNBC 3 and PPE 3 is in progress and according to the NECP published at the end of November 2023, the documents ought to be published "in the upcoming days" (p. 5). SNBC 3 and PPE 3 will be in line with the new European targets of the Green New Deal and therefore contain updated carbon budgets. They are designed in a participatory process including stakeholder dialogues and public consultations. Stakeholders and the public called for a socially just design of policies, as well as "clear, transparent and easily accessible information for everyone" (NECP, p. 27), and developed roadmaps for the different sectors. These are not binding for the government. After parliamentary discussions and consultations, for example by the Haut Conseil pour le Climat, the new SNBC 3 will be finalised in 2024. Initial guidelines of the SNBC 3 were incorporated in the NECP. They are aimed at aligning French climate policies with the new European and French climate goals.

Expansion of renewable energy

Further paths to reach the renewable energy goals of France are also laid down in the PPE. According to the draft updated NECP, France aims to double the rate of photovoltaic energy development, maintain the expansion rate of onshore wind, and implement new offshore wind projects, especially between 2030 and 2035 because of already exceeded commissioning deadlines. The capacities of hydroelectricity should also be expanded, leading to an additional 200 TWh of energy overall in 2035. Whether this increase in capacity would be sufficient to meet the growing demands for electricity needs to be further evaluated.

To accelerate the expansion of renewable energies, the **Loi relative à l'accélération des énergies renouvelables** includes specific measures to expedite the energy transition, for example halving the duration of approval processes regarding the installation of renewable energies, and preferentially building them on impervious surfaces (Actu Environnement, 2023). In cooperation with local authorities, it seeks to determine acceleration areas for renewable energies, to speed up planning at the local level. Environmental NGOs have criticised the law as being insufficient for the acceleration[4] and complicating procedures (France Nature Environnement, 2023).

However, France is also the only EU member that did not achieve its renewable energies target of 23 % renewable energies in 2020 (Le Monde, 2022).

Fossil fuel phase-out

Coal-fired power is less important in the French energy mix. However, a rapid phase-out is necessary to fulfil the emission reduction goals. The updated NECP states that the remaining plants are to be closed by 2027, which should represent a reduction of fossil energy consumption by 50 % in 2030 compared to 2012.

Nuclear energy

The French government remains focused on nuclear energy and is seeking to accelerate the construction of new reactors by simplifying administrative approval processes and extending the lifetimes of old nuclear power plants. The target to cap nuclear energy production at 50 % of the energy mix has been cancelled and the limit to the operating lifetime of old reactors to 40 years will also be scrapped (Le Monde, 2023; Vie Publique, 2023). Six new ERP2 reactors are to be installed and the capacity of existing reactors is to be expanded.

Energy efficiency

The French energy efficiency goals match the European targets. The government has therefore set a goal for energy savings, which is then distributed to the energy suppliers who are then obliged to provide a certain amount of **Energy Saving Certificates** according to their share of the total supply. To receive certificates, suppliers have to promote and sell energy efficiency measures such as insulation to their clients, benefitting mainly low-income and very low-income households and thereby contributing to eradicating energy poverty (Ministère de la Transition écologique, 2023b). The current energy-saving obligations will be updated in line with the new EED of the EU. Additional energy efficiency measures according to the NECP include financial aids for small enterprises investing in energy saving equipment (Eco energy loan) and training programmes for energy management, among others. Measures of the energy restraint plan, published in the context of the energy crisis following the war in Ukraine, such as reducing ignition hours of streetlighting, shall be adapted and prolonged (Odyssee-Mure, 2023). Despite existing measures, government projects leave an **energy savings gap of 162 TWh up to 2030**. Additional measures to reach this goal should be listed in the final version of the updated NECP. These should also cover the operational implementation of the EED, e.g. by implementing the energy efficiency first principle.

French report evaluating the state budget for environmental criteria

The French government publishes an **annual report** evaluating the state budget according to six environmental criteria, including "Fighting Climate Change" (FÖS, 2022; Gouvernement, 2021a). In 2021, approximately € 37 bn of the budget and tax expenditures for 2021 were categorised as favourable to climate mitigation to a considerable extent, whereas approximately € 9.6 bn were evaluated as unfavourable, although both represent only a small share of a total of € 574.2 bn of budget and tax expenditures (FÖS, 2022; Gouvernement, 2021b). The NECP mentions favourable expenses such as the industry decarbonisation fund, which amounts to appr. € 6.8 bn. By strengthening the Green Fund, the government seeks to finance local projects with a total of € 2.5 bn in 2024.

The climate transformation and social justice

Besides that, the French government seeks to design measures in the SNBC that implement funding for a just transition. With measures like the energy voucher and especially the Energy Saving Certificates Scheme, the French Government seeks to subsidise low-income households. The French government will also co-finance transition

[4] For example: An obligation to install photovoltaic is enforced, but only on new buildings, neglecting the potential of existing building stock. For these calculations, only the environmentally favourable budget items and taxes rated with "2" (indirect positive impact) or "3" (environmentally targeted expenditures with positive impact) on the dimension of "Fighting Climate Change" were considered (Gouvernement, 2021b). These figures are not compared to the necessary expenditures for reaching the climate goals, calculated in climate political scenarios, due to methodological difficulties. The SNBC for example covers the calculation of financing needs for their scenario, but it does not distinguish public from private spending (Gouvernement, 2021b).

projects in regions that were up to now dependent on fossil fuel production. However, an exhaustive set of social measures is currently lacking and will be included in the final NECP. Another factor involves the mining of metals needed for the energy transition. France finances projects for sustainable mining and resource use via several funding programmes and tax credits for companies.

Role of participation

The role of participation is strengthened by the approach of ecological planning, which leads to extensive consultation processes of strategies like the SNBC and PPE. Another form of impact was provided by involving suggestions of the Convention Citoyenne pour le Climat in the Loi climat et résilience. This assembly consists of a representative sample of citizens and developed a list of 149 measures from 2019 to 2020. According to the government, 100 of these measures have been implemented. However, that is only two-thirds of the suggestions, demonstrating the limited influence of participation (Ministère de la Transition écologique, 2023e).

Evaluation

The French NECP provides for a national baseline target complemented by some, but not all, sector-specific targets. Indicator 1 is rated as “0”, indicator 2 as “+”. The emission and energy targets correspond to the European targets, but clarification is lacking regarding the expansion of renewable energies. In sum, indicator 3 scores a “0”. The French NECP also provides for sufficient information to understand the targets as well as an overview of these targets in comparison with European goals. Still, the lack of transparency regarding renewable energy expansion targets leads to the score “0”.

Table 5: Indicator evaluation for transparency in target setting for France (NECP)

No.	Indicator	Score France
1	Availability of GHG target in the NECP	0
2	Type of GHG target in the NECP	+
3	Ambition level of the NECP compared to the EU NDC /1.5 °C limit	0
4	Availability of neccesary information to understand the target in the NECP	0
5	Translation of NDC/NECP target into national laws, financial flows and policies	+
6	Enabling environment for ambitious climate action -policy instruments adopted to implement NDC/NECP	0

The Code de l'énergie mentions European climate goals and the EU NDC as well as the NECP, whereas the Loi climat et résilience mentions neither of them. The strategies also refer to the context of international obligations and climate targets, but without explicitly emphasising the EU NDC or the NECP. However, as some strategies and laws mention the EU NDC and the French NECP, indicator 5 is rated as "+". The analysis of the political environment for the energy transition in France produces a mixed picture: There are ambitious measures in the field of energy efficiency, but the expansion of renewable energies remains too slow and current measures such as the Loi relative à l'accélération des énergies renouvelables appear to be insufficient to catch up. To reach its goals in the energy sector, France is instead counting on nuclear energy. Still, even if compliance with the energy sector climate goals is feasible, the support for a transition to renewable energies is insufficient, as are the financial flows for climate protection. Indicator 6 is rated as “0”.

