

TASK CLOSED: CO2 BUDGET

18 Mart 2020 Çarşamba 10:22



Studies Agreements Standards to be used:

Paris Agreement

IPCC

Klimaschutzplan 2050

Green Paper on Efficiency and Electricity

Emmission Trading Systeme

National Action Plan for Energy Efficiency

Climate Action Programs 2020

Nationally Determined Contributions (NDCs) under the Paris Agreement

Electricity Market Act

2017 Renewable Energy Source Act

The Carbon leakage list

An emissions budget, carbon budget, emissions quota, or allowable emissions,

Aus <https://en.wikipedia.org/wiki/Emissions_budget#cite_note-ipcc2014-22>

In light of the many differences between nations, including but not limited to population, level of industrialization, national emissions histories, and mitigation capabilities, scientists have made attempts to allocate global carbon budgets among countries using methods that follow various principles of equity

One of the major challenges facing participants in the global climate change negotiations is to find a scheme of burden sharing that can be accepted as "fair" by all or at least most governments.

Burden Sharing and Fairness Principles in International Climate Policy -
International Environmental Agreements: Politics, Law and Economics 2: 1–22, 2002.
□ 2002 Kluwer Academic Publishers. Printed in the Netherlands.

PARIS AGREEMENT:

ARTICLE 2:

1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:
 - (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
 - (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and
 - (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.
2. This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

ARTICLE 4

1. In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.
2. Each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.
3. Each Party's successive nationally determined contribution will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.
4. Developed country Parties should continue taking the lead by undertaking economy-wide absolute emission reduction targets. Developing country Parties should continue enhancing their mitigation efforts, and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances.
5. In communicating their nationally determined contributions, all Parties shall provide the information necessary for clarity, transparency and understanding in accordance with decision 1/CP.21 and any relevant decisions of the Conference of the Parties serving as the meeting of the Parties to this Agreement.
6. Each Party shall communicate a nationally determined contribution every five years in accordance with decision 1/CP.21 and any relevant decisions of the Conference of the Parties serving as the meeting of the Parties to this Agreement and be informed by the outcomes of the global stocktake referred to in Article 14.
7. The Conference of the Parties serving as the meeting of the Parties to this Agreement shall consider common time frames for nationally determined contributions at its first session.
8. A Party may at any time adjust its existing nationally determined contribution with a view to enhancing its level of ambition, in accordance with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement.
9. Nationally determined contributions communicated by Parties shall be recorded in a public registry maintained by the secretariat.
10. Parties shall account for their nationally determined contributions. In accounting for anthropogenic emissions and removals corresponding to their nationally determined contributions, Parties shall promote environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensure the avoidance of double counting, in accordance with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement.
11. In the context of their nationally determined contributions, when recognizing and implementing mitigation actions with respect to anthropogenic emissions and removals, Parties should take

- into account, as appropriate, existing methods and guidance under the Convention, in the light of the provisions of paragraph 13 of this Article.
16. Parties, including regional economic integration organizations and their member States, that have reached an agreement to act jointly under paragraph 2 of this Article shall notify the secretariat of the terms of that agreement, including the emission level allocated to each Party within the relevant time period, when they communicate their nationally determined contributions. The secretariat shall in turn inform the Parties and signatories to the Convention of the terms of that agreement.
 17. Each party to such an agreement shall be responsible for its emission level as set out in the agreement referred to in paragraph 16 of this Article in accordance with paragraphs 13 and 14 of this Article and Articles 13 and 15.
 18. If Parties acting jointly do so in the framework of, and together with, a regional economic integration organization which is itself a Party to this Agreement, each member State of that regional economic integration organization individually, and together with the regional economic integration organization, shall be responsible for its emission level as set out in the agreement communicated under paragraph 16 of this Article in accordance with paragraphs 13 and 14 of this Article and Articles 13 and 15.
 19. All Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies, mindful of Article 2 taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

