

Germany's Coal Phase-Out: Full Speed Ahead for Renewable Energy Sources?

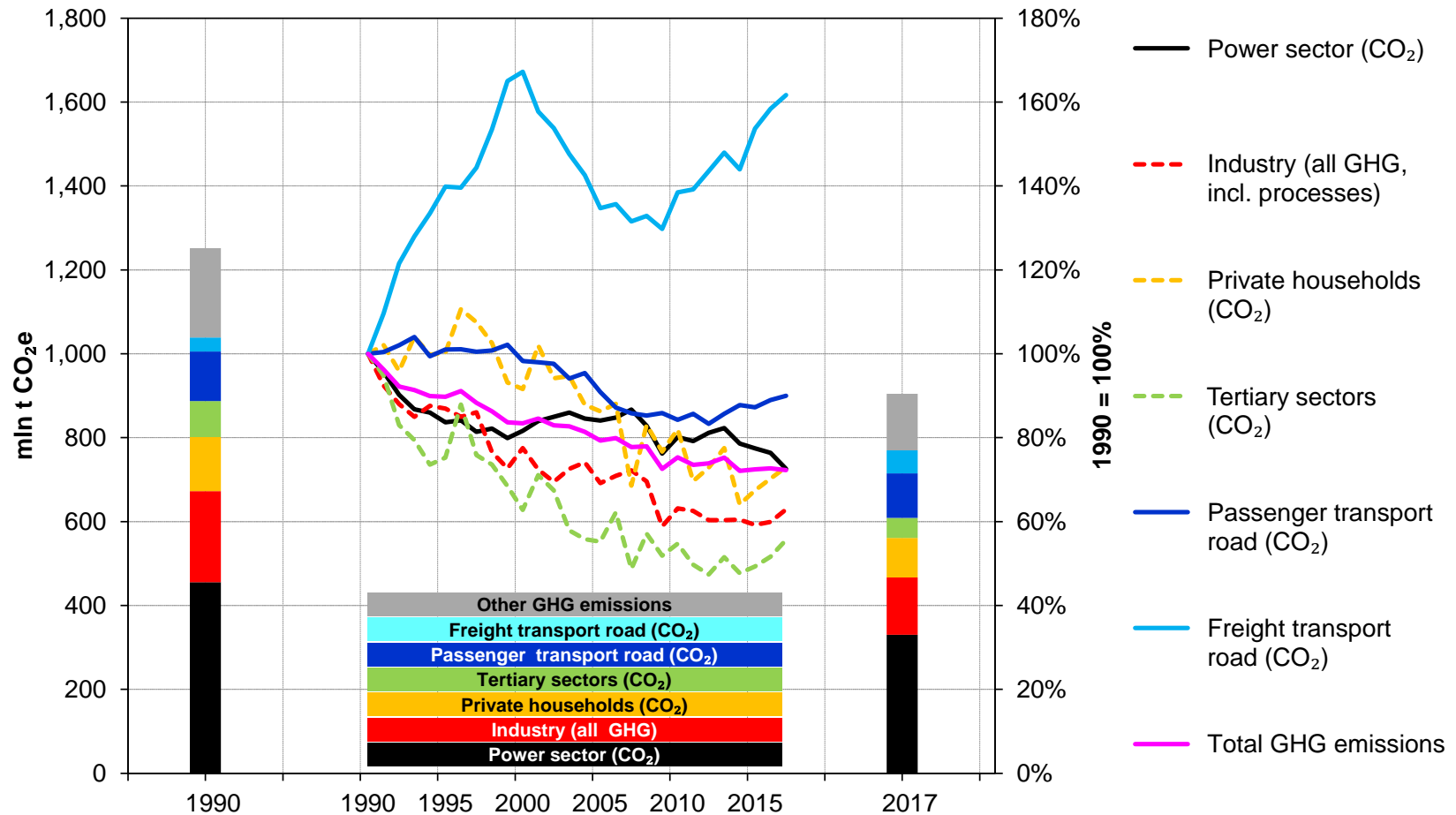
Insights from the German Commission on Growth, Structural Change and Employment ("The Coal Commission")

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Starting point #1: Germany's ambitious energy transformation targets face major challenges in terms of compliance



Starting point #2: The Climate Action Plan 2050 as a comprehensive approach strengthen the general target framework

