HOW TO PROCEED WITH EUROPEAN ENERGY POLICY TILL 2030

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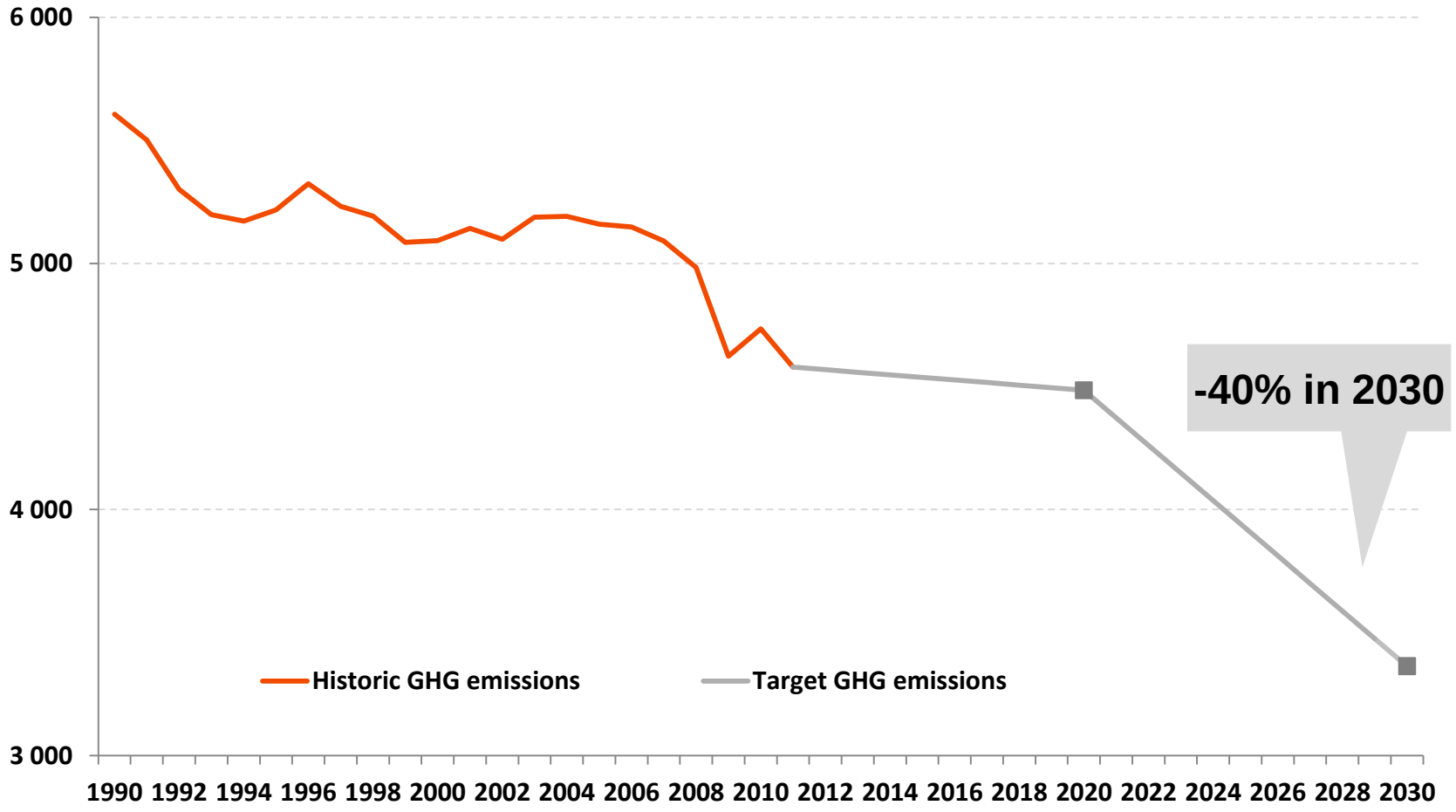
2030 TARGET

