For our Environment

Umwelt Bundesamt

5th European Environmental Evaluators Network Forum

Evaluation of climate policies and measures – the case of Germany's Climate Action Programme

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I want to speak about…

1 EVOLUTION OF MONITORING AND EVALUATING CLIMATE POLICIES IN GERMANY

2 MONITORING AND EVALUATION REQUIREMENTS

3 INSTRUMENTS AND METHODS

4 SUMMARY: EXPERIENCES

Monitoring and evaluating climate policies in Germany – an evolutionary process

How it started…

- 1990: CO2-reduction programme enacted by national government
  - first quantified national CO2-reduction target (-25% to -30% by 2005, compared to 1987)
  - Catalogue of measures
  - Interministerial working group
  - Implementation reports produced every 2 years

- 1993: first National Communication under UNFCCC
  - Described main drivers of GHG emissions in Germany, presented data from GHG inventory, assessed potential impacts of global warming, and listed policies and measures for GHG mitigation

Monitoring and evaluating climate policies in Germany – an evolutionary process

The situation today…

- 2010/2011: Energy Concept/Energy Transition (Energiewende)
  - Annual monitoring report, based on a set of indicators for security of energy supply, environmental impacts of the energy sector, and economic indicators
  - Progress report every three years, focusing on policies and measures
  - Expert commission commenting on monitoring and progress reports

- 2015: Climate Action Programme 2020
  - Described main drivers of GHG emissions in Germany, presented data from GHG inventory, assessed potential impacts of global warming, and listed policies and measures for GHG mitigation
  - Annual Climate Action Report

- 2016: Climate Action Plan 2050
  - Monitoring envisaged, details to be defined

Monitoring and evaluation requirements / climate policy

INTERNATIONAL MONITORING AND REPORTING REQUIREMENTS

- National GHG Inventory Report (annual report)
- GHG trends and projections report (biannual report)
- NatCom/BiRep (UNFCCC)

NATIONAL REPORTING REQUIREMENTS:

- Climate Action Programme 2020 -> National Climate Policy Report (annual report, since 2015)
- Interim assessment report for Climate Action Programme 2020 scheduled for 2018
- Climate Action Plan 2050 -> Monitoring and reporting remains to be defined

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Source: http://www.bmub.bund.de/themen/klima-energie/klimaschutz/nationale-klimapolitik/aktionsprogramm-klimaschutz/details-aktionsprogramm/artikel/klimaschutzbericht-2015/