	Targets as of ...																					
	2018	2016	2016	2016	2016	2016	2010	2018	2010	2010	2010	2010	2011	2019								
	Greenhouse gas emissions						Renewable energies		Energy efficiency				Nuclear energy (capacity)	Power from coal (capacity)*								
	Total	Energy sector	Buildings	Transport	Industry	Agriculture	Gross final energy	Power generation	Primary energy	Space heating	Final energy transport	Electricity consumption										
2011													-41%									
2015													-47%									
2017													-54%									
2019													-60%									
2020	-40%						18%	35%	-20%	-20%	-10%	-10%										
2021													-80%									
2022													-100%									
2025																						
2030													-55%		-61 to -62%	-66 to -67%	-40 to -42%	-49 to -51%	-31 to -34%	30%	65%	
2035														(-100%)								
2038																						
2040													-70%						45%	85%		
2050													-80 to -95%							60%	80%	-50%
Base year	1990	1990	1990	1990	1990	1990	-	-	2008	2008	2005	2008	(2010)	2017								
Note: * according to the recommendations of the Coal Commission																						

German energy & climate policy

The taxonomy of (non-permanent) commissions

Expert Commissions

- Expert Commission on the Monitoring Process "Energy of the Future"

Joint Parliament/Expert Commissions

- Study Commissions ("Enquete-Kommissionen") of the Federal and the State Parliaments

Stakeholder Commissions with a (more or less) narrow mandate and/or (more or less) pre-defined outcomes

- Commission to Review the Financing for the Phase-out of Nuclear Energy
- Ethics Commission on Nuclear Phase-out

Stakeholder Commissions with a broad mandate and/or (more or less) open outcomes

- Commission on the Storage of High-level Radioactive Waste
- Commission on Growth, Structural Change and Employment ("Coal Commission")

The German Coal Commission

The challenges

Energy and climate policy

- the German fleet of coal-fired power plants is quite diverse in terms of age and location
- it represents a significant share in (net) power generation (36% in 2017) as well as firm (net) capacity (40% in 2017)
- early phase of coal phase-out runs parallel to the final phase of the nuclear phase-out (12% of net power generation and 9% of net firm capacity in 2017)
- German coal phase-out runs parallel to coal phase-out policies in other European countries

Employment and regional policy

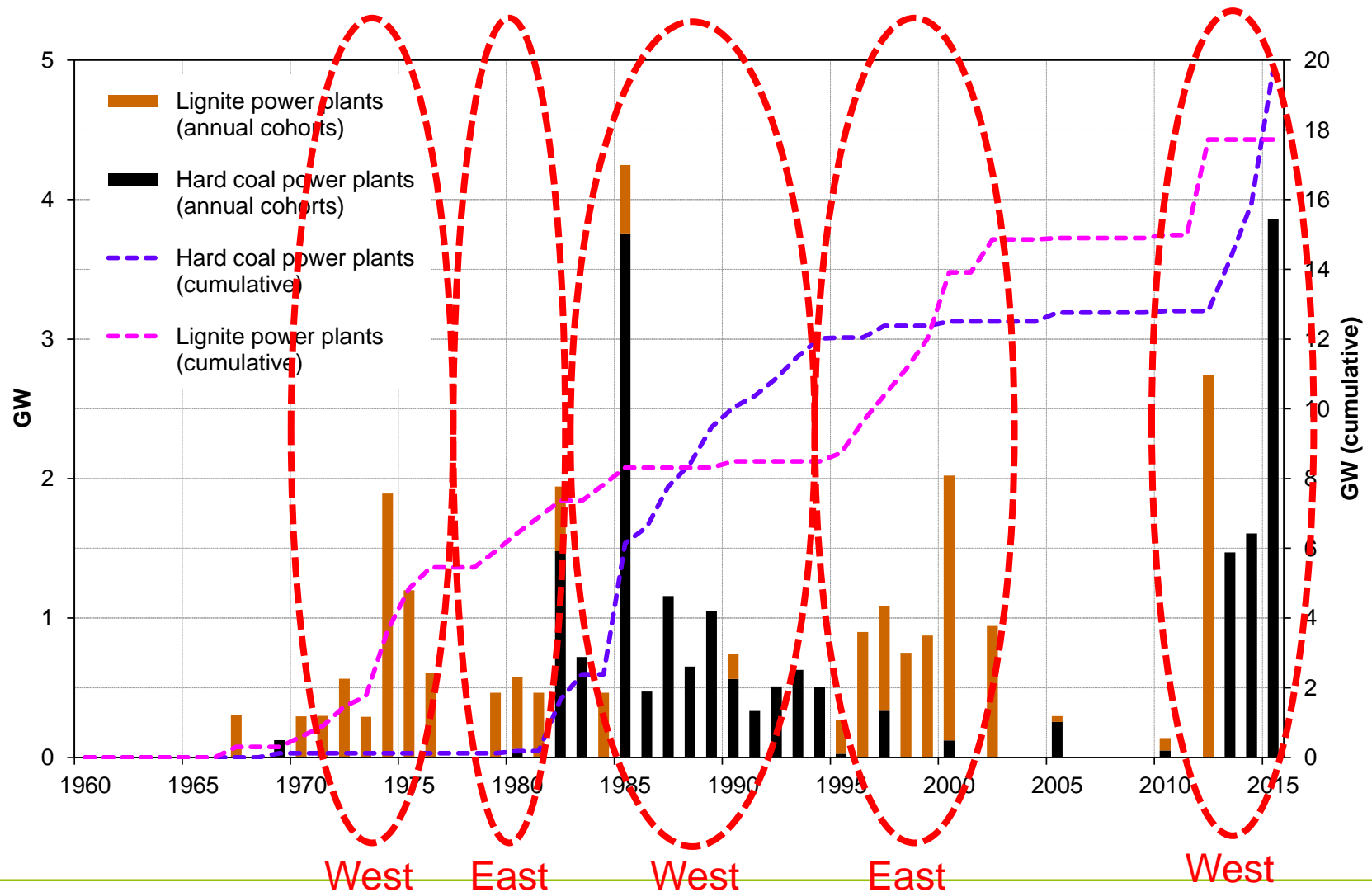
- lignite industry (mining and power generation) employs approx. 20,000 workers directly and another 20,000 indirectly in the regions
- regional challenges are very different (Lusatian region as hot spot)