5.1.2 Transparency of monitoring and evaluation – France

Hereinafter, France's scores on the dimension transparency of monitoring and evaluation are described. The evaluation of the individual indicators is shown in Table 6 and the reasons for the valuation are given in the text.

Table 6: Indicator evaluation of transparency of monitoring and evaluation in France

No.	Indicator	Score France
7	Information on emission pathways and projections, and/or GHG inventory in the BR	+
8	Information on enabling environment for climate action: policies and measures described in the BR	+
9	Information on achievement or progress in implementation of reported policies and measures in the BR	0
10	Information on individual (local) projects or climate actions/initiatives in the BR	-
11	Availability of national-level monitoring/evaluation report	+
12	Content of monitoring/evaluation report	0
13	Format and length of monitoring/evaluation report	+
14	Accessibility of monitoring/evaluation report	+
15	Evidence of independent evaluation. Is there a separate body evaluating the reported achievements?	+

France's Biennial Report for the UNFCCC

The transparency of monitoring and evaluation concerning NDCs is assessed by analysing France's Fifth Biennial Report (BR5). The report contains information on the GHG inventory, including bar charts and area charts covering emissions from 1990 to 2020. Its methodology has been evaluated as transparent and complete by the UNFCCC (UNFCCC, 2020). To analyse possible emission pathways, two scenarios and their respective measures in the different sectors are described: The **AME ("with existing measures") scenario**, which considers all policies implemented up to 2019, and the **AMS ("with additional measures") scenario** based on measures proposed in the SNBC 2. An accompanying report covers projections on these scenarios (Ministère de la Transition écologique, 2020b). Projected emission pathways are then described and depicted. The report states that even under the AMS scenario, the goals of the Green

Deal will not be reached. As inventory and emission pathways are reported in detail indicator 7 is rated as "+".

Information on concrete measures and institutional foundations are contained in the National Communication. After an overview on general climate laws, the communication names measures for each sector which were implemented during the reporting period. In Appendix III the measures are listed with information on the implementation status, type of instrument and estimated GHG emissions impact (Ministère de la Transition écologique, 2023c). The detail level of the policy measures is rather high, so indicator 8 is rated as "+".

The individual chapters contain information on additional measures and their impact since the previous report. However, there is for example no information on measures which were mentioned in previous reports but that have since been delayed or abolished. Furthermore, GHG emission reductions are only listed for some of the measures. Therefore, the completeness of information on progress is questionable and indicator 9 is rated as "0".

The BR also refers to local authorities. Their climate actions are mostly pertinent to regional planning tools such as the Regional Schemes for Planning, Sustainable Development and Equality of Territories. These are strategies developed by regional authorities, setting guidelines and goals for climate mitigation and adaptation as well as the development of the energy sector. But information on local projects is lacking, therefore Indicator 10 is rated as "-".

Table 7: National monitoring reports in France

	Monitoring of SNBC (Suivi de la SNBC)	Review of SNBC	Future-oriented projection (Rapport d'accompagnement)
Author	French government	French government	French government
Availability	Biannually (full report) / annually (performance indicators)	Every five years (prior to actualisation of SNBC)	Every five years (prior to actualisation of SNBC)
Content	Descriptive assessment of 162 indicators	Evaluation of implementation of SNBC	Projections of emission pathways and compliance with reduction targets
General assessment	✓ (indicators)	✓	✓
Activities	×	✓	×
Expected emission reductions	×	✓	×
Other Impacts	✓	✓	✓
Lessons learned	×	×	×
Accessibility			
Published on	Website of Ministry of Ecological Transition	-	Website of Ministry of Ecological Transition
Language	French	-	French
Format / length	Standardized	-	semi-standardized

Source: Own representation according to Ministère de la Transition écologique, 2020b, 2020a, 2023c

National-level monitoring and evaluation

The monitoring report evaluates the implementation of the SNBC (see Table 7). It analyses 162 indicators. Performance indicators, like the GHG emissions, are monitored annually, others (e.g. context indicators) biannually (Ministère de la Transition écologique, 2023g, 2023c). It is **mostly descriptive and does not include an analysis of political measures** (Ministère de la Transition écologique, 2023f).

Evaluation and projection reports

Additionally, in the fourth year of each five-year period of the strategies, the government publishes a more extensive evaluation on the extent to which the guidelines have been incorporated in policies (Ministère de la Transition écologique, 2020a). This evaluation serves as a basis for the next strategy and was ought to be published in 2023 (Ministère de la Transition écologique, 2023c). As it hasn't been published up to the publication of this study, certain indicators cannot currently be assessed.

An accompanying report evaluates socio-economic, environmental and emission reduction impacts of projections of a business-as-usual scenario and a target scenario (Ministère de la Transition écologique, 2020b, 2023d).

A multitude of monitoring reports are available, are published regularly, and are mostly written in French. Therefore, the indicators 11, 13 and 14 are rated as "+". The different monitoring reports cover almost all aspects mentioned in indicator 12, but the different evaluations only

refer to the bigger picture and a detailed evaluation of individual policies is lacking. Therefore, indicator 12 is rated as "0".

High council of climate - Haut Conseil Pour Le Climat

In 2019 the French government established the Haut Conseil Pour Le Climat (The High Council on Climate (HCC)) to advise the government regarding climate action measures and provide insight on governmental climate policy (Haut Conseil pour le Climat, n.d.). The HCC consists of 13 experts in the fields of energy transition, climate science, economics, and agricultural economics. It is mandated to publish three different reports: First, a yearly evaluation of the compliance with the GHG emission pathway set in the SNBC-2. Second, every three years, it reviews climate mitigation and adaptation by local and regional authorities. Third, it evaluates action reports of the emission-intensive sectors (Ministère de la Transition écologique, 2023c). Additionally, the council issues opinions on climate laws and SNBCs, which serve as a scientific basis for the public debate. Still, the Council **only serves as advisory board**. Due to its provision of independent evaluation, indicator 14 is rated as "+".

State of energy transition

In its annual report 2023, the HCC reports that in 2022, France was hit extremely hard by the ramifications of the climate crisis, for example with long and severe droughts. The council acknowledges current GHG emission reductions, which were higher in 2022 than in the previous years (2.7 % less than in 2021), due to a mild winter and energy saving measures of the energy crisis. Still, the council criticises this **pace** as **insufficient**. As carbon sinks expanded slower than projected in the target scenario, the net emission reduction goals were not reached. France had an average yearly reduction of 9.1 Mt CO_2eq (between 2019-2022), and missed the annual target of 12 Mt CO_2eq stated in the SNBC-2 target scenario (Haut Conseil pour le Climat, 2023).