IPCC: GLOBAL CARBON BUDGET

Limiting global warming requires limiting the total cumulative global anthropogenic emissions of CO₂ since the preindustrial period, that is, staying within a total carbon budget (high confidence).¹³ By the end of 2017, anthropogenic CO₂ emissions since the pre-industrial period are estimated to have reduced the total carbon budget for 1.5°C by approximately 2200 ± 320 GtCO₂ (medium confidence). The associated remaining budget is being depleted by current emissions of 42 ± 3 GtCO₂ per year (high confidence). The choice of the measure of global temperature affects the estimated remaining carbon budget. Using global mean surface air temperature, as in AR5, gives an estimate of the remaining carbon budget of 580 GtCO₂ for a 50% probability of limiting warming to 1.5°C, and 420 GtCO₂ for a 66% probability (medium confidence).¹⁴ Alternatively, using GMST gives estimates of 770 and 570 GtCO₂, for 50% and 66% probabilities,¹⁵ respectively (medium confidence). Uncertainties in the size of these estimated remaining carbon budgets are substantial and depend on several factors. Uncertainties in the climate response to CO₂ and non-CO₂ emissions contribute ±400 GtCO₂ and the level of historic warming contributes ±250 GtCO₂ (medium confidence). Potential additional carbon release from future permafrost thawing and methane release from wetlands would reduce budgets by up to 100 GtCO₂ over the course of this century and more thereafter (medium confidence). In addition, the level of non-CO₂ mitigation in the future could alter the remaining carbon budget by 250 GtCO₂ in either direction (medium confidence). {1.2.4, 2.2.2, 2.6.1, Table 2.2, Chapter 2 Supplementary Material}

Pathways to deep decarbonization - 2014 report

Taking into account these factors, the IPCC AR5 Working Group 3 (WG3) found that the level of cumulative CO₂ emissions for the period 2011–2100 should be within the range of 630 to 1180 Gt (billion tons) of CO₂, in order to achieve CO₂ concentrations consistent with a likely chance of keeping within the 2°C limit.

⁷ See IPCC AR5 Working Group III - Mitigation of Climate Change, Chapter 6: Assessing Transformation Pathways, Table 6.3. December 2013. <https://www.ipcc.ch/report/ar5/wg3/>

Based on the best estimates regarding non-CO₂ forcings and excluding the availability of large-scale net negative emissions, the IPCC AR5 WG3 defines a CO₂ budget for the 2011–2050 period of 825 Gt⁹ and of 950 Gt for the period 2011–2100.¹⁰ This implies 125 Gt of CO₂ cumulative net emissions for the period 2051–2100.

Pathways to deep decarbonization in Germany - 2015 report

Country Case Study Germany -Decarbonizing electricity supply while phasing out nuclear power p.23 from general report

Potential decarbonization pathways for Germany are illustrated by means of three ambitious scenarios:

Scenario “Target” from the study “Development of Energy Markets – Energy Reference Forecast” (Schlesinger et al. 2014), here referred to as “Government Target Scenario”

Scenario “100-II” from the study “GROKO II – German Energy Supply Scenarios Based on the EEG Draft Bill” (Nitsch 2014), here called “Renewable Electrification Scenario”

Scenario “KS 90” from the study “Climate Protection Scenario 2050” (Reprenning et al. 2014), here referred to as “90% GHG Reduction Scenario”

CCS carbon capture and sequestration

CCS for use in power supply is also not considered in the analyzed scenarios as there is little acceptance for this technology within the German society.

Furthermore, final energy demand is expected to be reduced dramatically by 2050. All three scenarios assume it to be 40% to 47% lower in 2050 than in 2010.

Electricity demand varies considerably in 2050 in the three selected scenarios. In the “Government Target Scenario” electricity demand in 2050 is about 100 TWh lower than it was in 2011, while it is some 250 TWh higher in the “Renewable Electrification Scenario” (mainly due to the assumed electrification of processes and extensive hydrogen generation). In the “90% GHG Reduction Scenario” electricity demand is similar to 2011.

With respect to fossil fuels, the combined share of coal and lignite (today 25%) decreases to between 2% and 9%, while oil (today 35%) remains more relevant with a 2050 share of between 9% and 20%, being used mainly in the transport sector.

While the “Government Target Scenario” looks only at energy-related GHG emissions and describes how these can be reduced by 80% by 2050, the “Renewable Electrification Scenario” projects an 86% decrease in energy- and process-related GHG emissions by the middle of the century. The third illustrative scenario, the “90% GHG Reduction Scenario”, looks at all GHG emissions and describes a pathway that reaches – as the name suggests – emission reductions of 90% by 2050.

