

FEDERAL FOREIGN OFFICE

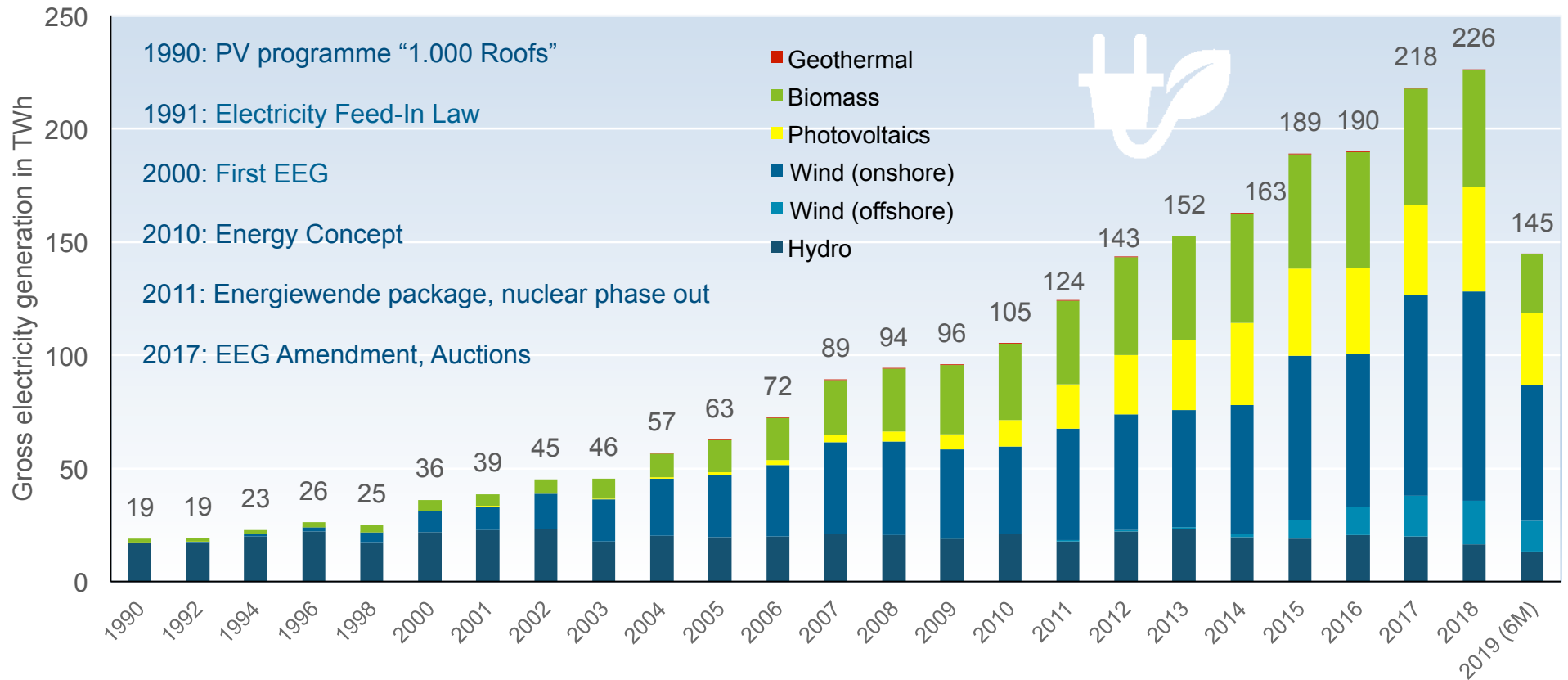
The “*ENERGIEWENDE*” – Transformation of the German Energy System