Renewable energy expansion in France

The Climate Transparency Report evaluation states that even though the emission intensity of the power sector is extraordinarily low due to nuclear energy, the share of renewables in power generation can only be judged as "medium" in comparison to other G20 members (Climate Transparency, 2022). A glance at the energy balance also illustrates the minor role of renewable energies, which constitute only 20 % of final energy consumption. Due to the slow expansion rate the largely decarbonized nuclear energy remains the main energy source. In terms of energy security, it proved unreliable in 2022, as a large share of the nuclear production became inoperative due to corrosion damages and other safety problems (Süddeutsche Zeitung, 2023).

Regarding energy efficiency, the results are more promising: In the period from 2014-2020, France overachieved its energy efficiency goals by saving about 415 TWh, despite the COVID-19 pandemic. The energy supply decreased by 10 % between 2016 and 2021, which is a significantly better result than the G20 average, which was generally increasing (Climate Transparency, 2022; Gouvernement, 2022; Ministère de la Transition écologique, 2022, 2023a).

In total, the current emission reduction rate in France neither complies with current national goals nor with the stricter rules of the Green Deal. The transportation sector in particular is lagging behind these goals. Though less emission intensive due to the large part of nuclear energy, this also applies to the energy sector where the expansion of renewable energies remains too slow.

5.1.3 Local climate action - France

To show exemplary how the NDC and NECP lead to concrete projects, the following section presents selected energy projects (see chapter 2 Data and methods for information about selection criteria of the projects and resulting limitations). Table 8 shows an overview of selected case study projects for local climate action in France. One project is funded by government, the other not. The funding and the implementation of projects is not bound to specific funding programs.

Table 8: Selected energy projects within the NDC and NECP framework - France

FRANCE	
DAISEE	The projects use blockchain technology to manage energy data, enhance citizen participation and grid governance. Municipalities are supported on their way to energy sovereignty.
	Located in Prats-de-Mollo
	No government funding
Gecler	Gecler is an association of three networks for the promotion of citizen projects for renewable energy production (Ale 08, LER, Alter Alsace Energie). Exemplary project: 123-Soleil – Municipal initiative led by the 123 Soleil association. The aim is to make the municipality of Luc-Sur-Aude energy self-sufficient through the development of a 250kWp open-space photovoltaic park. The park was put into operation on Dec. 15, 2017. The electricity is sold to the cooperative utility Enercoop.
	Located in the region Grand Est
	Governmental funded

Source: Own representation according to Lemaignan, 2022; Thebault et al., 2018

The indicators of the dimension local climate action for France are described further in this section. The evaluation of the individual indicators is shown in Table 9, and the reasons for the valuation are given in the text.

Table 9: Indicator evaluation of two project examples of local climate action in France[5]

No.	Indicator	Score
16	Availability of governmental support for local climate action	+
17	Contribution of local climate actions to the country's emission target	-
18	Existence of local community participation or consultation processes in decision-making of climate actions	0
19	Continuity and comprehensiveness of local consultation process for climate actions	
20	Co-benefits of local climate actions	0

The French case study looks at two projects as examples for local climate action: DAISEE and Gecler. Governmental support[6] for local actions is available. Therefore, indicator 16 is rated as "+". Some projects like Gecler are governmentally funded, others like DAISEE are not. In both projects there is no reporting about effects resulting from the implementation. Emissions from the process of planning and construction were identified, but without a link to the contribution of the project to the GHG targets of the NDC. Therefore, indicator 17 is rated as "-". Participation is voluntary in the projects and takes place on a small scale. Therefore, indicator 18 is rated as "0". There is no information about the continuity and comprehensiveness of the consultation process. Therefore indicator 19 is not rated. Aspects of co-benefits regarding the projects were also not reported. However, in the Gecler project, for example, it is emphasized how many members and employees are in one region within the project. Therefore, indicator 20 is rated as "0".

The French case studies are now explained in more detail.

DAISEE

The project aims of the French project DAISEE are made clear: achieving energy autonomy in a local community by 2021. Activities supporting this aim are creation of a mixed-purpose company involving a broad range of stakeholders plus contributions of the DAISEE research programme to rehabilitate old hydroelectric power plants, expand PV and biogas infrastructure, and improve data management and energy efficiency. Documentation (in French) is relatively clear on the many different activities, with lots of technical details (Thebault et al., 2018). The project focuses on the region Prats de Mollo, which is a village of around 1.000 people and an annual energy consumption of 6,5 GWh/year. 40% of the energy consumption came from locally controlled hydroelectric plant in 2018. Specific information on actual results (by 2021) is missing (although the Prats de Mollo website does have information on the different sources of energy, plus the daily and monthly contributions). Participation is voluntary, relatively small-scale, and limited to a community, plus the outside researchers and experts brought into the project (Énergie Partagée, n.d.; Énergies de Prats, n.d.).

Gecler

The activities of the Gecler project are only described in general at the website of the project: raising awareness of citizen energy, supporting local citizen energy initiatives, and networking existing citizen energy projects (Lemaignan, 2022). Also, clear information of key activities is given: installation of rooftop PV on public and community buildings, such as schools, football clubs, as well as the local water treatment plant. Specific initial goals are not clear, apart from general production of renewable energy to benefit the community. For 2023 and the future, a fundraising campaign was launched to promote the objective of expanding PV for self-consumption. Specific projects to support this are not immediately clear (Centrales Villageoises du Pays de Saverne, 2018). Specific projects rarely appear to mention Gecler support and Gecler does not clearly identify the support given to specific projects (Lemaignan, 2022).

Clear data on production of the PV installations found on the website, broken down over time and by each installation. Emissions reductions and social or environmental effects are less clear, although the focus on community-owned properties is aimed at bringing the (financial) benefits of the projects to the community, rather than just private actors (Centrales Villageoises du Pays de Saverne, 2018).

The Gecler project counts around 145 members (January 2022), participation is voluntary, and the company set up to manage the projects is community-based (Énergie Partagée, 2022).

5.1.4 Summary of the country case study of France

The French draft updated NECP contains preliminary guidelines of the new **SNBC 3** and **PPE 3** which are in line with the European emission reduction targets (**emission reduction of 55 % in 2030**). However, they are to be transferred in national laws but the binding targets of the **Code de l'énergie**

[5] The evaluation is based on two selected project examples. For more information see chapter 2 Data and methods.

[6] Governmental support here is synonymous with governmental funding. Other forms of governmental support are not taken into account.

are not in line with European goals. The NECP provides a mostly transparent overview on existing and planned strategies, goals and policies, but lacks transparent targets for the renewable energy share as well as sufficient measures to provide for energy efficiency.

The new goals and main policies will be laid out in the energy and climate strategy, including the **Loi de Programmation sur l'Énergie et le Climat (LPEC)**. Further measures are named in the **Loi climat et résilience**, which was developed on the basis of recommendations by a citizen convent.

France's fifth biennial report provided to UNFCCC to monitor the implementation of the NDC is analysed to **assess the transparency of monitoring and evaluation** of its NDCs. The report includes information on greenhouse gas (GHG) inventories, emission data, and scenarios. The report describes two emission scenarios: AME ("with existing measures") and AMS ("with additional measures"). It projects emission pathways but suggests that **even with additional measures, the Green Deal goals may not be met**. Information on climate policies and measures is presented in the National Communication, detailing actions taken in various sectors, along with information on the implementation status and estimated GHG emissions impact. More specific **information on local projects is lacking**.

France monitors the implementation of its climate strategy (**SNBC**) via 162 indicators, e.g. GHG emissions and context indicators. More extensive evaluations of these strategies are issued in the fourth year of the five-year period of implementation.