The German Coal Commission Composition

- 3 representatives from industry/business associations, 3 representatives from trade unions, 2 representatives from energy industry associations
- 3 representatives from environmental NGOs, 1 representative from a renewable energy association
- 3 scientists specialized on energy & climate, 2 scientists specialized on structural change & labour market, 1 scientist specialized on innovation
- 3 representatives from non-energy companies
- 2 (retired) minister presidents from (East German) lignite mining states
- 1 representative from other organization
- 2 pro-coal representatives from lignite mining regions, 2 anti-coal representatives from lignite mining regions
- 3 MPs from the Federal Parliament (ruling coalition, no voting rights)
- Observers: coal mining states, federal ministries, Chancellery

Coal phase-out in Germany: a three-dimensional challenge

lignite versus hard coal, new versus old, East versus West



The German Coal Commission

Working process & procedures

10 plenary meetings

- 3 of which in the lignite mining regions
- hearing of approx. 70 specialists and representatives
- right to speak for commission members (not for sherpas/deputies) and the observing states (6 states with significant coal mining activities)

2 reports

- interim report (31st October 2018) and final report (26th January 2019), 27:1 vote

2 (negotiation) working groups

- Friends of Chair (energy and climate policy issues): 6 commission members and sherpas/deputies and working group on structural change: 8 commission members and sherpas/deputies

Voting rules

- a two thirds majority for reports, a simple majority for all other matters

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Recommendations and implications (1)