Monitoring and evaluation requirements / sectoral policies

MONITORING AND EVALUATION OF THE ENERGY POLICY

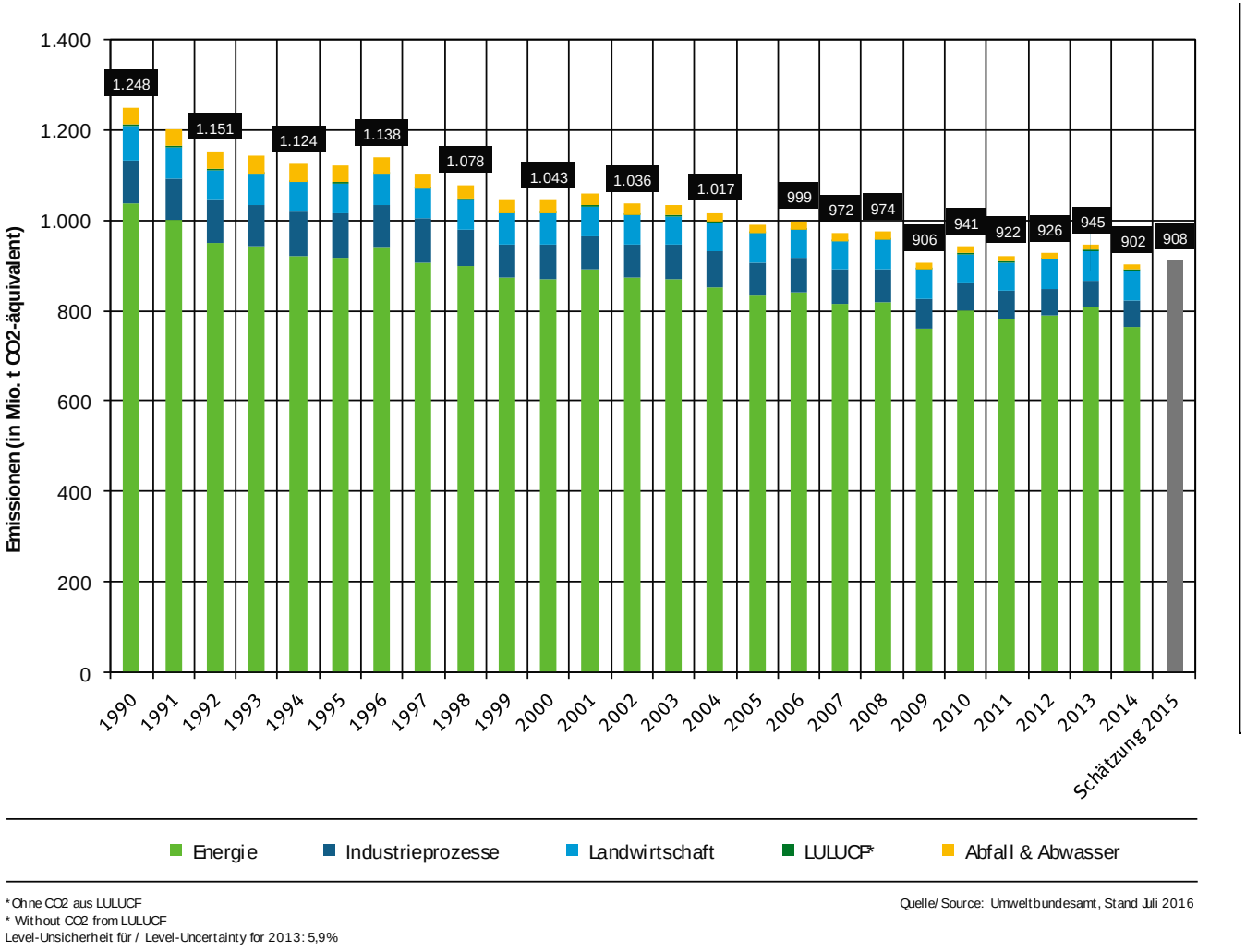
as defined in the 2010 Energy Concept

- Monitoring report
  - Annual report
  - focusing on data and indicators
- Progress report
  - due every 3 years
  - Focusing on policy targets and measures

source: Federal Ministry for Economic Affaires and Energy (2014)

Monitoring and evaluation – instruments and methods

Development of GHG emissions based on GHG inventory data (ex post monitoring)