The **climate transparency report** evaluates France's performance in terms of emissions and climate policies. It notes that the **power sector has a low emission intensity** due to nuclear energy but that the **share of renewables in power generation is medium**. Renewable energy expansion has been slow. France has overachieved its energy efficiency goals, saving a significant amount of energy between 2014 and 2020. The energy supply has decreased, which is a positive outcome. Despite these positive aspects, the report suggests that the current **emission reduction rate in France falls short of its NECP goals** and the stricter **goals of the European Green Deal**. The transportation and energy sectors are specifically mentioned as lagging behind.

In the area of **local climate action** two projects were described as examples: DAISEE and Gecler. The scoring was undertaken by analysing these two project examples and has only a descriptive character. **Governmental support is available** although only one of the project examples is governmentally funded. But **both projects lack reporting** on implementation effects. **Participation is voluntary** and on a small scale. Co-benefits are not reported, but the Gecler project highlights regional involvement.

5.2 Country Case study Germany

5.2.1 Transparency in target setting – Germany

The following section presents the scores for the dimension transparency in target setting for Germany. The scores of the individual indicators is shown in Table 10 and the reasons for the valuation are given in the text.

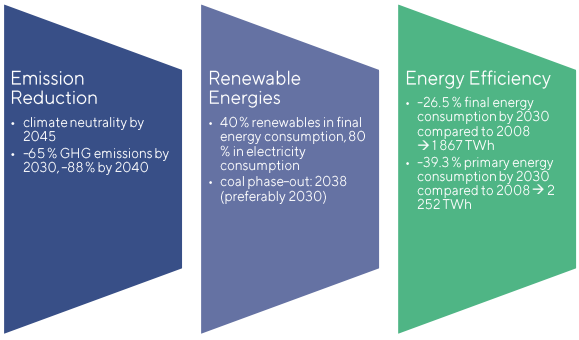
Table 10: Indicator evaluation of transparency in target setting in Germany (NECP)

No.	Indicator	Score Germany
1	Availability of GHG target in the NDC/NECP	0
2	Type of GHG target in the NDC/NECP	+
3	Ambition level of the NECP compared to the EU NDC /1.5 °C limit	+
4	Availability of neccesary information to understand the target in the NDC /NECP	0
5	Translation of NDC /NECP target into national laws, financial flows and policies	0
6	Enabling environment for ambitious climate action -policy instruments adopted to implement	0

Targets of Germany's NECP

The emission reduction target of Germany's draft updated NECP is based on the Federal Climate Change Act. Figure 4 shows these targets of the updated draft of the NECP. Sector-specific goals are only mentioned for the building, transportation and LULUCF sector. When the new Federal Climate Change Act is amended, their significance will change. It mentions that national goals would be in line with the EU effort sharing regulation. The NECP sets German legislation in the broader European context and mentions e.g. the European Climate law and the Fit-for-55 package. The EU NDC is only mentioned indirectly.

Figure 4: National targets concerning emission reduction, renewable energies and energy efficiency - Germany

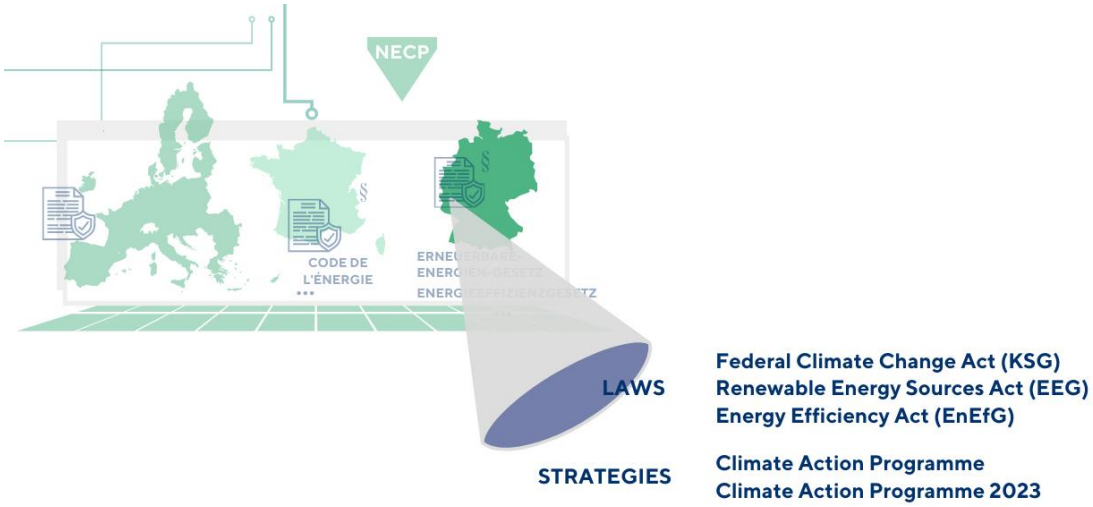


Source: Own representations FÖS

Targets in the energy sector are also specified. The NECP foresees a 40 % share of renewables in final energy consumption across all sectors in 2030 in its projections, which is slightly below the EU target of 42.5 %. Energy efficiency targets are set in the new Energy Efficiency Act.

The NECP gives necessary information to understand the GHG targets and gives comparisons to the EU targets, but in a less systematic and clear way than France. A systematic account of emission reduction targets as well as trajectories for the expansion of renewable energies in the different sectors is missing. Some targets also lack comparability between German and EU targets, because they are calculated differently, such as targets for the LULUCF sector, or energy efficiency targets which have different reference dates.

Figure 5. Laws and strategies of climate and energy policies in Germany



Source: Own representation FÖS

Figure 5 presents Germanys laws and strategies of climate and energy policies which will be described in the following.

Federal Climate Change Act

The **Federal Climate Change Act** sets the principal goals regarding national GHG emission reduction as contributions to the Paris Agreement and the EU targets. If international commitments require more ambitious national climate targets, necessary steps will be taken to update national targets (§3 FCCA). Like France, Germany does not mention the NECPs or NDCs in particular but does refer to the Paris Agreement. The main goals are **climate neutrality by 2045**, and an emission reduction of **65 % by 2030 and 88 % by 2040**, compared to the 1990 baseline. Additionally, annual reduction goals for the different sectors are specified, which need to be evaluated each year. Therefore, Germany's ambition level regarding GHG emission reduction is higher than the EU's targets, which is also mentioned in the draft updated NECP. However, the Federal Climate Change Act is currently being renegotiated, which could lead to the elimination of sector-specific targets. The ambition level of German climate goals for 2030 is evaluated as insufficient so far, with an ambition gap of 104 Mt CO_2eq (Climate Analytics, 2023).

Climate Action Programmes

The **Climate Action Programme** was published in 2019 to cover detailed measures for the period to 2030. It mentions the emission reduction goals of the EU NDC, as well as the obligation to submit NECPs. The programme bases climate action on four pillars: Funding programmes, a price on CO_2 emissions, financial relief for households, and regulatory measures. In the energy sector, the programme outlines measures such as the phase-out of coal and a strategy for energy efficiency.

The **Climate Action Programme 2023** was published in June 2023 and presents measures that the current government wants to implement to close the gap between projected emissions with existing measures and the actual climate goals (BMWK 2023a). It mentions neither the NDCs nor NECPs, and only briefly refers to the Paris Agreement, as well as the EU Fit-for-55 package, and the need for European collaboration. In the energy sector, already implemented reforms of laws such as the Renewable Energy Sources Act (EEG) and associated laws are cited.