The Basque Energy Agency and Orkestra 2019 – Energy Transition Models in Europe

Dr. Steffen Koch
German Embassy Madrid
steffen.koch@diplo.de

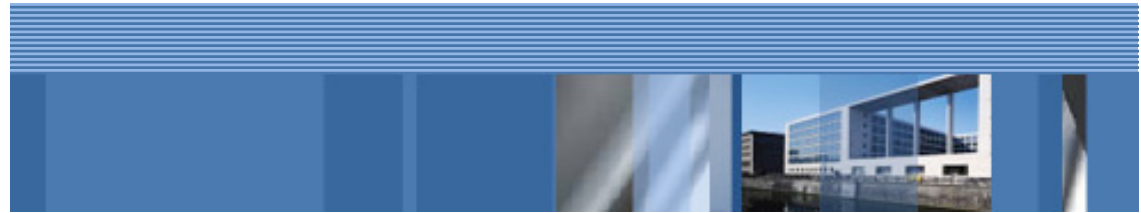


Milestones of the energy transition



The Energy transition started decades ago. Continuously developed policy support has fostered steady growth of renewables in Germany.

Source: AGEB 2018, AGEE-Stat 2019



Targets of the energy transition until 2050



		2018	2020	2030	2040	2050
Climate	% greenhouse gas reduction (vs. 1990)	-30.8 %	-40 %	-55%	-70%	-80-95%
Renewable energy	% gross final energy consumption	16.9 %	18%	30%	45%	60%
	% gross electricity consumption	38.2 %	Min 35%	Min 50%	Min. 65%	Min 80%
	Share in heat consumption	13.9 %	14%			