Table 2: Current political climate and energy policy targets of the German government

	Status quo 2014	2020	Target 2030	2040	2050
Greenhouse gas emissions					
Greenhouse gas emissions (versus 1990)	-27%	-40%	-55%	-70%	-80% to -95%
Energy efficiency/ energy savings (cross-sectoral and transformation sector)					
Primary energy consumption (versus 2008)	-9%	-20%	Not specified	-50%	
Annual increase in final energy productivity	0.6% (2008-2013)		2.1% (2008-2050)		
Gross electricity consumption (versus 2008)	-6%	-10%	Not specified	-25%	
Combined Heat and Power (CHP) share in thermal electricity generation	approx. 22% (2013)	25%	Not specified		
Renewable energy sources					
Share in gross electricity consumption	27%	40% to 45% (2025)	55% to 60% (2035)	At least 80%	
Share in final energy consumption for heating	10%	14%	Not specified		
Share in fuel consumption	5%	10%	Not specified		
Share in gross final energy consumption	12% (2013)	18%	30%	45%	60%
Buildings					
Heat demand (no reference period defined)	n.a.	-20%	Not specified		
Primary energy demand (no reference period defined)	n.a.		Not specified	-80%	
Annual rate of energy-related building refurbishment	approx. 1% (2005-2008)		2%		
Transport					
Final energy consumption (versus 2005)	+1% (2013)	-10%	Not specified	-40%	
Number of electric vehicles*	approx. 24,000	1 m	6 m	Not specified	

* The government target refers to all vehicles that can be charged through a plug. Thus, this definition of electric vehicles includes battery electric vehicles and plug-in hybrid electric vehicles, but not conventional hybrid electric vehicles that cannot be charged through a plug.

Sources: BMWi and BMU 2010, EEG 2014, EEWärmeG 2008, BMWi 2015a, b, EU 2009, UBA 2015e, AGEB 2015a, b, c, Diefenbach et al. 2010, NPE 2014

Two of the studies listed in Table 3 (Matthes et al. 2013, Schlesinger et al. 2011) limit their analysis to timelines ending in the year 2030, while all other studies look at least as far ahead as 2050. While most of the scenario studies analyze only the energy sector, which today is responsible for more than 80% of Germany's total greenhouse gas emissions, three of the studies (Repennig et al. 2014, Benndorf et al. 2014, Matthes et al. 2013) also discuss possible future developments in non-energy-related greenhouse gas emissions.

Table 3: Important energy scenario studies for the German energy system released since 2011

Study title	Commissioned by	Date
Climate Protection Scenario 2050	Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)	August 2014
GROKO II – German Energy Supply Scenarios Based on the EEG Draft Bill	German Renewable Energy Federation (BEE)	July 2014
Development of Energy Markets – Energy Reference Forecast	Federal Ministry for Economic Affairs and Energy (BMWi)	June 2014
Germany in 2050 – a greenhouse gas-neutral country	Federal Environment Agency (UBA)	April 2014
Energy System Germany 2050	Fraunhofer Institute for Solar Energy Systems (Fraunhofer ISE)	November 2013
Policy Scenarios for Climate Protection VI	Federal Environment Agency (UBA)	March 2013
Long-term scenarios and strategies for the expansion of renewable energies in Germany	German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU)	March 2012
Energy Scenarios 2011	Federal Ministry for Economic Affairs (BMWi)	July 2011

Sources: Repennig et al. 2014, Nitsch 2014, Schlesinger et al. 2014, Benndorf et al. 2014, Henning and Palzer 2013, Matthes et al. 2013, Nitsch et al. 2012, Schlesinger et al. 2011

he scenario “Target” will be referred to as “Government Target Scenario”^y The scenario “100-II” will be referred to as “Renewable Electrification Scenario”^y The scenario “KS 90” will be referred to as “90% GHG Reduction Scenario”^y

ab dem Stichtag 1. Januar 2018 von allen Ländern zusammen noch etwa 800 Milliarden Tonnen CO₂ in die Luft geblasen werden dürfen

Aus <<https://taz.de/CO2-Budget-fuer-Deutschland/15642592/>>

DER KLIMASCHUTZ PLAN 2050

<https://www.bmu.de/themen/klima-energie/klimaschutz/nationale-klimapolitik/klimaschutzplan-2050/>

In 2010, the German government decided to reduce greenhouse gas emissions by 80 to 95 percent by 2050 compared to 1990 levels. The German government reaffirms this long-term target and in pursuing it will make an appropriate contribution to implementing the commitment made in Paris, also with a view to the goal set out in the Paris Agreement of achieving global greenhouse gas neutrality in the second half of the century.