According to the federal government, the Climate Action Programme 2023 will reduce the projected ambition gap of 1,100 Mt of CO_2 by 900 Mt. According to the Council of Experts on Climate Change (Expertenrat für Klimafragen), the remaining gap is probably still significantly higher than 194 Mt CO_2, although concrete numbers are missing due to inconsistent data. Therefore, the programme, especially in the transportation sector, fails to meet the obligation given by the Federal Climate Change Act.

Renewable energy policies

The **EEG** is the fundamental law regulating the expansion of renewable energies and was amended in 2022 alongside

other laws, such as the Onshore Wind Energy Act, that aim at accelerating the expansion of renewable energies. The EEG considers expansion paths for different kinds of renewable energies, but fails to mention the NDC, NECP or other international targets to reach the target of increasing the share of renewables in gross electricity consumption to 80 % by 2030, which will be exceeded, according to the projections of the NECP (BMWK, 2022b).

The Climate Transparency Report evaluates these renewable energy policies as congruent with the 1.5°C limit of global warming (Climate Transparency, 2022).

Fossil Fuel Phase-Out

The multitude of measures to strengthen renewable energies do not replace the need for a rapid phase-out of coal energy, which contributes the largest amount of GHG emissions from the German energy sector. The current government **aims at phasing out up to 2030**, and therefore made a deal with RWE in 2022 for the coal-mining areas in the west of Germany[7]. Whether similar agreements can be implemented in the east of Germany is uncertain. Overall, the current timeline is evaluated as inadequate for climate change mitigation - especially considering subsidies for coal energy amounted to € 1.7 bn in 2022 (FÖS, 2023b).

Energy efficiency and energy savings

The **Energy Efficiency Act** (EnEfG) enacted in September 2023 covers the national implementation of the revised EED and mentions the Fit-for-55 package of the EU as well as the need to fulfil the European climate goals. Germany's goals are more ambitious than the European ones. The Act is the first to set reduction targets concerning primary as well as final energy consumption in Germany (Bundesregierung, 2023).

Strategic measures to enable annual reductions of 45 TWh in final energy consumption are to be summarised in the NECP and their progress will be monitored in the NECPR (Bundesregierung, 2023). However, the **updated NECP draft does not include any additional measures**, although the projections indicate that the energy saving targets for final energy consumption cannot be reached with existing measures alone[8]. The updated NECP only mentions existing strategies such as the Energy Efficiency Strategy 2050. Other measures that are mentioned are financial support for energy advice for all consumer groups, the activation campaign "80 million together for energy transitions" as well as example-setting role of the federal government. Also, industry-related policies regarding the obligation to submit energy audits and management systems for companies are described in the NECP. The NECP mentions that the additional measures needed to reach the ambitious efficiency targets will be added in the final NECP 2024 and claims that further measures will be communicated in a timely manner, which is also necessary to fulfil Article 8 of the Directive EU 2023/1791.

To monitor progress, public authorities and companies need to introduce energy and environment management systems according to the Energy Efficiency Act. Additionally, companies must develop plans to implement economically feasible saving measures. However, environmental organizations continue to criticise the lack of energy reduction obligations for these actors and question whether the EU goals can be fulfilled with this law - especially as the government itself declares that voluntary measures have not been sufficient (Bundesregierung, 2023; Umweltinstitut München, 2023).

Financial instruments concerning climate and energy policies

The state of public financing for climate protection in Germany is ambivalent. As Germany doesn't report on green budgeting, other evaluations are necessary. They need to consider **environmentally harmful subsidies** on the one hand. According to the Federal Environmental Agency, these constitute about **€ 65 bn** (UBA, 2021). On the other hand, state expenditures for climate protection exist. However, a wide selection of major financial instruments concerning climate and energy policies are contained in the **Climate and Transformation Fund (KTF)**.

The KTF contained spendings in different areas as of August 2023. [9] Large shares are used to finance energy-saving measures in the building sectors, measures to decarbonise industry, to expand hydrogen production and infrastructure. Additionally, investments in electric mobility and renewable energies as well as ecosystems and natural climate mitigation form are financed by the KTF. While the government's plans show the willingness to increase spending, an

[7] Whether this agreement serves to reduce GHG emissions is questionable according to calculations by the DIW. In a return to the earlier phase out, two coal plants will continue to run up to March 2024 (Rheinische Post, 2022).

[8] The lack of adequate measures or detailed description was previously criticized by the European Commission in the first NECP (European Commission, 2020).

[9] In November 2023, Germany's constitutional court ruled part of the KTF's financing basis (60 billion Euros) to be void (Bundesverfassungsgericht, 2023). At the time of writing, the government indicated that it would cut future KTF spending and move some of the items into the regular budget (e.g. spending on rail infrastructure). The figures presented are still the most current.

analysis of climate spending from KTF and the regular budget) shows that the **current spending levels are insufficient measured against what is required for Germany to reach its 2030 climate goals** (FÖS, 2023a). This financing gap in planning is exacerbated by large differences between budgeted and actual spending: in 2022, the government in fact only spent 49% of what it intended to spend through the KTF on climate and transformation.

Additionally, approximately € 759 mn is designated for climate protection by Federal Ministry for Economic Affairs and Climate Action in the draft **budget** for 2024, with another € 567 mn designated for energy research and development, and projects of so-called living labs for energy transition to be funded with approximately € 100 mn (BMF, 2023).

The climate transformation and social justice

According to the draft updated NECP "it is important for the Federal Government that no one is left behind in the transformation process" (BMWK, 2023a, p. 270), which is why every climate political measure would be evaluated against the backdrop of its social implications. In the sector of electricity, the NECP mentions that electricity customers are relieved due to the abolition of the EEG-surcharge in 2023 (BMWK, 2023a). It also names other tools like the **'electricity-check'**, which is aimed at financing electricity saving advice and measures especially for low-income households. To avoid energy poverty, social subsidies covering electricity provision are provided under the Second and Twelfth Social Code (SGB II and SGB XII). Additionally, measures to improve the regional economic structure and thereby help regions that are strongly affected by the energy transition, such as coal regions, are implemented. However, for example the 'Energiepreisbremsen', a measure that limits the price of electricity and gas, will probably expire at the end of 2023, which could lead to rising prices (SPIEGEL, 2023). Still, according to the NECP **further social measures are to be designed**.

Role of participation

The **participation** of civil society and other stakeholders **in the NECP itself is insufficient**. The chapter devoted to explaining the integration of the public and stakeholders in the process of drafting the updated NECP refers only to the website of the Federal Ministry for Economic Affairs and Climate, which states that the consultation process is due to start in 2024, and further details are lacking. This contradicts the Aarhus Convention stating that the public must be given early and sufficient opportunities for participating in the design of the plan (European Commission, 2022).

Evaluation

In comparison with France, the NECP emission reduction targets score a "0" for indicator 1 and a "+" for indicator 2. The ambition level regarding emission reduction is higher than the EU NDC, so indicator 3 is rated as "+". However, German targets for the expansion of renewable energies are slightly below the EU targets. As some information is lacking to understand the national targets and compare them with European targets, indicator 4 scores "0". The NDC target is only referred to in strategies, and not in laws. Indicator 5 is rated as "0". The Energy Efficiency Act and the Climate Action Programme refer to the NECP and European emission reduction goals, whereas the Federal Climate Change Act instead mentions the underlying goals of the Paris Agreement. Other strategies and laws such as the Renewable Energy Act do not mention any international climate goals. Indicator 6 is rated as "0".