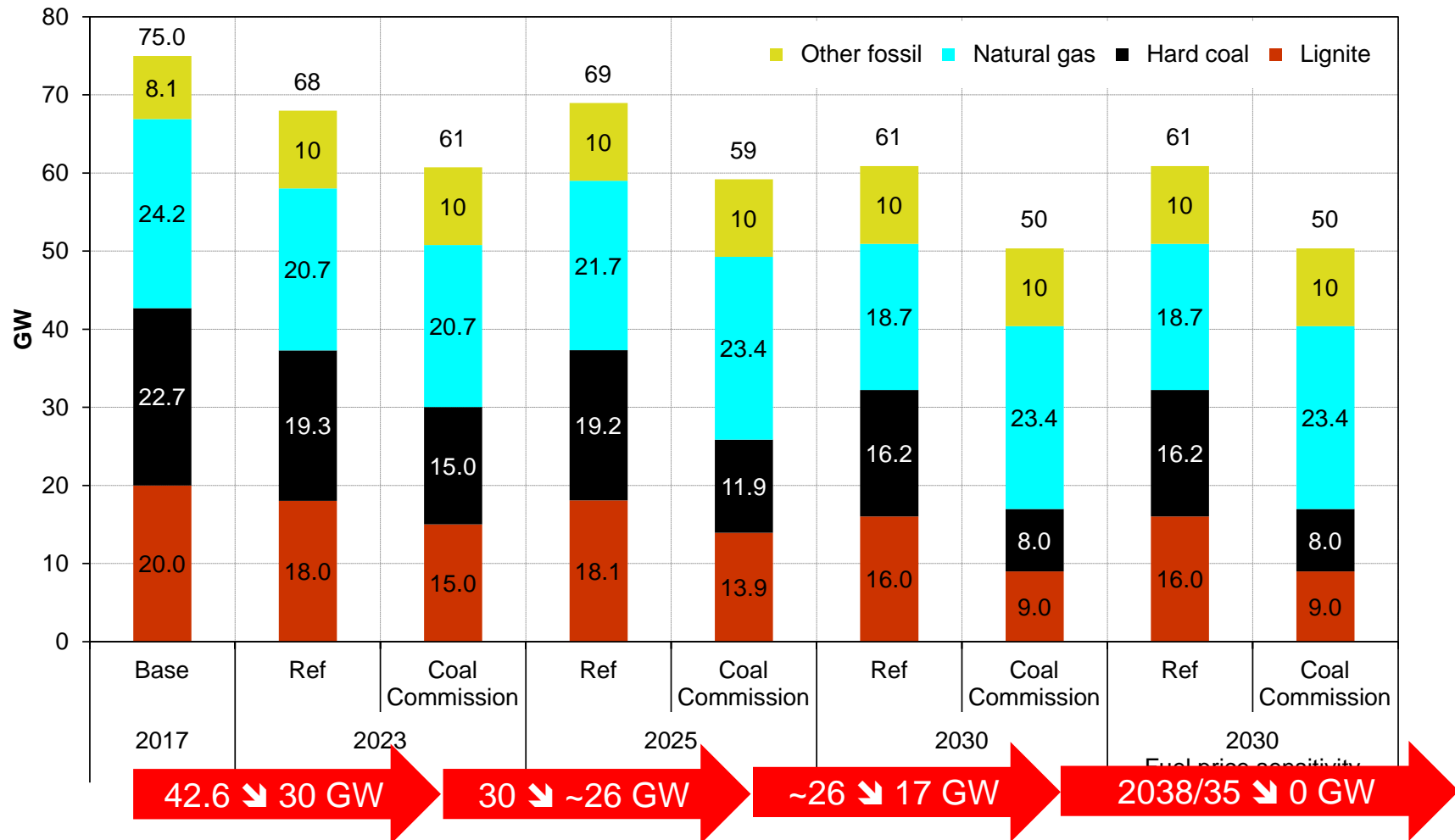
The I3SEC programme on structural change

- infrastructure (transport, digitization)
- investment support
- innovation (set-up and funding of research institutions in the mining regions, demonstration projects, innovation zones)
- settlement of government agencies (incl. military)
- early retirement/adaptation allowance mechanisms (labour market policies following the blueprint of hard coal mining phase-out)
- civil society and community support programmes