	Share in Transport sector	5.6 %	10% (EU)			
Energy efficiency	% primary energy consumption (vs. 2008)	-10 %	-20%			-50%
	Final energy productivity (2008-2017)	1.1% p.a *	2.1% per year (2008-2050)			
	Gross electricity consumption (vs. 2008)	-3.3 %*	-10%			-25%
	Primary energy demand (buildings) (2008)	-18.3 %*				- 80 %
	Heat consumption (buildings) (vs. 2008)	-6.9%*	-20%			
Transport	Final energy consumption in transport sector (vs. 2005)	+6.5%*	-10%			-40%
	Number of Electric vehicles (1/2018) (hybrid cars)	83.175 (341.411)	(1 million) 2022	(6 million)		

The Energiewende is Germany's long-term energy and climate strategy.

* = 2017

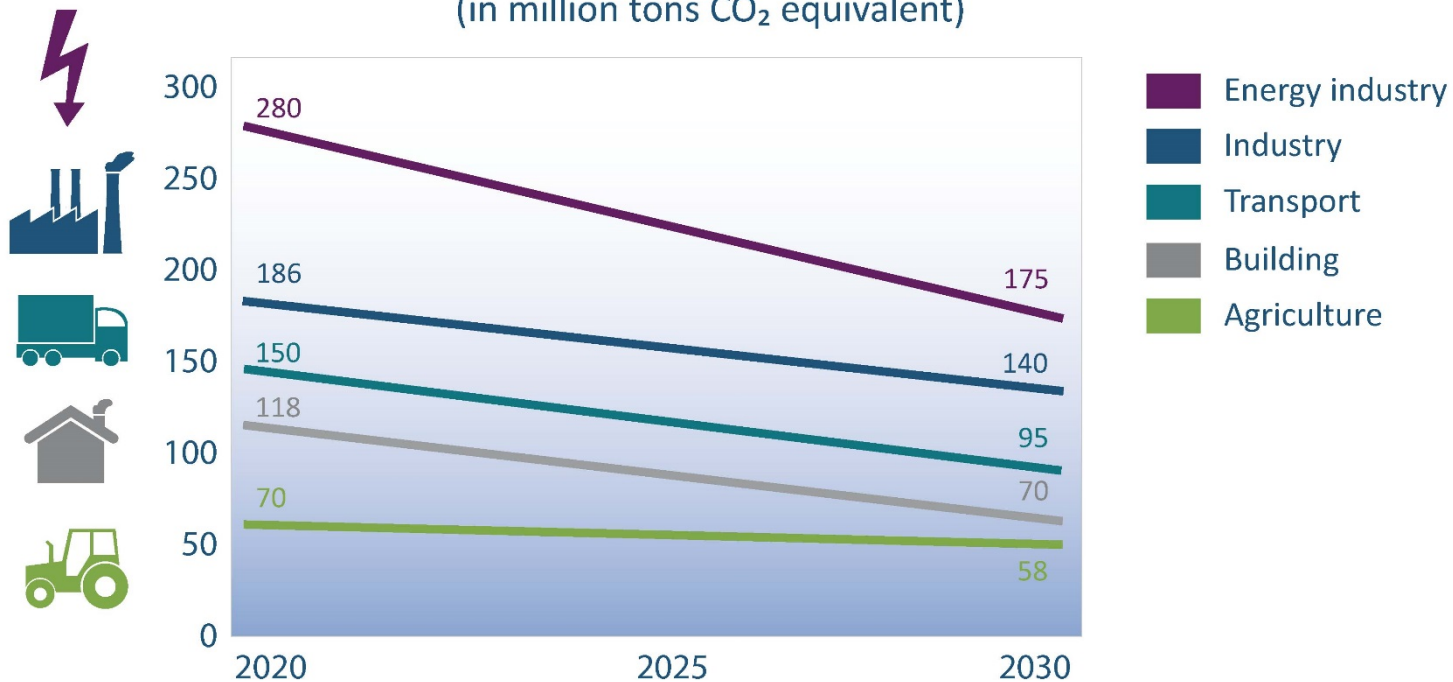
Sources: BMWi 2019, UBA 2019, AGEE-Stat 2019, BMU 2018, KBA 2019