As a leading industrialised nation and the EU member state with the strongest economy, we have already geared our Climate Action Plan to the guiding principle

of extensive greenhouse gas neutrality by the middle of the century

It must also be borne in mind that the sum of the NDCs that are the backbone of the Paris Agreement is not yet enough to keep global warming below 2 degrees.

Under the interim target for 2030, Germany's total greenhouse gas emissions need to be reduced by at least 55 percent compared to 1990 by 2030 at the latest (reference value: 1,248 million tonnes total emissions of CO₂ [Carbon dioxide] equivalent). In the Climate Action Plan 2050 the German government has agreed for the first time on sectoral targets which set the framework up to 2030 for the proportional reduction of greenhouse gases in the areas of action considered.

The agreement adopted at the international climate

summit in Paris in December 2015, which entered into force on 4 November 2016, is the first climate agreement which places obligations on all countries. Under the Paris Agreement, the international community made a binding commitment to the goal of keeping global warming well below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 degrees Celsius. The agreement gives all parties the clear task of consistently implementing the necessary climate measures. For the European Union (EU) and Germany this means resubmitting or updating their Nationally Determined Contributions (NDC) by 2020 and, as of 2025 for the post-2030 period, making their NDCs progressively more ambitious. The EU climate and energy policy directly affects Germany's climate policy. Greenhouse gas emissions in the EU are dealt with equally by the European Emissions Trading Scheme (ETS) and the EU Effort Sharing Decision (ESD). The German government recognises effective emissions trading as a key climate action instrument of the EU for the energy sector and (some areas of) industry. Therefore, at EU level, Germany will advocate strengthening the ETS.

Back in 2010 – well before the Paris Conference – the German government decided to reduce greenhouse gas (GHG) emissions by 80 to 95 percent compared with 1990 levels by 2050. It has reaffirmed this longterm target and in pursuing it will make an appropriate contribution to implementing the commitment made in Paris, also with a view to the goal set out in the Paris Agreement of achieving global greenhouse gas neutrality in the second half of the century.

the energy sector accounts for some 40 percent of Germany's greenhouse gas emissions (as at 2014).

The energy supply must be almost completely decarbonised by 2050 at the latest.

The energy sector's emissions include all emissions arising from the combustion of fossil fuels in power stations used to supply electricity and heat to the public. Therefore, emissions from the energy industry are also influenced by the electricity and heat demand of

Table 2: Emissions from areas of action set out in definition of the target:

Area of action	1990 (in million tonnes of CO ₂ equivalent)	2014 (in million tonnes of CO ₂ equivalent)	2030 (in million tonnes of CO ₂ equivalent)	2030 (reduction in % compared with 1990)
Energy sector	466	358	175 – 183	62 – 61 %
Buildings	209	119	70 – 72	67 – 66 %
Transport	163	160	95 – 98	42 – 40 %
Industry	283	181	140 – 143	51 – 49 %
Agriculture	88	72	58 – 61	34 – 31 %
Subtotal	1,209	890	538 – 557	56 – 54 %
Other	39	12	5	87 %
Total	1,248	902	543 – 562	56 – 55 %

Source: Climate Action Plan 2050 of the Federal Government

At 358 million tonnes of CO₂ equivalent, the energy sector's emissions in 2014 were about 23 percent below 1990 levels (466 million tonnes of CO₂ equivalent). Germany's 2015/16 Projection Report shows that, if the climate measures already agreed – including the Climate Action Programme 2020 and the national Action Plan on Energy Efficiency – were systematically implemented, emissions could fall to approximately 295 million tonnes of CO₂ equivalent by 2020 (such as by about 37 percent compared with 1990).