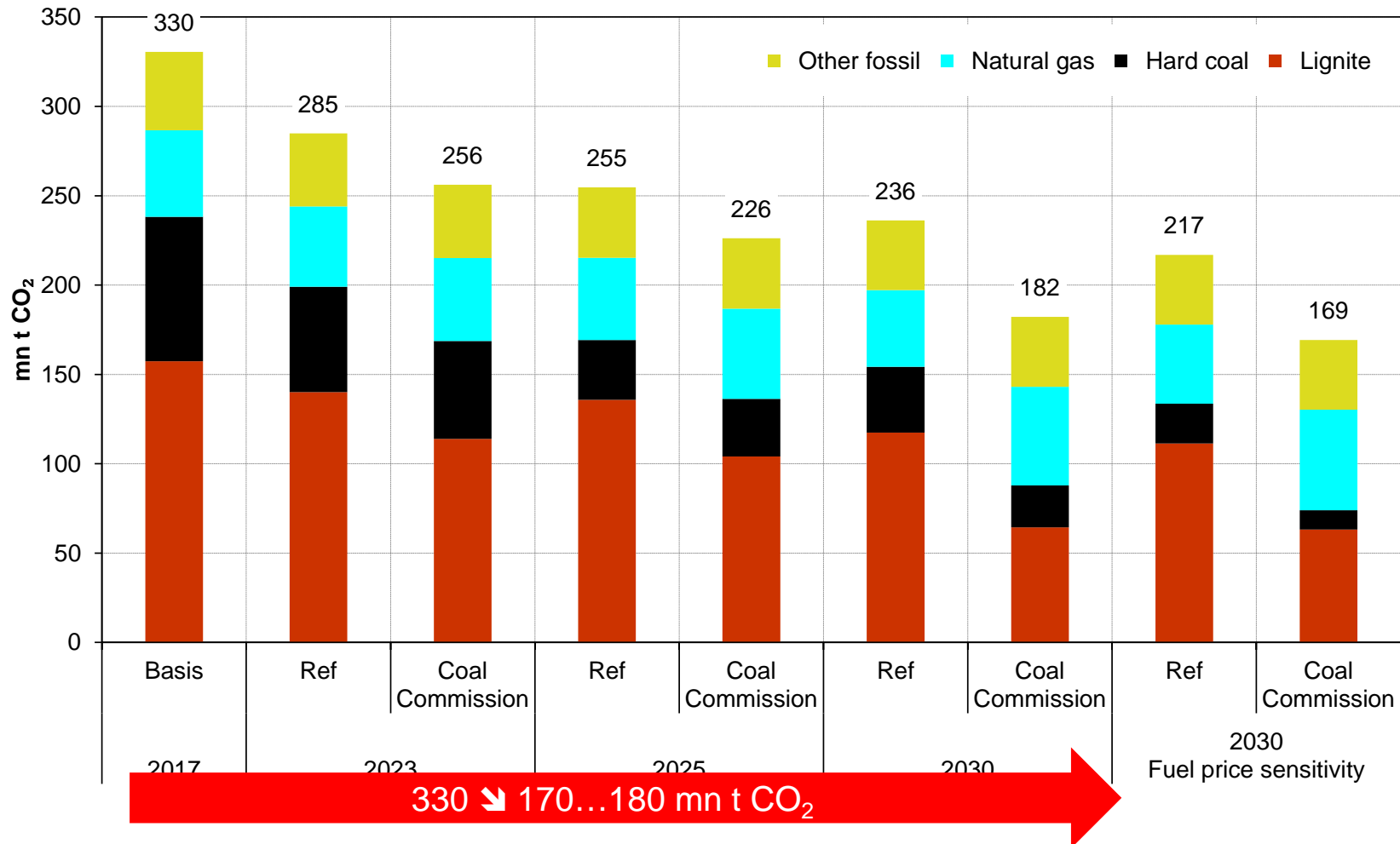
Funding resources

- €1.3b annually for 20 years for specific measures (controlled by federal legislation), €0.7b annually for 20 years at the disposal of the States
- funds will be only partly additional (re-distribution of existing funding mechanisms)

The German Coal Commission Recommendations and implications (2)