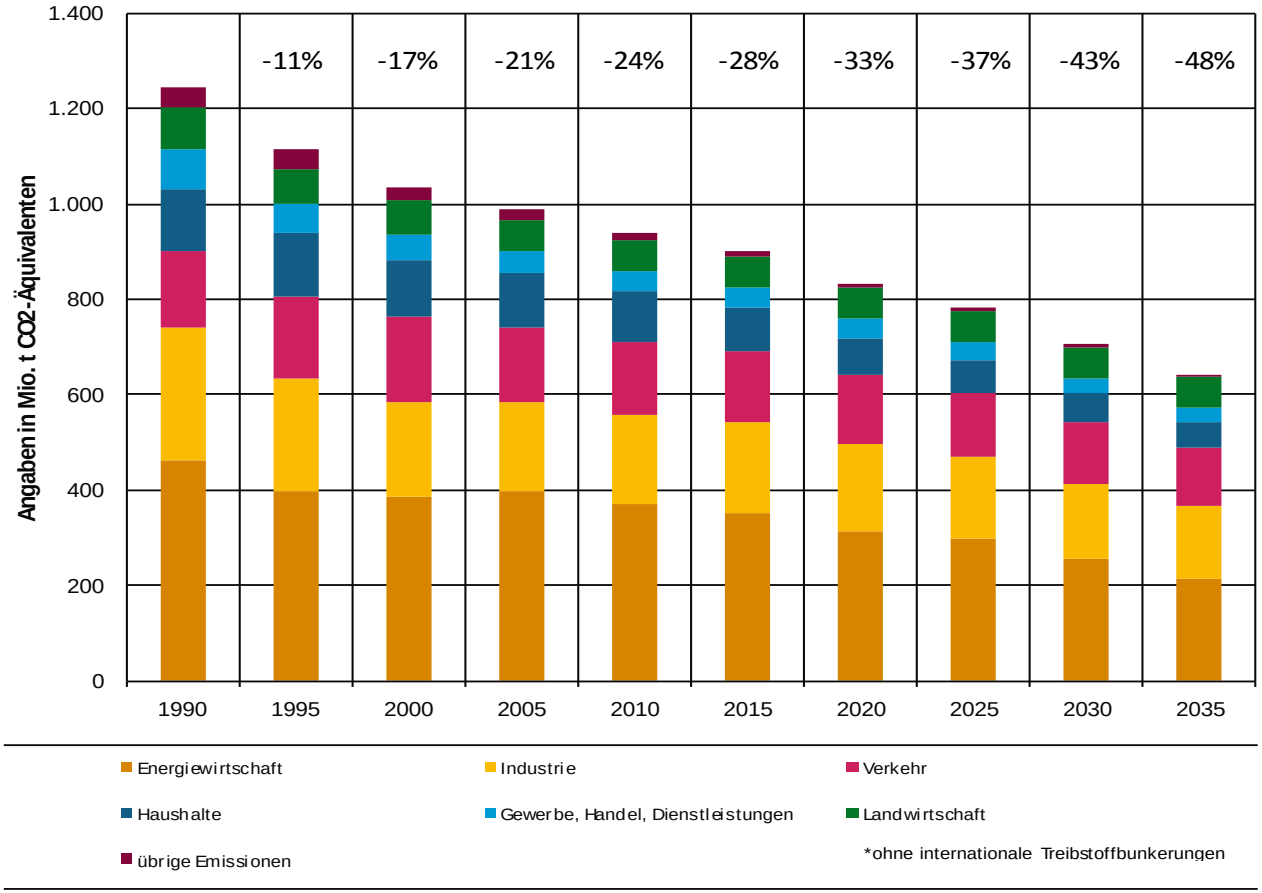


* Ohne CO2 aus LULUCF
* Without CO2 from LULUCF
Level-Unsicherheit für / Level-Uncertainty for 2013: 5,9%