Climate Action Programme 2030 – Sector targets



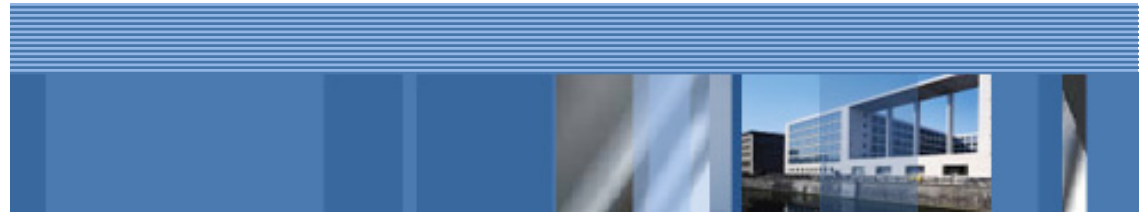
Sector objectives and annual emissions
(in million tons CO₂ equivalent)



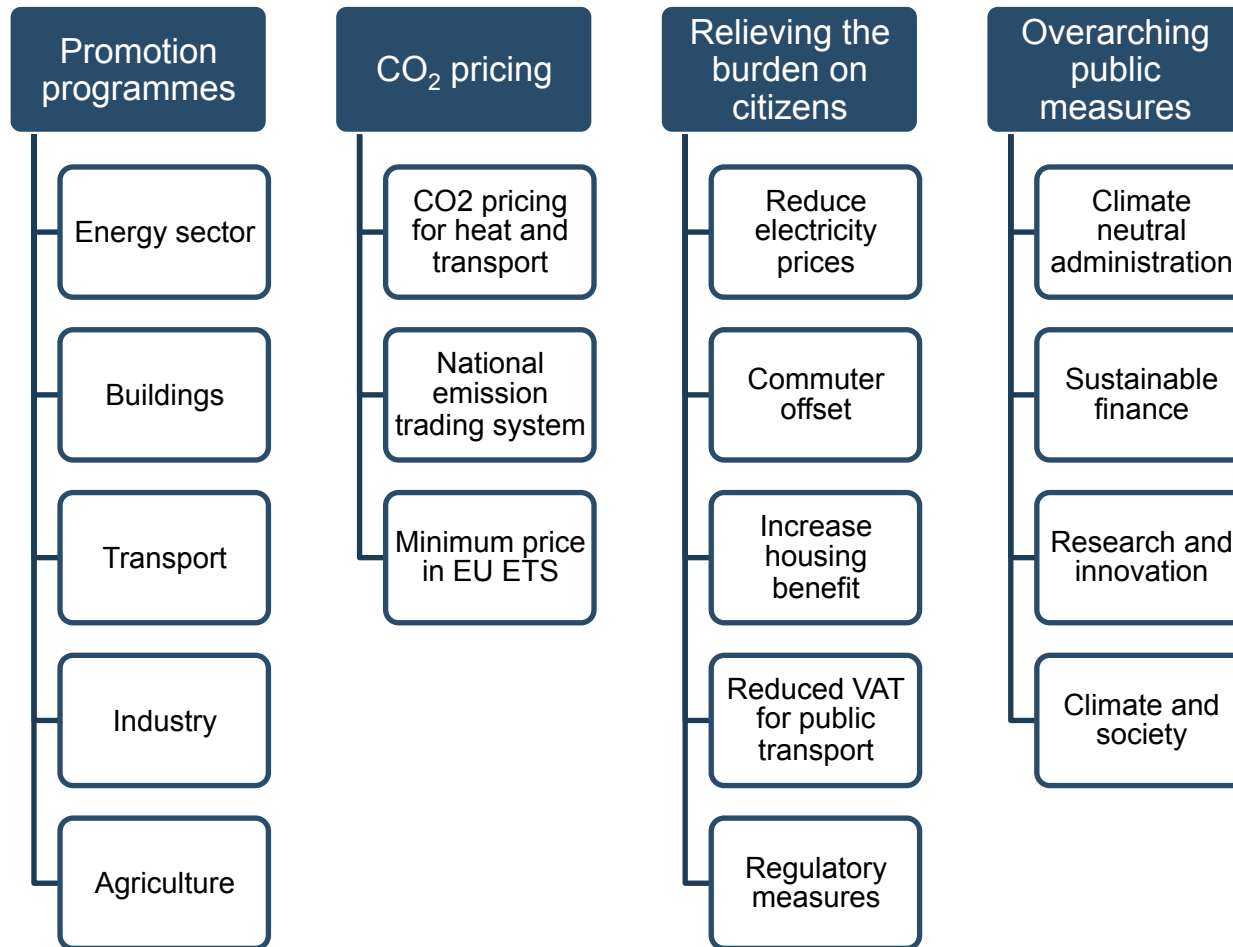
Source: BMU, www.bmu.de/fileadmin/Daten_BMU/Bilder_Sharepics/mehrklimaschutz/sektoerziele_emissionen.pdf; Graphic: RENAC

The Federal government has defined sector targets until 2030. In case interim targets are missed, readjustments will be made.

Source: BMU 2019



Climate Action Programme 2030 – Pillars and measures



The climate protection programme 2030 is based on 4 pillars and numerous sub-measures