Based on current knowledge, greater sector coupling will mean that electricity demand will in the long term be significantly higher than today. Even allowing for simultaneous efforts to improve energy efficiency, a perceptible rise is anticipated, especially after 2030, as a result of the increasing electrification of the transport sector and the heat supply to buildings. Current forecasts on long-term electricity demand vary greatly because they are based on widely differing assumptions, in particular with regard to the extent to which energy efficiency will rise.

In the long term, electricity generation must be almost entirely based on renewable energy sources. By 2050,

biomass will contribute to energy provision to a limited extent

With its new Electricity Market Act, the German government has created a regulatory framework to balance generation and consumption flexibly and efficiently.

As transitional technologies low-CO₂ natural gas power stations and the most modern existing coal-fired power stations have an important function, especially combined heat and power generation that is geared to the electricity market and can be ramped up or down flexibly depending on the availability of electricity from solar or wind power at any given moment.

In line with the interim target for 2030, the energy sector has to cut its greenhouse gas emissions to between 175 and 183 million tonnes of CO₂ equivalent by 2030. Further reductions are also needed in the period after 2030 to meet the climate target for 2050.

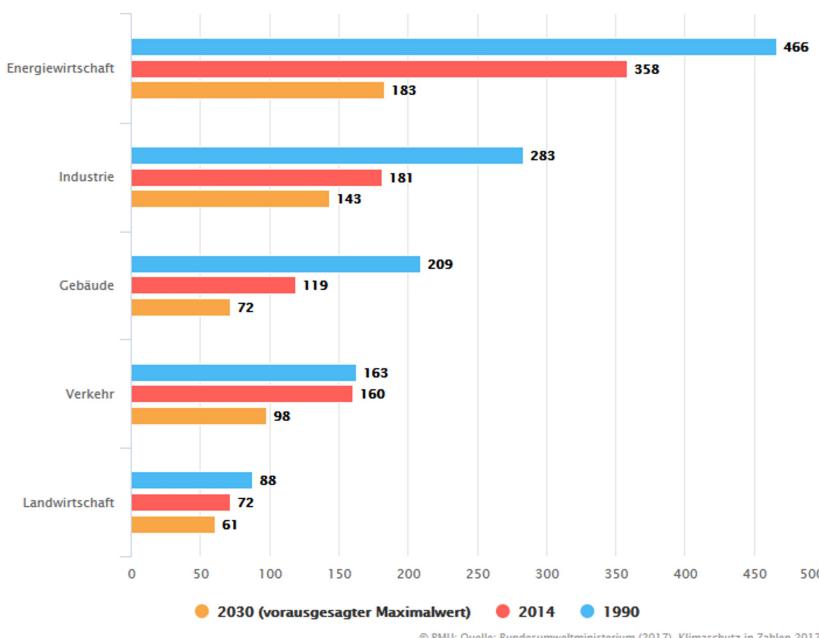
Combined heat and power production, preferably based on natural gas, will continue to play an important role. It is also becoming increasingly flexible, producing lower emissions and incorporating renewable heat production, so that it will be gradually become possible to completely phase out fossil fuels in this sector too.

Electricity will continue to be a “precious resource” because the increased use of renewable energy necessitates land and public support and is to some extent at odds with nature and landscape conservation concerns. This is why the German government prioritises energy efficiency, which makes a major contribution to ensuring that the country's Energiewende can take place in a resource-efficient and nature-friendly way. This includes ensuring that gross electricity consumption falls below today's level by 2030.

The Emissions Trading System is an EU-wide instrument; it is not structurally designed to achieve targeted emissions reductions in individual countries and sectors and thus ensure national climate targets are met

Die Sektorziele im Klimaschutzplan 2050

Dargestellt sind die Sektorziele 2030 aus dem Klimaschutzplan 2050 (in Millionen Tonnen CO₂-Äquivalenten)



For this purpose, the industry cap will be raised to 45 percent of the total volume of emission allowances within the ETS (plus the 2.6 percent for the innovation

fund). The industry cap will be adjusted if that is necessary to prevent a correction factor. Basically, the benchmark is set on the basis of real data and actual emissions from the ten percent most greenhouse gas efficient installations. There is no across-the-board reduction as suggested in the EU Commission's proposal.