Quelle/ Source: Umweltbundesamt, Stand Juli 2016

Monitoring and evaluation – instruments and methods

Development of GHG emissions 1990 to 2035 by sectors, with-measures-scenario

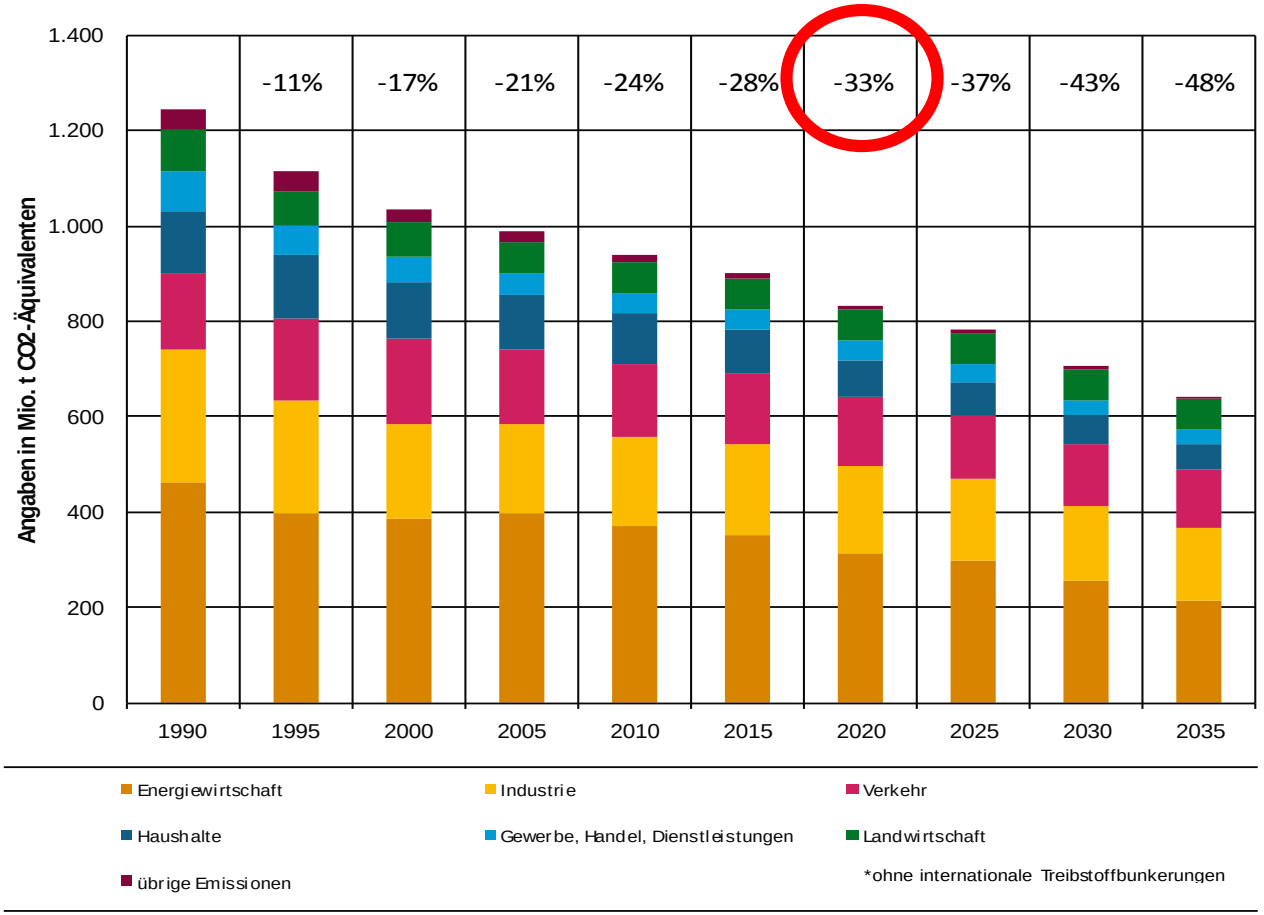


Quelle: Deutscher Projektionsbericht 2015 zur Entwicklung der Treibhausgasemissionen in Deutschland gemäß Verordnung 525/2013/EU.
online: https://cdr.eionet.europa.eu/de/art04-13-14-lcds-pams-projections/envvqlq8w/
Werte 1990 - 2010: tatsächliche Emissionen. Ab 2015: Projektionen aus dem Mit-Maßnahmen-Szenario.

GHG emissions trends and projection scenarios (ex ante assessments)

Monitoring and evaluation – instruments and methods

Development of GHG emissions 1990 to 2035 by sectors, with-measures-scenario



Quelle: Deutscher Projektionsbericht 2015 zur Entwicklung der Treibhausgasemissionen in Deutschland gemäß Verordnung 525/2013/EU.
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GHG emissions trends and projection scenarios (ex ante assessments)

Example: The German Climate Action Programme 2020

Adopted by the German cabinet on 3rd December 2014

A most comprehensive package of action with 110 measures

Aim: react to the envisaged shortfall to reach the 40% GHG-reduction goal by 6 – 8% (**as result of PaM Projections**)

Additional reduction of 62 to 78 million tonnes CO_2 equivalent compared to the current projections for 2020

All sectors have contributed to the programme

- 25 to 30 million tonnes come from energy efficiency
- Measures in the electricity sector contribute 22 million tonnes
- The transport sector contributes 7 to 10 million tonnes
- Reducing non-energy-related emissions in industry, commerce, trade, services and waste management proivide 3 to 7.7 million tonnes
- Agriculture contributes with approximately 3.6 million tonnes

The Programme also contains measures that are difficult to quantify (i.e. advice and information, training and education)