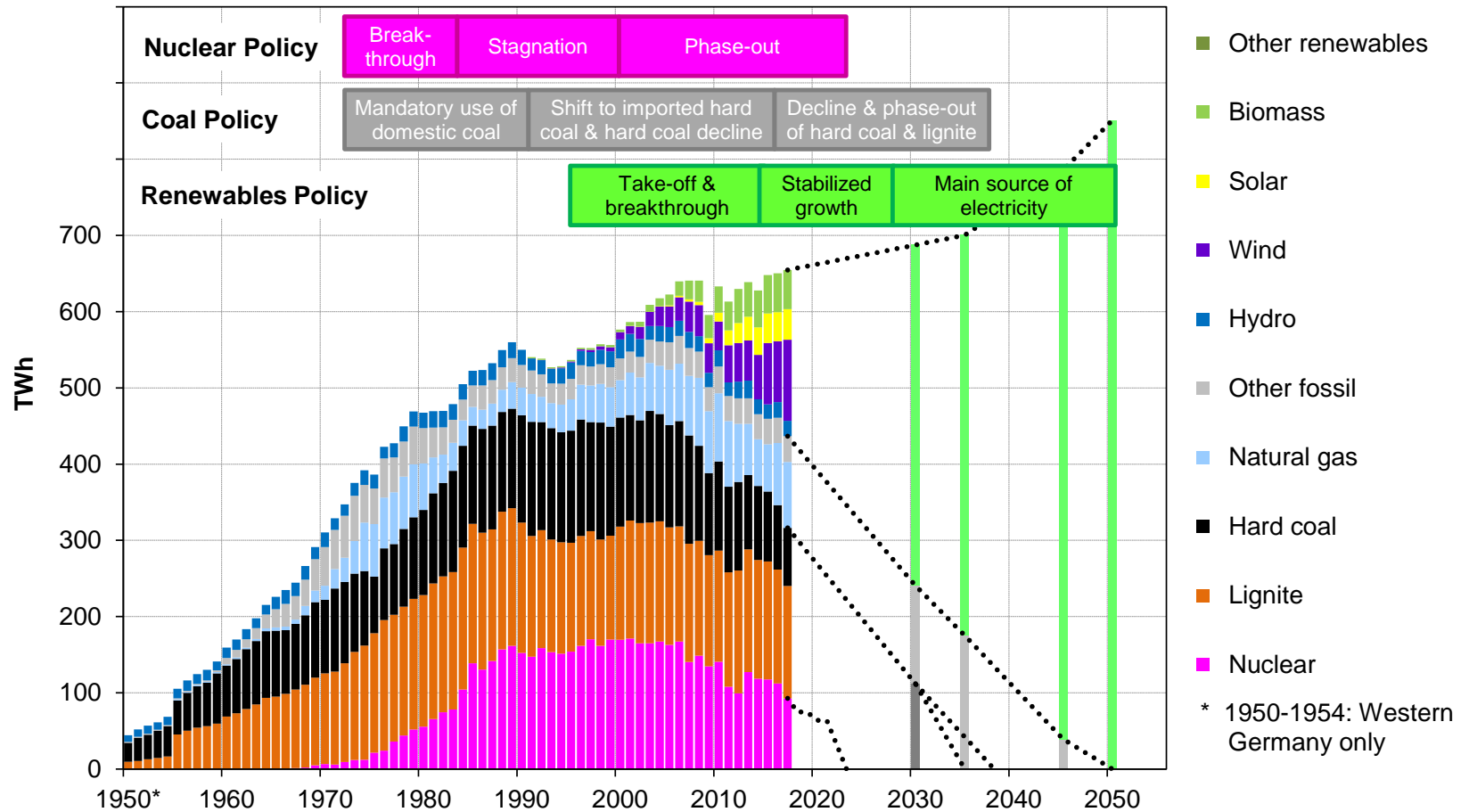


The German Coal Commission Recommendations and implications (3)



The German Coal Commission

Recommendations and implications (4)



The German Coal Commission

Recommendations and implications (5)

The phase-out mechanism

- negotiations with operators on compensations (federal budget)
- degressive, exception: shut-down of plants younger than 25 yrs
- tenders might play a role for hard coal to close the decommissioning gap between target trajectory and substitution of hard coal CHP triggered by Cogeneration Act
- if sufficient agreements can be reached by 30 June 2020 (some more flexibility for hard coal): outcome will be fixed in legislation
- if no sufficient agreements can be reached by 30 June 2020 (some more flexibility for hard coal): mandatory decommissioning with compensation only if legally required
- adjustment of Cogeneration Act to accelerate substitution of coal-based cogeneration plants (significant part of medium-age hard coal-fired power plants, less significant for lignite)
- extension to 2030, incl. coal substitution bonus, greening district heating