5.2.2 Transparency of monitoring and evaluation – Germany

The evaluation of the individual indicators is shown in Table 11 and the reasons for the valuation are given in the text.

Table 11: Indicator evaluation of transparency in monitoring and evaluation in Germany

No.	Indicator	Score Germany
7	Information on emission pathways and projections, and/or GHG inventory in the BR	+
8	Information on enabling environment for climate action: policies and measures described in the BR	+
9	Information on achievement or progress in implementation of reported policies and measures in the BR	+
10	Information on individual (local) projects or climate actions/initiatives in the BR	-
11	Availability of national-level monitoring/evaluation report	+
12	Content of monitoring/evaluation report	o
13	Format and length of monitoring/evaluation report	o
14	Accessibility of monitoring/evaluation report	o
15	Evidence of independent evaluation. Is there a separate body evaluating the reported achievements?	+

Germany´s Biennial Report for the UNFCCC

Germany included detailed information on its GHG inventory in its Biennial Report. The Report provides bar and line charts on emissions from 1990 to 2020. It also refers to the National Inventory Report 2022, which provides further information on methodologies in line with the Modalities, Procedures and Guidelines (MPG) (BMWK, 2023b). Regarding future-oriented assessments, it refers to the projection report from 2021. It contains a **"With measures Scenario" (WMS)** which considers the implications of policy measures implemented in August 2020. The BR also includes bar charts of historical and projected emissions from 1990 to 2045. Another bar chart compares goals according to the Federal Climate Change Act to the projected emission trajectory of the WMS scenario. Although this resembles the

approach of France, a scenario covering additional measures, such as suggested by the NECP guidelines, is missing (European Commission, 2022). However, Germany provides detailed information on GHG inventory and projections and indicator 7 is rated as "+".

The National Communication referred to in the Biennial Report also provides information on policies and measures. Besides the Climate Change Act and climate political strategies, such as the Climate Action Programme 2030, the National Communication describes individual policies. It mentions selected measures which at that point in time were yet to be implemented such as the reform of the EEG. Additionally, funding programmes as well as measures for a socially equitable transformation are described. Overall, 40 measures and their impact on emission reduction and changes compared to the previous reporting period have been implemented in 2020 (BMWK, 2023b). The report focusses on federal level but also mentions changes at the federal states and municipality level. Overall, the information concerning policies and measures as well as progress compared to previous reporting periods is rather detailed, therefore the indicators 8 and 9 are rated as "+". Concrete examples for local action are not mentioned (BMWK, 2023b), so indicator 10 is rated as "-".

Table 12: National monitoring reports in Germany

	Emission data report (Emissionsdaten)	National projection report (Projektionsbericht)	Climate action report (Klimaschutzbericht)
Author	German Environment Agency (UBA)	Federal Government / scientific institutes	Federal Government
Availability	Annually (15 march)	Annually (since 2023; 15 march)	Annually (30 June)
Content	Ex-post evaluation of compliance with Federal Climate Change Act	projection of emission pathways and compliance with Federal Climate Change Act	status of implementation of Climate Action Programmes
General assessment	✓ (GHG emissions)	✓ (projected GHG emissions)	✓ (climate policies and emissions)
Activities	×	✓	✓
Expected emission reductions	×	✓	×
Other Impacts	×	×	✓
Lessons learned	×	×	×
Accessibility			
Published on	Website of UBA	Website of UBA	Website of BMWK
Language	German	German	German
Format / length	Standardized	semi-standardized	semi-standardized

Source: Own representation according to BMWK, 2022a; Öko-Institut et al., 2021, 2023; UBA, 2022, 2022

Monitoring reports of Germany

On a national-level, Germany provides several monitoring reports (see

Table 12). The emission data report contains estimates regarding the GHG emissions of the previous year based on the National GHG Inventory. The GHG Emissions are presented in a Microsoft Excel table. A short report covers general emission trends and causes for the emission trends in each sector (UBA, 2022, 2023a). The report provides a foundation for evaluating whether climate targets have been achieved, and where this is not the case, the respective sector needs to propose an immediate-action program (BMWK, 2023b).

National projection report

The projection reports serve to comply with the Federal Climate Change Act as well as the European Governance Regulation. They cover emission reduction projections for different scenarios and their measures, and also mention other parameters such as electricity consumption (Öko-Institut et al., 2021). In 2021, the experts compared projections for a **With-Measures-Scenario (MMS)** containing measures that have already been taken by the government to a hypothetical scenario without these measures. The 2023 report compares the MMS as well as a scenario containing **further measures that are planned but not yet**

implemented[10] (**MWMS**) to the emission reduction goals of the Federal Climate Change Act (Öko-Institut et al., 2023).

Climate Action Report

The Climate Action Report evaluates the implementation and emission reduction effects of the climate action programs (BMWK, 2022a). The deadline for the report 2023 has not been met. It describes GHG emissions of the previous years, the general climate political context, as well as measures set out in the climate action program describing their implementation as well as their impacts on selected dimensions.

Monitoring of energy policies

In addition to these climate political assessments, the BMWK also monitors progress made in the field of energy policies. For example, the progress regarding the achievement of renewable energy expansion goals of the EEG is monitored by setting and monitoring an electricity-quantity pathway (BMWK, 2023b). Furthermore, a yearly monitoring report on the energy transition summarises existing energy-related data to assess the progress of the energy transition. This report was last published in 2021. A systematic approach to evaluate the progress regarding single energy transition measures does not exist.

Overall, the reports are published regularly, mostly every year or every two years, but some reports were not published in time. Therefore, the indicator 11 is rated as "+". The reports are uploaded on the website of the government or of the German Environment Agency in German. Therefore indicator 14 is rated as "0". Format and length are semi-standardised, therefore indicator 13 is rated as "0". All aspects mentioned in indicator 12, apart from lessons learned, are covered by at least one of the monitoring reports. Therefore, indicator 12 is rated as "0".

Independent evaluation of climate policies

A scientific body providing for independent evaluations of the climate policies of the German government is the **Council of Experts on Climate Change**. It consists of five experts in the fields of climate science, economics, environmental sciences, and social sciences, who are supported by scientific advisors. The Council is independent from the German government and is charged with monitoring the fulfilment of the Federal Climate Change Act and the evaluation of climate action programs and climate political measures. It also analyses the GHG emission data of the previous year as well as (according to the new draft of the FCA) the projection report. The Council assesses whether the government, in total or certain sectors, needs to make greater climate political efforts. If that is the case, it advises the government on appropriate measures. Additionally, every two years it issues a comprehensive survey on the development and projections of CO_2 emissions as well as on the efficacy of climate political measures. The German Council has no legislative rights and serves as an **advisory body**. Therefore indicator 15 is rated as "+".

State of energy transition and emission reduction in Germany

These assessments serve as a basis for the analysis of whether the plans and reality of the energy transition in Germany align. The analysis of the GHG emission data of 2022 shows that the transportation sector as well as the buildings sector exceeded their emission targets significantly. The energy sector only just fulfilled its target, even though its emissions rose compared to 2021 due to the increased use of coal instead of nuclear energy and gas as a consequence of the energy crisis (Expertenrat für Klimafragen, 2023a).

The **projection report projects a cumulative emission gap of 194 Mt CO_2eq** for a scenario including further climate mitigation measures which are already planned (Öko-Institut et al., 2023). The Expert Council assumes that the actual emission gap will be higher (Expertenrat für Klimafragen, 2023b).