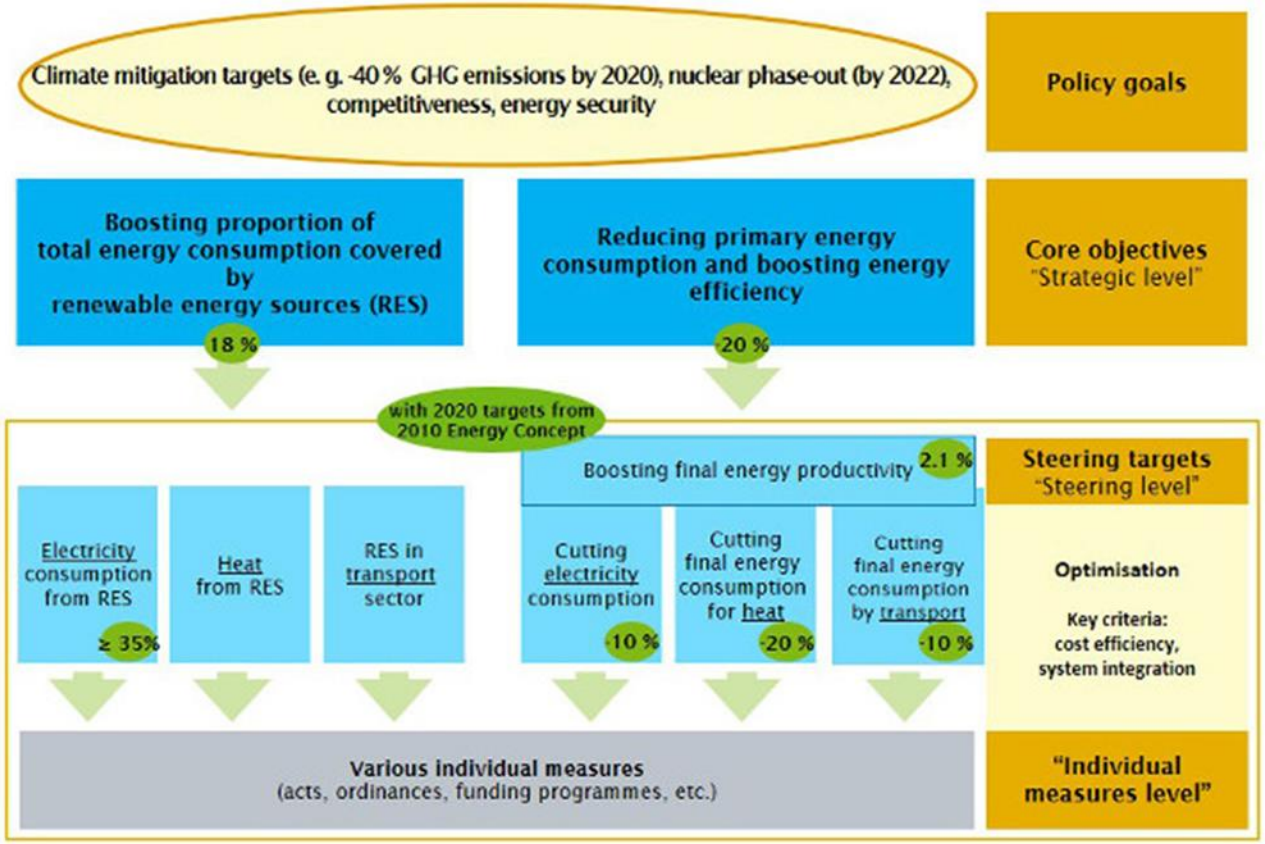
Intended investments (estimate): 4 Bill. Euro

Implementing the Climate Action Programme by reducing 2.7 GW power production capacity equivalent 12,5 Mio. t CO_2 emissions from lignite until 2020 (costs: 1,4 Bill Euro)

To ensure that the national 2020 climate target can be attained, the Act on the Further Development of the Electricity Market is setting up an arrangement whereby older, high-emission lignite power plants are gradually placed on "security stand-by“ for four years and will then be decommissioned. From the time they are placed on security stand-by, they will not normally emit any more carbon dioxide.

(GERMAN MINISTRY OF ECONOMY AND ENERGY, NOVEMBER 5, 2015)

Monitoring and evaluation – instruments and methods



Source: http://www.bmwi.de/EN/Topics/Energy/Energy-Transition/target-architecture.html