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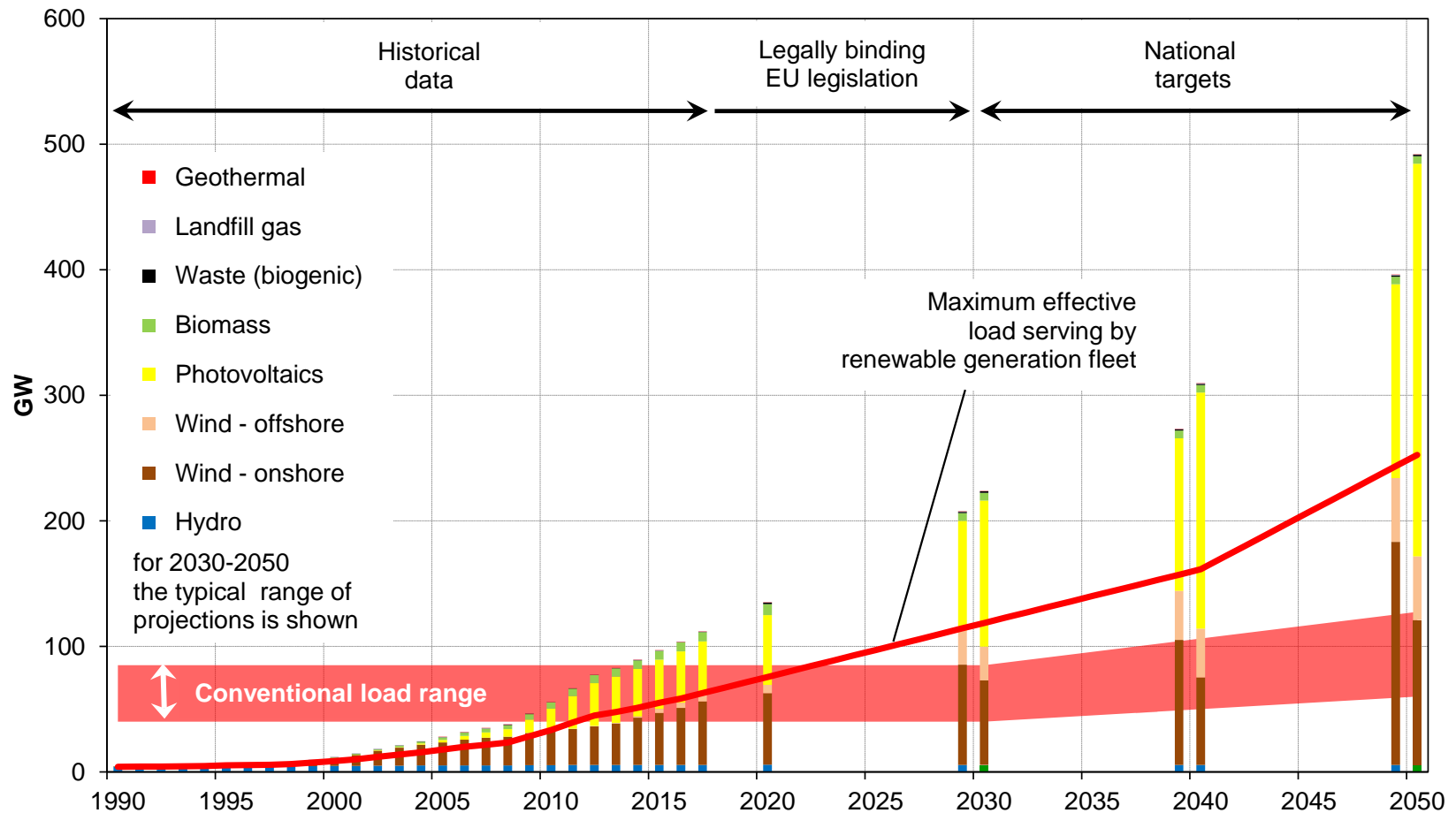
Recommendations and implications (6)

The necessary embedding in a broader energy policy (1)

- security of supply
 - more stringent monitoring
 - will a new capacity mechanism become necessary (systematic investment framework, aka capacity market, new EU framework with 550 g/kWh threshold)?
 - new gas-fired capacity and/or other dispatchable capacities/flexibilities need to be commissioned from 2025 onwards
- network infrastructure roll-out
 - updated network development plans & legislation
- expansion of renewables
 - 65% renewables in 2030 to be fixed in Renewable Energy Act (tender volumes etc.)
 - 65% renewables in 2030 to be fixed in network development

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Recommendations and implications (7)



The German Coal Commission Recommendations and implications (8)

The necessary embedding in a broader energy policy (2)

- electricity price compensation
 - contribution from federal budget to transmission network access fees
 - potentially starting in 2023, volume (€2b annually?), updating, state aid approval
- cancellation of EU ETS emission allowances
 - basic legal EU framework exists, implementation provisions pending, volume to be fixed
- modernization of taxes, levies and surcharges and carbon pricing
 - evaluation and revision process need to be started soon
 - major implications for electricity costs, self-consumption, storage, power-to-X

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Recommendations and implications (9)

The necessary embedding in a broader energy policy (3)

- model regions and “real laboratories”
 - funding
 - specific (experimental) framework provision
- innovation support
 - sector integration
 - flexibility
 - hydrogen and power-to-X