Effort sharing: Member States' emission targets

Aus <https://ec.europa.eu/clima/policies/effort_en#tab-0>

<https://climateactiontracker.org/countries/germany/pledges-and-targets/>

1251 Mio ton is total CO2 eq emmission in Germany, for our study we need energy sector target

<https://climateactiontracker.org/countries/germany/>

 Climate Action Tracker <u>Assessment data</u>														
The Climate Action Tracker rates NDCs, 2020 pledges, long-term targets and current policies against whether they are consistent with a country's fair share effort to the Paris Agreement 1.5°C temperature limit.														
The CAT "Effort Sharing" assessment methodology applies state-of-the art scientific literature on how to compare the fairness of government efforts and NDC proposals against the level and timing of emission reductions consistent with the Paris Agreement. The focus of the assessment is on the years 2020, 2025, 2030, and 2050.														
For more details please visit the methodology section on our website.														
Values in the table below are in MtCO₂e/a and AR4 GWP_s, excluding LULUCF.														
Please reference as: 'Climate Action Tracker, Country Assessments September 2019 - http://climateactiontracker.org '														
Copyright © 2019 by Climate Analytics and NewClimate Institute. All rights reserved. The content provided by this website is protected by copyright. You are authorised to view, download, print and distribute the copyrighted content from this website subject to the following condition: Any reproduction, in full or in part, must credit Climate Analytics and NewClimate Institute and must include a copyright notice.														
Country:	Germany													
Last updated:	02 December 2019													
Graph label	Sector/Type	1990	2010	2014	2015	2016	2017	2018	2019	2020	2030	2038	2040	2050
Historical emissions, excl forestry	Total, excl LULUCF	1251	943	903	907	911	907	866						
Historical emissions/removals from forestry	LULUCF	-31,3	-16,4	-14,9	-14,4	-13,9	-15,2							
Current policy projections	Total, excl LULUCF							866	854	836	730			
Current policy projections	Total, excl LULUCF							866	819	802	700			
National target 2020	Unconditional										751			
National target 2030	Unconditional											563		
National target 2040	Unconditional												375	
Longer term pathway	Max												375	62,5
Longer term pathway	Min												375	62,5

GERMANY

Summary of pledges and targets

PARIS AGREEMENT	Ratified	Yes 40% below 1990 by 2020 55% below 1990 by 2030 Former target of 70% below 1990 by 2040 was dropped
LONG-TERM GOAL(S)	Long-term goal(s)	Pursue greenhouse gas neutrality by 2050 as a long-term goal

The German Parliament unanimously ratified the Paris Agreement in September 2016. Germany did not submit its own NDC, but is part of the EU, which committed to reducing emissions by "at least 40%" below 1990 levels by 2030 (UNFCCC, 2015).

Aus <<https://climateactiontracker.org/countries/germany/pledges-and-targets/>>

In its Climate Action Plan 2050 (German Ministry of Environment, 2016), Germany had set itself domestic reduction targets for 2020, 2030 and 2040, of which only the target for 2030 is now pursued.

The former 2020 target of at least 40% reductions below 1990 levels is no longer pursued. The German government has already admitted that it will not reach its 2020 target, and studies suggest that even with implementing all measures in the proposed Climate and Energy Package Germany will reach its 2020 target only with a five-year delay, i.e. by 2025 (DIW Berlin, 2019). The emissions reduction target for 2030 is 55% below 1990 levels, which is now inscribed in the draft climate law, now under parliamentary discussion (German Government, 2019a).

However, Germany is not on track to meet this target: it would need to be strengthened to be compatible with the Paris Agreement (Höhne et al., 2019).

The former target of a 70% reduction by 2040 below 1990 levels was dropped in the current draft climate law, as a "more ambitious target will be needed" (German Federal Ministry for the Environment Nature Conservation and Nuclear Safety, 2019).

Aus <<https://climateactiontracker.org/countries/germany/pledges-and-targets/>>

The draft Climate Law includes "the commitment to pursue greenhouse gas neutrality by 2050 as a long-term goal" (German Government, 2019a). This now formally replaces the earlier goal of a 80% to 95% reduction.