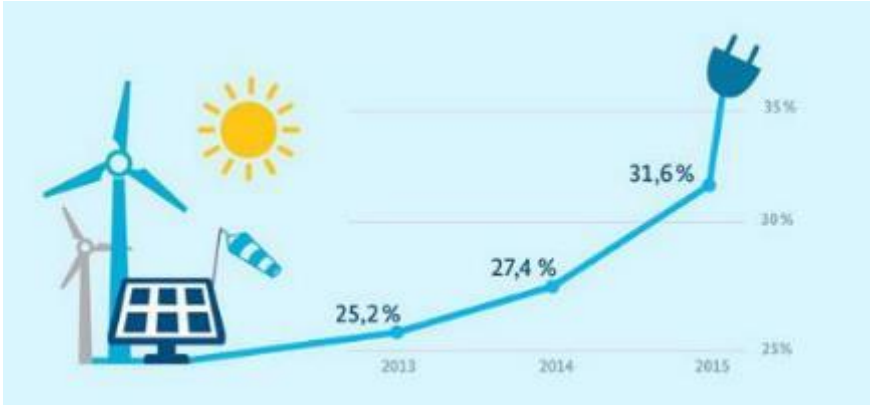
Climate policy targets are broken down to a range of subordinate targets.

On the left, an overview on subtargets for the year 2020 in the energy sector as defined in the Energy Concept from 2010.

Monitoring and evaluation – instruments and methods

	Climate	Renewable Energies		Energy Efficiency			
	GHG-emissions in rel. to 1990	Electricity min.	total min.	Primary energy in rel. to BAU	El.	Buildings	Trans-port
2020	- 40%	35%	18%	- 20%	- 10%	- 20% heat	- 10%
2030	- 55%	50%	30%				
2040	- 70%	65%	45%				
2050	- 80% bis - 95%	80%	60%	- 50%	- 25%	- 80% primary energy	- 40% final energy

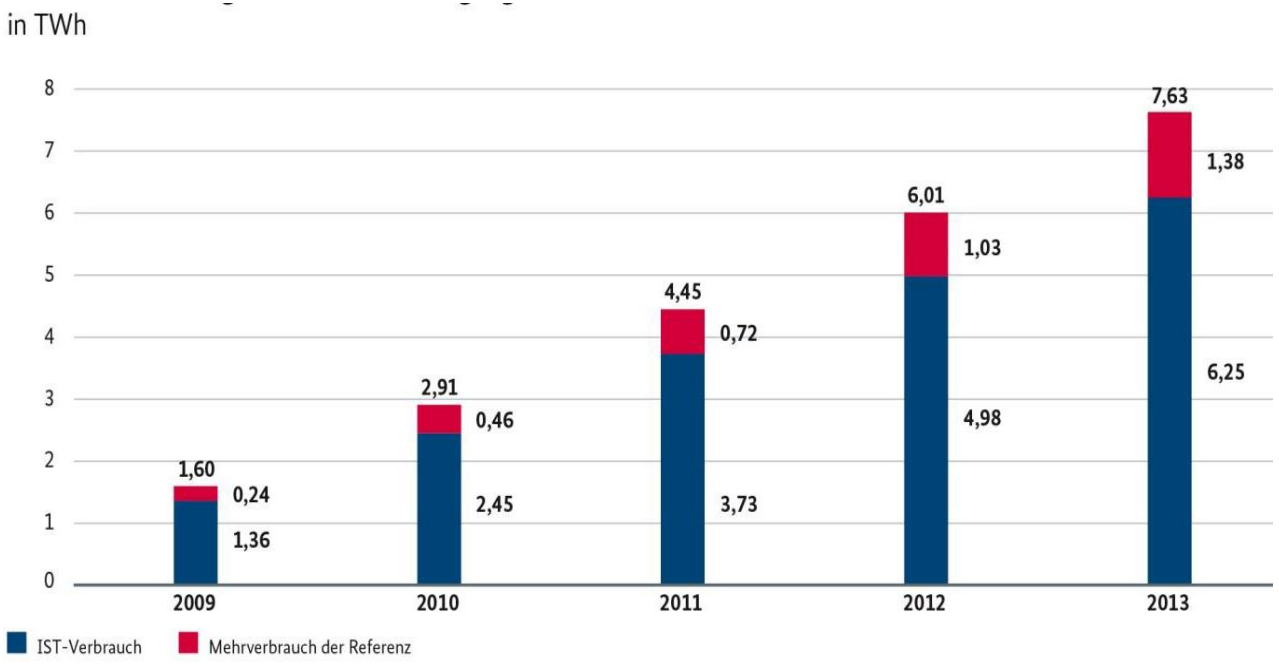
A range of indicators is used to monitor more specific sectoral targets (evaluation benchmarks)



Source: WG on Renewable Energy Statistics, Federal Ministry for Economic Affaires and Energy