The review process

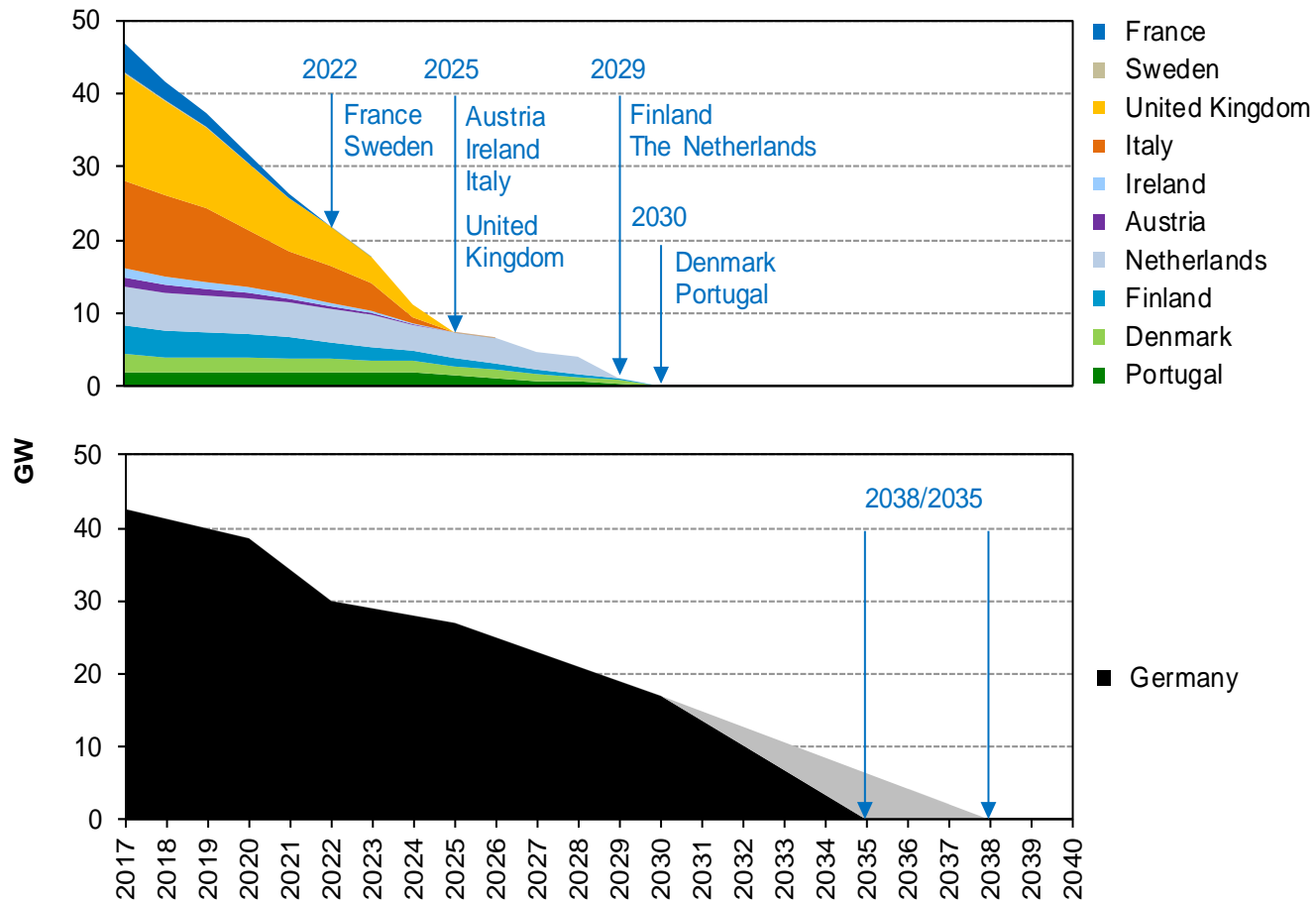
- 2023, 2026 and 2029 mandatory review (and add'l measures if needed)
- detailed proposal on indicators and procedures

The German Coal Commission

The outcome & the follow-up process at a glance

- The commission came to 27:1 recommendations: a success
- The result is an integrated compromise (at a scale that was never seen before) but not a consensus, painful at some points for each participant
- The 2030 emission reduction target can be reached with the proposal
- The implementation process will be key
 - legislative proposals by the Federal government
 - legislation by Federal parliament and the Federal Council
 - approval by the European Commission for state aid
- Was it an extremely expensive deal?
 - a pure stakeholder commission is certainly a challenge in this regard
 - add'l €40b (<€20b for energy industry, consumer & job compensation, <€20b for the regions) for add'l 1b t CO2 abatement is reasonable

Last but not least: The German coal phase-out in the context of other European efforts



Thank you very much

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