Aus <<https://climateactiontracker.org/countries/germany/pledges-and-targets/>>

SUMMARY:

CO2 Budget:

birlik bir bütçe bilgi ekranı için imzalama tarihi verdi. İneni sektördeki referans
1990 (466 MtCO₂/a) olmak üzere 2020 -40% / 2030 -62% (over all 55%) / 2040 -80% (over
estimate) (over all 70%) / 2050 %95 (almost decarbonised energy sector)
For Finlay elektrik talebi de gidişatın orta scenario (while it is some 250 TWh higher than
2011 demand in the "Renewable Electrification Scenario" (mainly due to the assumed
electrification of processes and extensive hydrogen generation).
if time is enough try other
scenario

Studies Agreements Standards to be used:

Paris Agreement

IPCC

Pathways to deep decarbonization

Klimaschutzplan 2050

Green Paper on Efficiency and Electricity

European Emissions Trading Scheme

National Action Plan for Energy Efficiency

Climate Action Programme 2020

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The Carbon leakage list

<<One of the major challenges facing participants in the global climate change negotiations is to find a scheme of burden sharing that can be accepted as "fair" by all or at least most governments.>>

Paris Agreement Article 4:

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IPCC: GLOBAL BUDGET:

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Alternatively, using GMST gives estimates of 770 and 570 GtCO₂, for 50% and 66% probabilities, respectively (medium confidence).

Uncertainties in the size of these estimated remaining carbon budgets are substantial and depend on several factors.

Uncertainties in the climate response to CO₂ and non-CO₂ emissions contribute ± 400 GtCO₂

The level of historic warming contributes ±250 GtCO₂ (medium confidence).

Potential additional carbon release from future permafrost thawing and methane release from wetlands would reduce budgets by up to 100 GtCO₂ over the course of this century and more thereafter (medium confidence).

In addition, the level of non-CO₂ mitigation in the future could alter the remaining carbon budget by 250 GtCO₂ in either direction (medium confidence).

Pathways to deep decarbonization :

GLOBAL:

Based on the best estimates regarding non-CO₂ forcings and excluding the availability of large-scale net negative emissions, the IPCC AR5 WG3 defines a CO₂ budget for the 2011–2050 period of 825 Gt and of 950 Gt for the period 2011–2100.10 This implies 125 Gt of CO₂ cumulative net emissions for the period 2051–2100.

GERMANY:

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Scenario “100-II” from the study “GROKO II – German Energy Supply Scenarios Based on the EEG Draft Bill” (Nitsch 2014), here called “Renewable Electrification Scenario”

projects an 86% decrease in energy- and process-related GHG emissions by the middle of the century

Scenario “KS 90” from the study “Climate Protection Scenario 2050” (Repenning et al. 2014), here referred to as “90% GHG Reduction Scenario”

all GHG emissions and describes a pathway that reaches – as the name suggests – emission reductions of 90% by 2050

<<<Furthermore, final energy demand is expected to be reduced dramatically by 2050. All three scenarios assume it to be 40% to 47% lower in 2050 than in 2010.>>>

In the “Government Target Scenario” electricity demand in 2050 is about 100 TWh lower than it was in 2011,

while it is some 250 TWh higher in the “Renewable Electrification Scenario” (mainly due to the assumed electrification of processes and extensive hydrogen generation).

In the “90% GHG Reduction Scenario” electricity demand is similar to 2011.

DER KLIMASCHUTZ PLAN 2050 (2018):

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit (BMU)

In 2010, the German government decided to reduce greenhouse gas emissions by 80 to 95 percent by 2050 compared to 1990 levels.

..... we have already geared our Climate Action Plan to the guiding principle of extensive greenhouse gas neutrality by the middle of the century.....

Under the interim target for 2030, Germany's total greenhouse gas emissions need to be reduced by at least 55 percent compared to 1990 by 2030 at the latest (reference value: 1,248 million tonnes total emissions of CO2)

<<<For the European Union (EU) and Germany this means resubmitting or updating their Nationally Determined Contributions (NDC) by 2020 and, as of 2025 for the post-2030 period, making their NDCs progressively more ambitious.>>>

The EU climate and energy policy directly affects Germany's climate policy. Greenhouse gas emissions in the EU are dealt with equally by the European Emissions Trading Scheme (ETS) and the EU Effort Sharing Decision (ESD)

<<<The energy supply must be almost completely decarbonised by 2050 at the latest.>>>

- ????We are only concerned with emissions from energy sector. ???

the energy sector accounts for some 40 percent of Germany's greenhouse gas emissions (as at 2014).