Concerning the analysis of the Climate Action Program 2023, the Expert Council stated that the energy sector might overachieve the sector target for 2030 by approximately 38 Mt CO_2eq due to a significant expansion of renewable energies. Still, this overachievement cannot serve to compensate the transgressions of the buildings and transportation sectors (Expertenrat für Klimafragen, 2023b).

To successfully transform the energy sector, it is also important to set an ambitious rate for the expansion of renewable energies. The **Climate Transparency Report rates the decarbonization of the energy sector as "high"** compared to other G20 states. In 2023, the goal of installing an additional capacity of 9 GW photovoltaic energy per year will most probably be achieved, as up to August 2023 more than 7 GW had already been installed (Fraunhofer ISE, 2023).

State of energy efficiency and energy savings

The efforts for energy efficiency lead to a 11.4 % reduction of per capita energy supply (Climate Transparency, 2022). Still, the projections of the scenarios in the projection

[10] It especially contains measures in the transportation and buildings sector as these failed to fulfil the emission reduction goals and had to develop immediate-action programmes with further measures.

report 2023 would not meet the energy consumption goals of the Energy Efficiency Act (30 % instead of 39.3 % decline of primary energy consumption by 2030 compared to 2008) (UBA, 2023c). The goal concerning final energy consumption for 2030 is projected to be reached in 2040 (calculation based on BMWK & Arbeitsgemeinschaft Energiebilanzen, 2018; UBA, 2023b; Umweltbundesamt, 2023). This demonstrates that energy efficiency measures need to be expanded significantly.

5.2.3 Local climate action - Germany

To show exemplary how the NDC and NECP lead to concrete projects, the following section presents selected energy projects (see chapter 2 Data and methods for information about selection criteria of the projects and resulting limitations). Table 13 shows an overview of selected case study projects for local climate action in Germany. One project is funded by government, the other not. The funding and the implementation of projects is not bound to specific funding programs.

Table 13: Selected energy projects within the NDC and NECP framework - Germany

GERMANY	
Energiekarawane	Project of the German NGOs Klima-Bündnis and fesa e.V. Project to expand energy consultation of house owners concerning energy efficient housing. It has been implemented in more than 100 municipalities. 40 % take up counselling offer and on average 60 % of counselling leads to renovations.
	Nationwide application
	Governmental funded
Bürgerwerke – Energie in Gemeinschaft	Bürgerwerke is an association of currently 120 energy cooperatives from all over Germany. In total, they represent over 50,000 committed energy citizens and over 1,400 decentralised power plants in the hands of citizens.
	Nationwide application
	No government funding

Source: Own representation according to (Basche et al., 2023; Bürgerwerke, n.d.)

The indicators of the dimension local climate action for Germany are described in the following section. The evaluation of the individual indicators is shown in Table 9, and the reasons for the valuation are given in the text.

Table 14: Indicator evaluation two project examples of local climate action in Germany[11]

No.	Indicator	Score
16	Availability of governmental support for local climate action	+
17	Contribution of local climate actions to the country's emission target	0
18	Existence of local community participation or consultation processes in decision-making of climate actions	0
19	Continuity and comprehensiveness of local consultation process for climate actions	/
20	Co-benefits of local climate actions	-

The case studies from Germany are two local climate initiatives, where the government supports [12] local actions. Therefore indicator 16 is rated as "+". The reduction of GHG emission is specified as a target, but neither provide detailed information on actual GHG emission reductions. Therefore, the indicator 17 is rated as "0". Regarding the participation of the local community, participation is voluntary in the projects. Therefore indicator 18 is rated as "0". There is no information about the continuity and comprehensiveness of the consultation process. Therefore indicator 19 isn´t rated. Co-benefits regarding the projects were not mentioned. However, the Energiekarawane project does specify who participate on the projects. Therefore, indicator 20 is rated as "-".

Energiekarawane

The project Energiekarawane provides clear descriptions of the process, the timeline and project activities, as well as some of the challenges related to integrating this campaign with existing city administration processes (Basche et al., 2023; Climate Alliance, n.d.; Klima Bündnis, 2021). Published case studies additionally highlight some lessons learned (Basche et al., 2023; Climate Alliance, n.d.). There is a desire to extend the Energiekarawane approach to reach more parts of different cities, and to other potential topics (Klima Bündnis, 2021). There are no figures for the overall emissions, environmental or social effects of the Energiekarawane campaigns. However, there is a claim - with unclear evidence - that 25 % of a target community take up the advice offer, and 60 % of this group then implement the measures (Climate Alliance, n.d.). Effects in terms of people reached through the Energiekarawane activities are described (Klima Bündnis, 2021).

There is no legal obligation to participate, but the process is by nature designed to maximise voluntary participation (Basche et al., 2023; Climate Alliance, n.d.; Klima Bündnis, 2021). Project managers were encouraged by the uptake

[11] The evaluation is based on two selected project examples. For more information see chapter 2 Data and methods.

[12] Governmental support here is synonymous with governmental funding. Other forms of governmental support are not taken into account.

and the process is clearly oriented towards maximising participation (Klima Bündnis, 2021).

Bürgerwerke - Energie in Gemeinschaft

The project provides a general description of what Bürgerwerke does: coordination, energy purchasing, billing and other energy supply tasks as the umbrella organisation for citizen/community energy cooperatives. Lessons are not clear. It explicitly states the mission of continued expansion of citizen-owned decentralised renewable energy and implicitly the extension of the Bürgerwerke network. In terms of finance, a 2022 crowd investing campaign aimed to raise € 5 mn, which was to be used for additional advertising to increase customers, improved services for the energy cooperatives within the network, and increased marketing offers for renewable energy plants losing the expiring EEG feed-in tariff (Bürgerwerke, n.d., 2022).

There is no clearly visible information on the effects, in terms of emissions avoided or overall renewable energy available, although there is detail on the number of member co-operatives (124), members (over 50.000) and decentralised power plants (1.400). There is some information on electricity produced by several exemplar power plants, but by no means for all 1.400. The participation is voluntary for customers, or members. Clear emphasis on the "Energiewende in the hands of citizens" promotes participation (Bürgerwerke, n.d., 2022).

5.2.4 Summary of the country case study of Germany

The German draft updated NECP mostly refers to existing laws, strategies and targets. It lacks sufficient strategies to fulfil energy efficiency targets. Additionally, early opportunities for civil society and stakeholder participation was missing.

The main national climate law is the **Federal Climate Change Act** which sets **national targets for reducing CO_2 emissions** in line with international commitments. Thereby Germany aims for **climate neutrality by 2045** and **a 65 % emission reduction by 2030**.

The **Climate Action Programme is the long-term climate strategy**. It addresses sector-specific measures and targets, referencing the EU NDC. The Climate Action Programme 2023 is a recent update that aims to reduce the projected ambition gap between the 2030 goal and the projected emission pathway.

The **Renewable Energy Act** is highlighted as a fundamental law **regulating the expansion of renewable energies** in Germany. It mentions the goal of increasing the share of renewables to 80% by 2030. The **Energy Efficiency Act** is discussed as a means to **reduce final energy consumption in the EU**, in line with EU goals. There is criticism from environmental organizations that the need for companies to introduce energy and environment management may not be sufficient to meet EU goals.