CO₂ Pricing



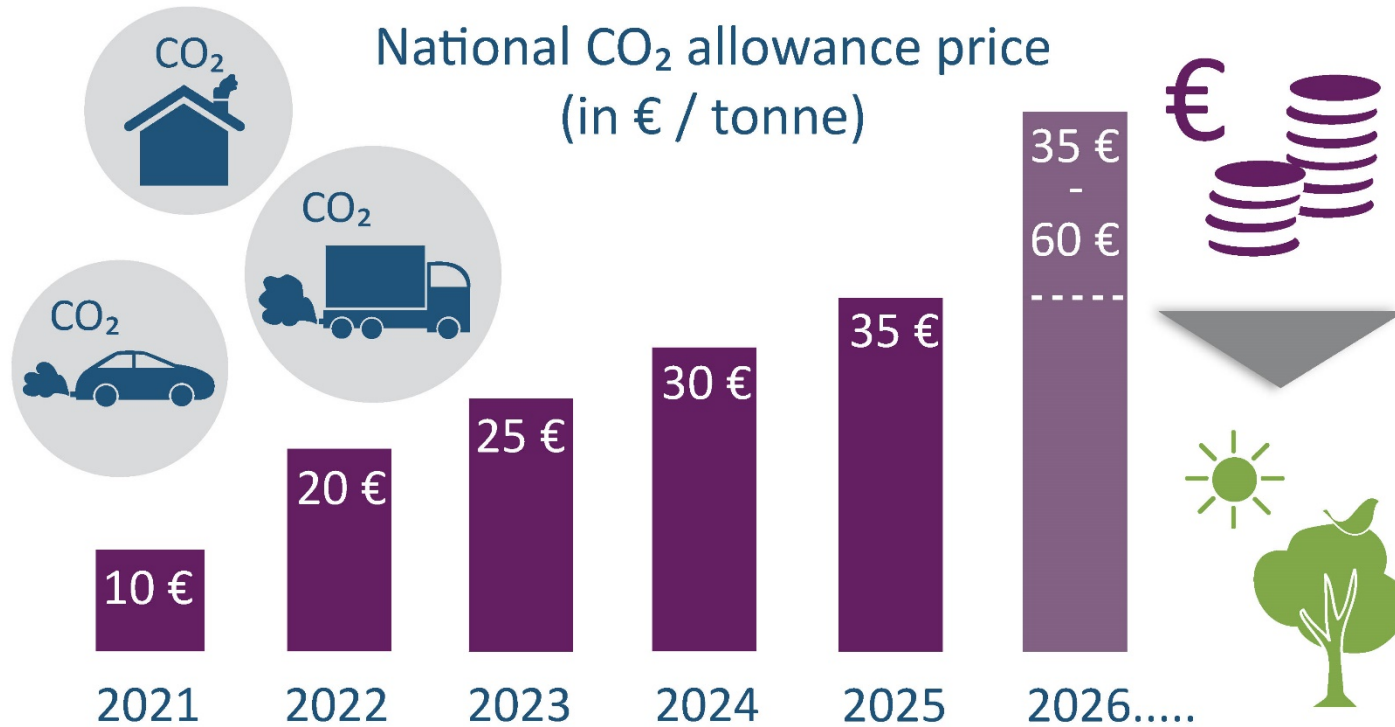
- CO₂ pricing in the heat and transport sectors
- Instrument for CO₂ pricing in the heat and transport sectors - National emissions trading scheme
- Minimum price in EU emissions trading



The German government is to reinvest the revenues generated from CO₂ pricing in climate change mitigation measures, or pass it on to citizens in the form of financial assistance and promotion measures.



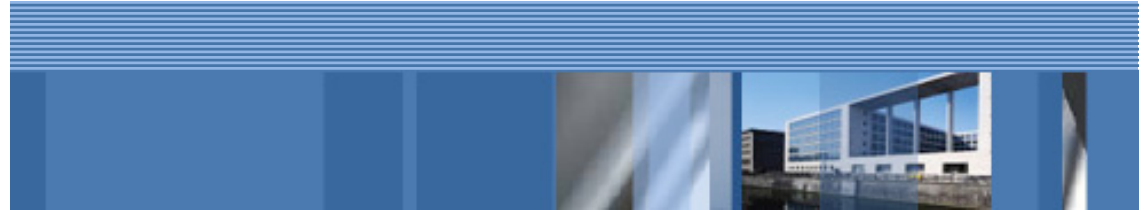
CO₂ Pricing



Source: BMU, Graphic: RENAC / Federal Foreign Office

The fixed price will initially be 10 euros per tonne CO₂, and will rise to 35 euros per tonne by 2025.

Source: Foreign Office, Press and Information Office 2019, RENAC



Easing the financial burden



- Reduction of electricity costs
- Change in the commuting allowance for long-distance commuters
- Changes in housing benefit and tenancy law
- Transfer payments



In the medium term the German government will reduce electricity prices as a counterweight to the new CO₂ pricing. The principle is simple: if revenues from CO₂ pricing rise, electricity prices will be reduced.