Monitoring and evaluation – instruments and methods

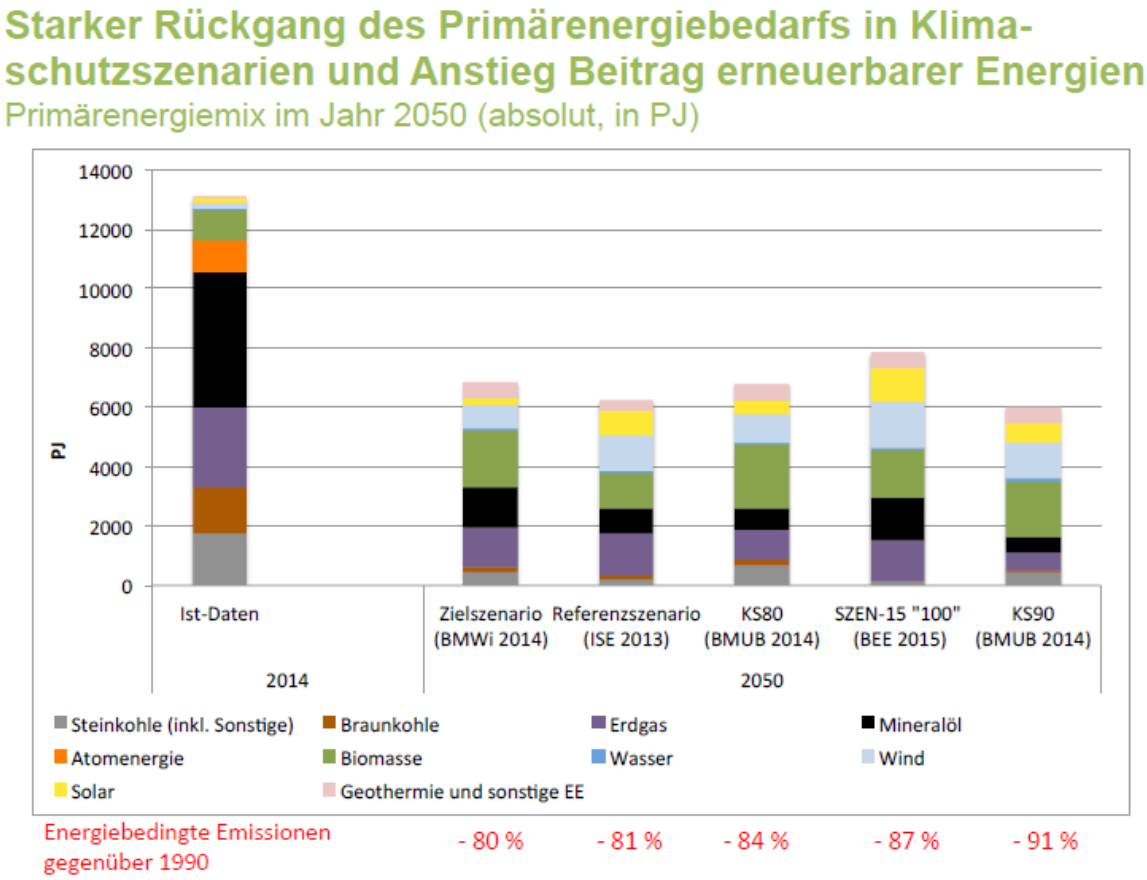
Modelling exercise: GHG emissions avoided by the act on renewable energies in the heating sector (red)



Some policies and measures are assessed individually, partly with regard to their impact on GHG mitigation, overall effectiveness and efficiency. This applies mostly to funding programmes, but also e.g. to the renewable energy act and the act on renewable energies in the heating sector.