Germany's Fifth Biennial Report provided to UNFCCC monitoring the implementation of the NDC includes **detailed information on its greenhouse gas (GHG) inventory**, which follows IPCC Guidelines, as well as assessments of individual policies. Future-oriented projections assess the "With Measures Scenario".

To **track compliance with the Federal Climate Change Act**, the German government publishes two reports: First, **emission data** is monitored. Second, **projection reports** provide future-oriented assessments. Additionally, the implementation of the climate action programmes are evaluated. The reports are generally standardized.

The **Council of Experts on Climate Change** in Germany evaluates the government's climate policies. The independent advisory board monitors the fulfilment of the Federal Climate Change Act and the efficacy of climate action programs. It advises the government on climate policies based on its assessments. The council releases comprehensive surveys on CO_2 emissions and climate measures every two years.

In the area of **local climate action** two projects were described as examples: Energiekarawane and Bürgerenergie. The scoring was undertaken by analysing these two project examples and has only a descriptive character. A **governmental support is available**, and both initiatives set **GHG emission reduction targets**. But detailed information on actual reductions is lacking. **Participation in the projects is voluntary**. Information about the consultation process continuity is inventory. Co-benefits are not mentioned, but the Energiekarawane project specifies participants.

6 Conclusion

The study presented an overview on the transparency, implementation, and relevance of NDCs in the European Union with a particular focus on the role of NECPs and case studies from France and Germany. Special attention has been paid to energy efficiency and the expansion of renewable energies in the electricity sector. The study also demonstrates how the embeddedness of national policies in the international as well as the European context results in a complex framework of climate-related policies, strategies and goals.

Transparency of EU NDC and NECP targets

The **main goals of the EU are established in its NDC**, which was evaluated as **partly transparent**, although more specific sector targets and thorough information on the targets was lacking. The **implementation of the EU NDC** via the **European Green Deal**, and especially **the Fit-for-55 package**,

is important. But it is questionable whether the soft governance by the Fit-for-55 package as well as the goals it contains, such as goals for the expansion of renewable energies, are sufficient to contribute to the limit below 2°C (1.5°C). Especially according to the **Biennial Report showing relatively high gaps in its projections**, it is unclear whether staying beneath the 1.5°C limit is possible.

The national contributions of the member states summarise each country's contributions to reach the climate and energy political goals. The study analysed the **NECPs of France and Germany**. Regarding the **transparency in target setting**, both **showed a lack of sector-specific emission reduction targets** but did **include targets regarding the expansion of renewable energies as well as energy efficiency**. German's carbon neutrality and emission reduction targets are even more ambitious. However, especially regarding the expansion of renewable energies, ambitions could be greater. The French NECP only sets out goals regarding "decarbonised energy", which would encompass the use of nuclear energy and shows the important role of this energy source for France.

Energy and climate political environment

France and Germany have rather well-established energy and climate political environments. **France** is currently reassessing its main strategies, **adapting them to the new European goals** and the **draft updated NECP reflects this** with some initial broad guidelines. The process will probably lead to the adjustment of a range of laws and regulations. The **Code de l'énergie**, as the main energy political law in France, **mentions the EU NDC and the NECP**, whereas other strategies and laws do not mention these documents, instead referring to the international context in general. Regarding energy policies, the analysis showed that the **expansion of renewable energies** in particular **needs to accelerate in France to meet European and national targets**.

Although previous performance regarding energy efficiency was satisfactory, **the new, more ambitious goals require greater efforts and additional policy measures**. This is **also the case for Germany**. **Both states need to include additional measures for energy efficiency in their NECPs**, but the **drafts** – although published with a delay of more than four months - are **lacking sufficient planned or implemented measures**. Special attention needs to be paid to the publication of the final NECPs and the process needs to be critically assessed by civil society to ensure that the opportunities of the NECP adjustment is used to enable climate change mitigation.

The **German climate and energy political environment consists of a multitude of laws and strategies**, which set a focus on accelerating the expansion of renewable energies. However, the **amendment of the Federal Climate Change Act lowers the significance of sector-specific targets**. Besides that, the funding of climate protection is compromised by the recent decision by the Federal Constitutional Court. The update of the NECP could have been an opportunity to announce further ambitious measures. However, this opportunity was not used and the **NECP draft mainly limits itself to summarizing already existing policies**. The **lack of a public consultation process is lacking transparency and contradicts the Aarhus Convention and the regulations on the design of NECPs**. The upcoming consultation processes in 2024 must now be used to make the opinions of stakeholders and civil society heard.

Monitoring and Evaluation

France and Germany provide a wide range of monitoring and evaluation reports. However, neither state refers to the impact of local projects, although this would highlight the importance of these initiatives in combatting climate change. On a national level, French projection and evaluation reports seem to be more transparent, providing a more comprehensive and unitary format and language. Regarding the content, these monitoring reports cover a broad range of issues, for example the implementation of the French climate political strategy SNBC regarding emission reduction, as well as the socio-economic impacts and degree of implementation of its guidelines. Projection reports provide for an ex ante evaluation, and in the case of Germany the (potential) fulfilment of the Federal Climate Change Act serves as a guidance for deciding whether current policies need to be more ambitious. Additionally, **both countries provide for an independent evaluation by expert councils**. These **improve transparency** and serve as a tool to pressure the governments to fulfil their climate targets. However, they do not have any legislative power, which clearly limits their influence.

Local climate action

In the field of **local climate action**, the evaluation is limited due to the low number of case studies and is descriptive in nature. The viewed project examples indicate that the **NECPs do not seem to have a great relevance** for the implementation of projects. Case study projects in both France and Germany make no reference to the NECPs in project descriptions and information. Furthermore, although governmental support for projects is available, it is not linked to the NECPs. The case study projects in France and Germany show **potential for improvement**. Although not all projects were governmental funded, the aspect of **governmental support is scored best**. But in both countries, further effects with the link to local climate actions to climate strategy and emission goals were needed. None of the projects reported about emission reduction and only one projects stated their emission reduction targets.

Overall, Germany has made efforts to improve energy efficiency. Although Germany has established comprehensive

legal and policy frameworks to address climate change and reduce emissions, there are still areas where the level of ambition is considered insufficient and inconsistencies in referencing international targets exist. Ongoing efforts to close the emissions gap and transition to renewable energy sources will be essential to meet climate goals and align with international commitments like the Paris Agreement. Additionally, while France has made efforts to align with international climate agreements, there are still concerns about the sufficiency of its actions in achieving its emission reduction goals and transitioning to renewable energies. France's strategies consider relevant international obligations and climate targets, without placing explicit emphasis on the EU NDC or the French NECP.

Main recommendations and derivations:

- Strengthen ambitions for expansion of renewable energies and add additional energy efficiency measures to the NECPs in order to achieve the European and national climate targets.
- The comprehensive monitoring reports are evaluated positively, while they are comprehensive and are evaluated by expert councils. But the effects of local projects should be presented in future monitoring reports.
- NECPs are not very relevant for the implementation of local projects. There is governmental support, but these are not linked to the NECPs.
- There are no ambitious measures for Germany in the NECP draft; only already existing measures are presented. In addition, the prescribed public consultation process is missing; this represents a major lack of transparency and urgently needs to be remedied in the upcoming consultation processes.
- France has a comprehensive monitoring report with information on the implementation of the SNBC in terms of emission reductions. However, there are concerns regarding the accessibility of measures to achieve these emission reduction targets and the transition to renewable energies.

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