Table 2: Emissions from areas of action set out in definition of the target:

Area of action	1990 (in million tonnes of CO ₂ equivalent)	2014 (in million tonnes of CO ₂ equivalent)	2030 (in million tonnes of CO ₂ equivalent)	2030 (reduction in % compared with 1990)
Energy sector	466	358	175 – 183	62 – 61 %
Buildings	209	119	70 – 72	67 – 66 %
Transport	163	160	95 – 98	42 – 40 %
Industry	283	181	140 – 143	51 – 49 %
Agriculture	88	72	58 – 61	34 – 31 %
Subtotal	1,209	890	538 – 557	56 – 54 %
Other	39	12	5	87 %
Total	1,248	902	543 – 562	56 – 55 %

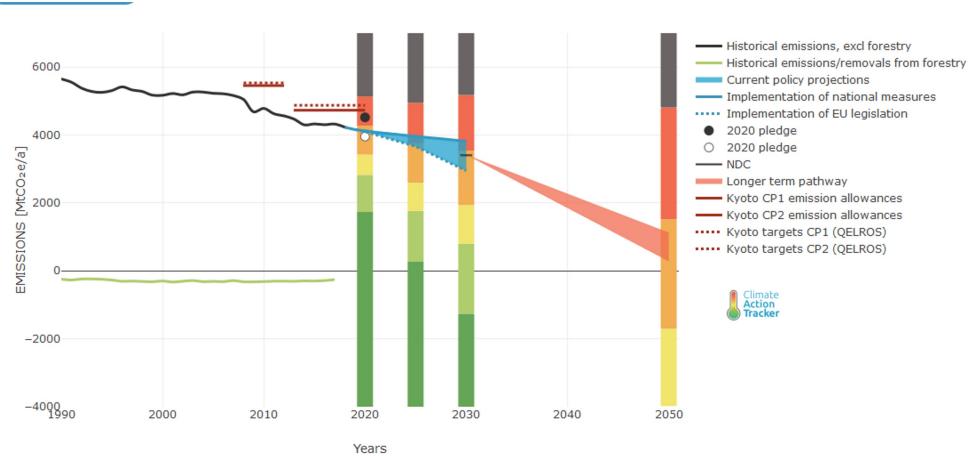
Source: Climate Action Plan 2050 of the Federal Government

<<<Based on current knowledge, greater sector coupling will mean that electricity demand will in the long term be significantly higher than today. Even allowing for simultaneous efforts to improve energy efficiency, a perceptible rise is anticipated, especially after 2030, as a result of the increasing electrification of the transport sector and the heat supply to buildings.>>>

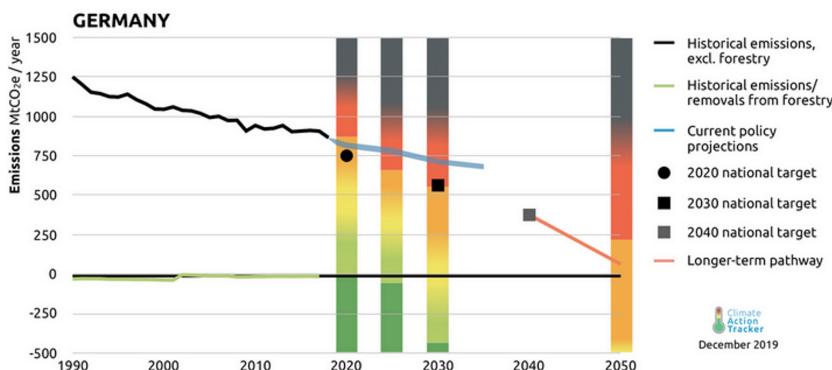
<<<This includes ensuring that gross electricity consumption falls below today's level by 2030.>>>

CLIMATE Action Tracker:

EU (2Dec2019)



GERMANY:



GERMANY

Summary of pledges and targets

PARIS AGREEMENT	Ratified	Yes 40% below 1990 by 2020 55% below 1990 by 2030 Former target of 70% below 1990 by 2040 was dropped
LONG-TERM GOAL(S)	Long-term goal(s)	Pursue greenhouse gas neutrality by 2050 as a long-term goal