Source: Prognos, Fraunhofer ISI and TU Munich; Prognos, Fraunhofer ISI, DLR, Öko-Institut, KIT

Monitoring and evaluation – instruments and methods



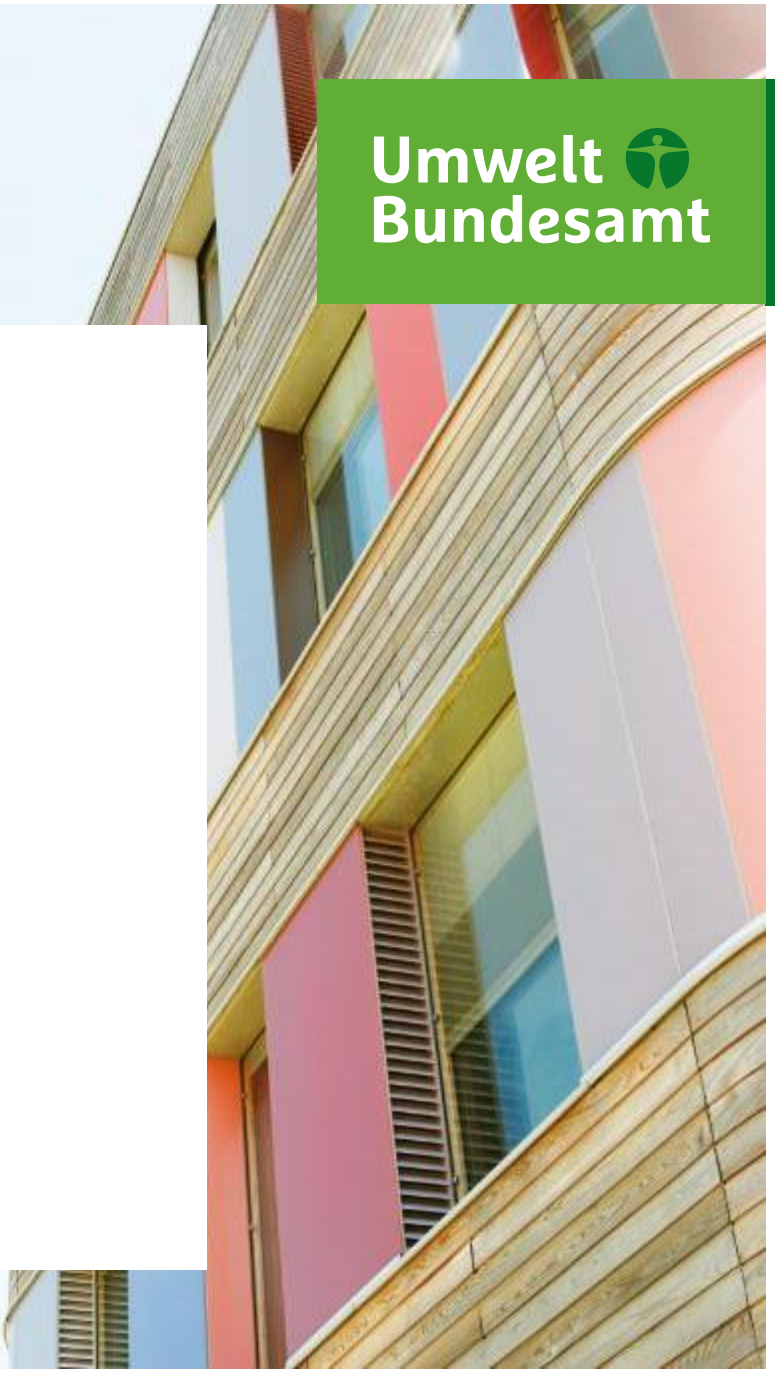
Scenario analysis has been applied to suggest robust transition strategies and related transformative pathways.

Summary: Experiences I

1. Long history of monitoring and evaluating climate policy
2. A range of well-established reports using a range of monitoring and evaluation methods
3. Well-established procedures including all ministries concerned
4. Effective support from the scientific community
5. Good operating transmission belt between reporting and policy making
6. Review system in place involving external expertise and stakeholders (CliAct Alliance)
7. Good quality of data available on actual and projected GHG emissions, by sector or gas
8. Analyses and dynamic adaptation of major endogenous drivers for emissions (weather, economic situation, fuel prices, population growth, ETS-certificate price)

Summary: Experiences II

9. Advantage of developed comprehensive set of diverse sectoral models and model systems
10. Improving methods for ex-post evaluation of individual policy instruments and a complex policy mix as well as methods for cost benefit analyses and economic assessment of PaMs
11. Better information and assessment needed on how to effectively overcome barriers for unrealized potentials e.g. on energy efficiency gains
12. Work needed towards harmonized methods for ex-post evaluation in particular, to faciliate cross-country comparison and policy learning



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