Building and living

Replacing central heating systems

- replacing older oil and gas central heating systems or switching directly to renewables is promoted with a 40% "replacement bonus".
- As of 2026 it will no longer be permissible to fit oil central heating in buildings.



Tax breaks for energy-efficient renovation

A replacement bonus of 40% shall incentivize the removal of inefficient oil and gas heating systems.

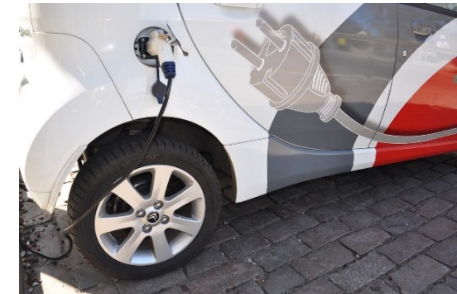


Measures and incentives for electric mobility



Purchase grant (environmental bonus):

- **€ 600 million** for at least 300,000 electric vehicles by 2019.
- A bonus of **€ 4,000** is paid for a new all-electric vehicle.
- Buyers of plug-in hybrid vehicles receive a bonus of **€ 3,000**.



Support for the roll-out of charging stations:

- **€ 300 million** for roll-out of rapid and standard recharging points.

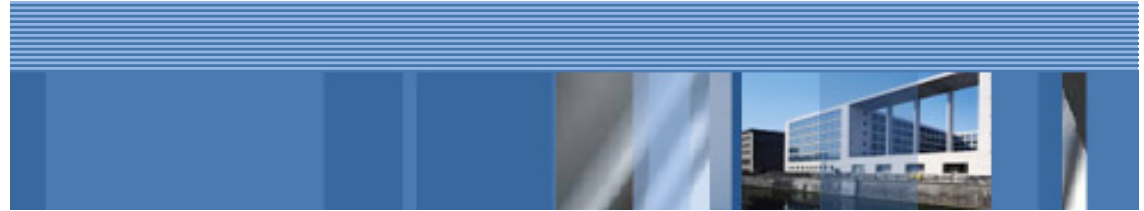
More electric vehicles in the public-sector vehicle fleet:

- The share of electric vehicles to rise to at least 20% by 2019.
€ 100 million has been earmarked for this.



Extension of vehicle tax exemption: from five to ten years.

Measures supporting electric mobility include the purchase grant, uniform charging standards, and privileges for electric car owners, e.g. special parking arrangements.



Energy

- Gradual phasing out of coal-fired power generation
- Expansion of RE to 65 percent of gross electricity consumption by 2030
- Further development and comprehensive modernisation of cogeneration
- Increasing conversion of heating networks to renewable energies and unavoidable waste heat
- Real laboratories of the energy transition
- Energy Efficiency Strategy 2050
- EU cooperation
- Investment programme Energy efficiency and process heat from renewable energies in the economy



In the energy sector, emissions are to be reduced to between 175 and 183 million tonnes CO_{2eq} by 2030.

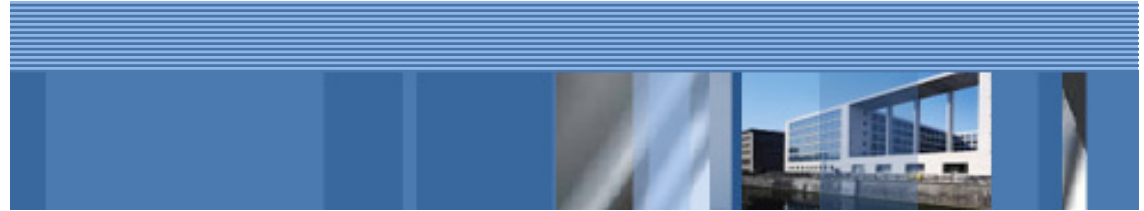


Industry

- Energy Efficiency and Process Heat from Renewables
- Competitive tenders for energy efficiency
- Resource efficiency and substitution
- Accelerated energy audit and energy management systems (EMS)
- EU Eco-design Directive - Extension of minimum standards
- EU-ETS Innovation Fund
- National Decarbonization Programme
- CO₂ prevention and use programme for primary industries
- Automotive industry: Industrial production for mobile and stationary energy storage devices (battery cell production)



Measures to promote energy and resource efficiency and to expand the use of renewables are to achieve further CO_{2eq} savings in industry by 2030.



Research and Development (R&D)

The growing role of hydrogen

- Hydrogen strategy by the end of 2019.

Strengthening battery cell production in Germany

- € 1 billion earmarked to develop battery cell production in several production sites in Germany.
- "Forschungsfabrik Batterie" (Research Factory for Batteries) supports capacity and technology development all the way along the battery cell value chain



Storage and use of CO₂

- promote research and development into the storage and use of CO₂

The German government is providing direct support for research and development to help Germany further expand the use of climate-friendly technologies.



Monitoring

Reporting by Federal government (BMU)

- Reporting concerning Climate Action Programme 2030 (annual)
- Projection report to EU (bi-annual)
- National report to Climate Framework Convention (every 4 years)
- Biennial report to UNFCCC (bi-annual)
- National Energy and Climate Plan (NECP) on EU level



Publication of national inventory report (UBA)

- National Inventory Report (annual to UNFCCC and EU)

The German Federal Government aims to achieve maximum transparency and in the implementation of the Climate Action Plan.



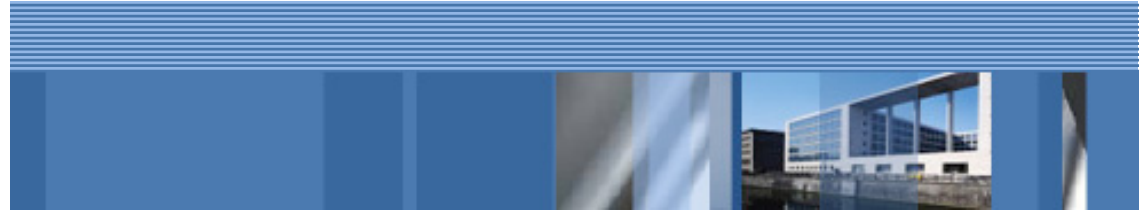
Financing



- By 2030 a sum in the **triple-digit billion range** is to be made available for climate action and the energy transition.
- Additional revenue from the Climate Action Programme is to be reinvested directly.



Climate policy and the energy transition cause additional cost for consumers, industry and public budgets. But the costs of climate non-action will be much higher.



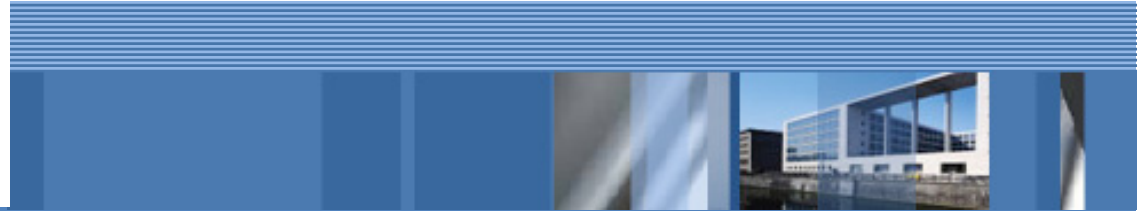
In a nutshell...

The Energiewende...

- ... is a **fundamental transformation** of the energy system and **re-alignment of energy policy**.
- ... is Germany's long-term energy and climate strategy.
- ... is an inter-generational **long-term process** with a time horizon **until 2050 and beyond**.
- ... is embedded in international frameworks: we need common solutions to **achieve climate objectives** and **assure affordable, secure and clean energy supply**.

Climate action programme 2030

- sets legally binding climate targets to assure 2030 objectives are met.
- defines sector specific objectives.
- periodic monitoring by independent experts.



Thank you !

On behalf of
Federal Foreign Office
Dr. Steffen Koch
German Embassy Madrid
steffen.koch@diplo.de

<https://www.auswaertiges-amt.de>