Reducing GHG by 40%

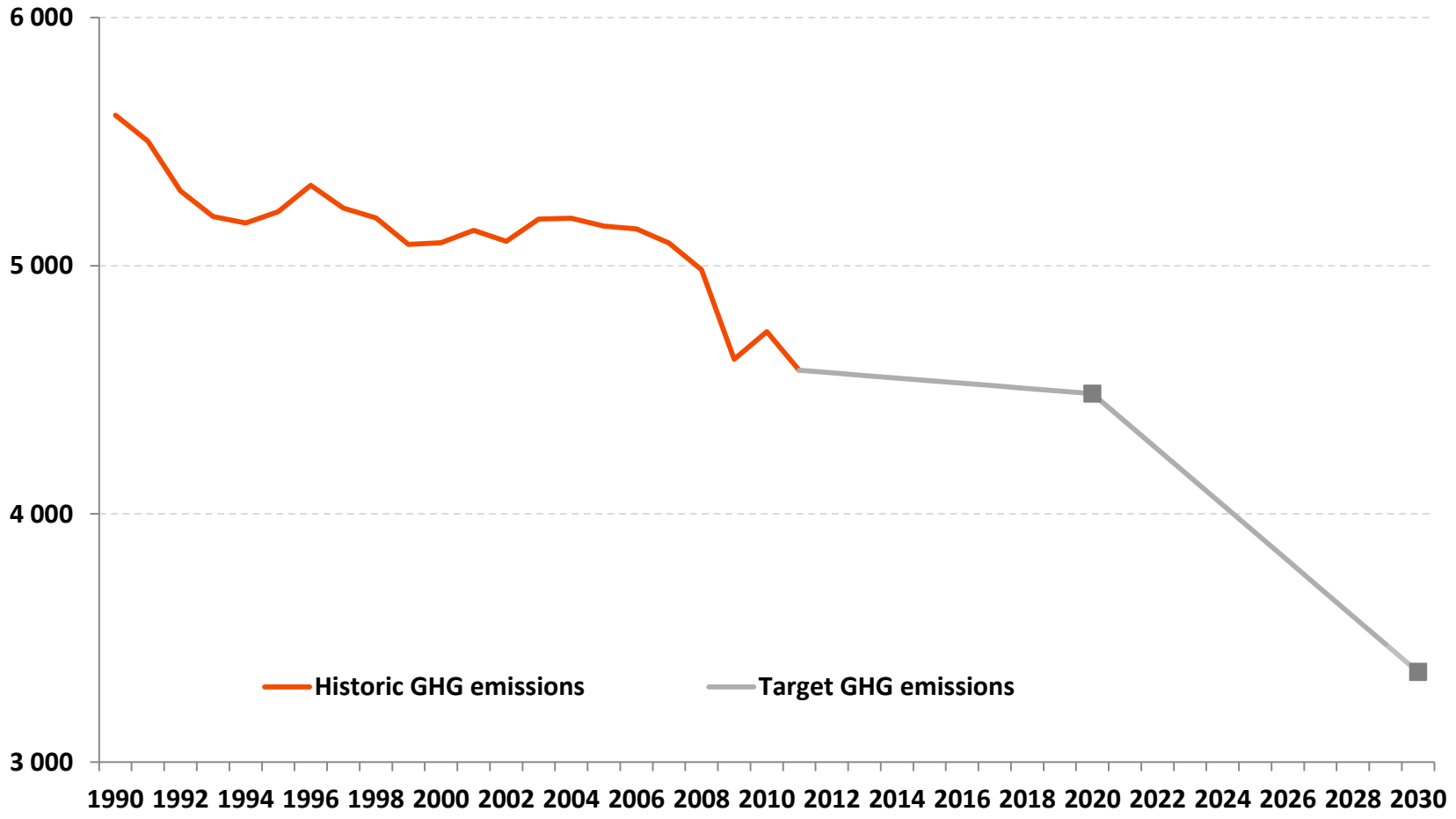
GHG REDUCTION HISTORY AND TARGETS



FROM 2007 TO 2011

GHG emissions down by 9.44%
of which Black Swan – cca 5%

GHG REDUCTION HISTORY



FROM 1990 TO 1994

GHG Emissions down by 7.62%

OVERALL GHG REDUCTION PATTERN

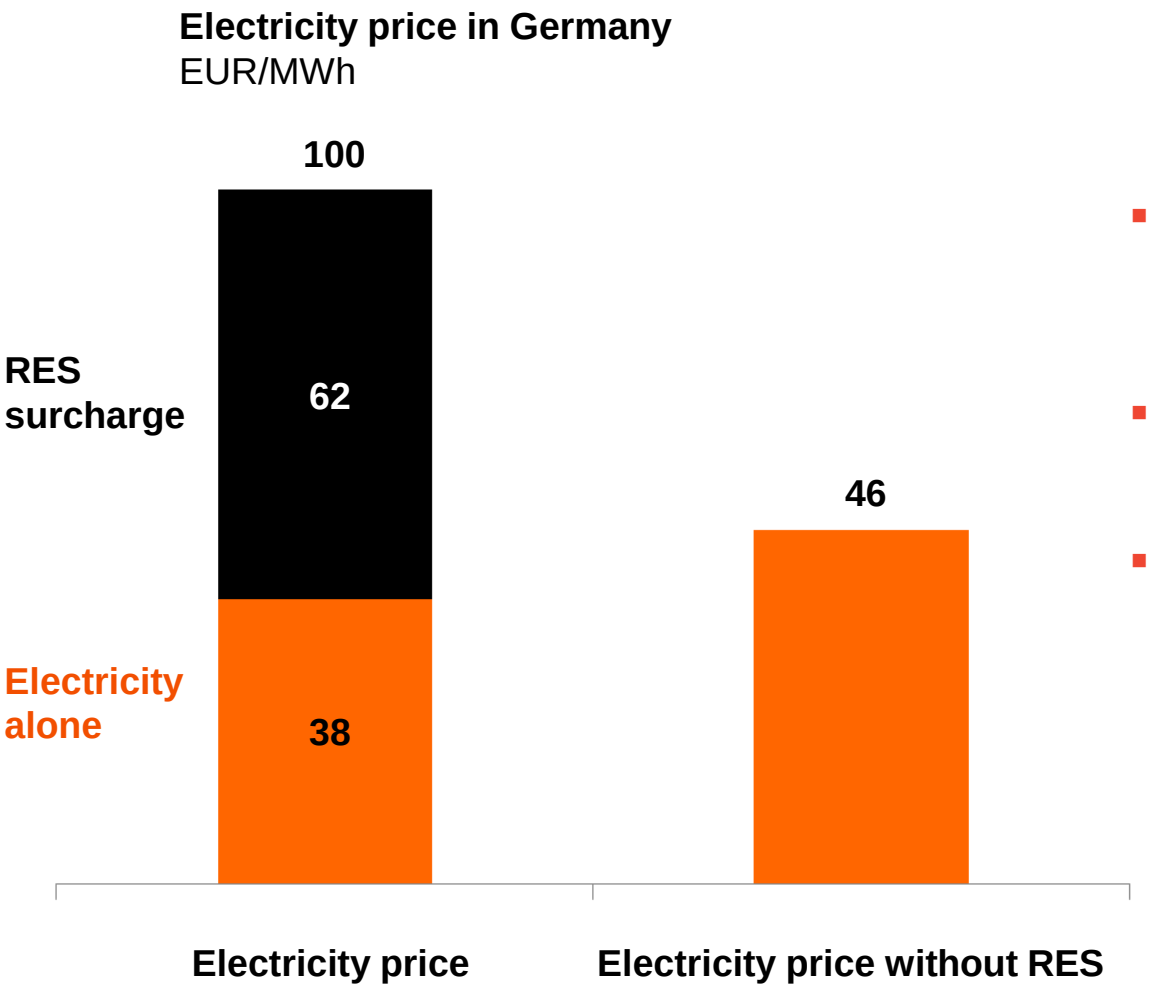
Total Reduction 1990-2012	**18%**
Of which 1990-1995 Black Swan	7,62%
2008-2011 Black Swan	about 5%
Total Black Swan effects	**about 13%**

HEADING FOR 2030?

CURRENT EUROPEAN CLIMATE POLICY HAS BEEN SHIFTING AWAY FROM THE MARKET TOWARDS FRAGMENTED REGULATION AND INEFFICIENT SUBSIDIES

	Single Market Compatibility	EU ETS Consistancy
EU ETS	✓ ▪ Target is reached by the market ▪ One single European market	
RES support	✗ ▪ Targets are driven mainly by subventions ▪ Each country has its unique scheme	✗ ▪ More RES ⇒ less emissions ⇒ lower EUA price ▪ Lower incentive to build low carbon sources
EED (consumption Savings)	✗ ▪ Targets will be probably reached by a mix of subventions and regulations ▪ Each country has its unique scheme	✗ ▪ More RES ⇒ less emissions ⇒ lower EUA price ▪ Lower incentive to build low carbon sources

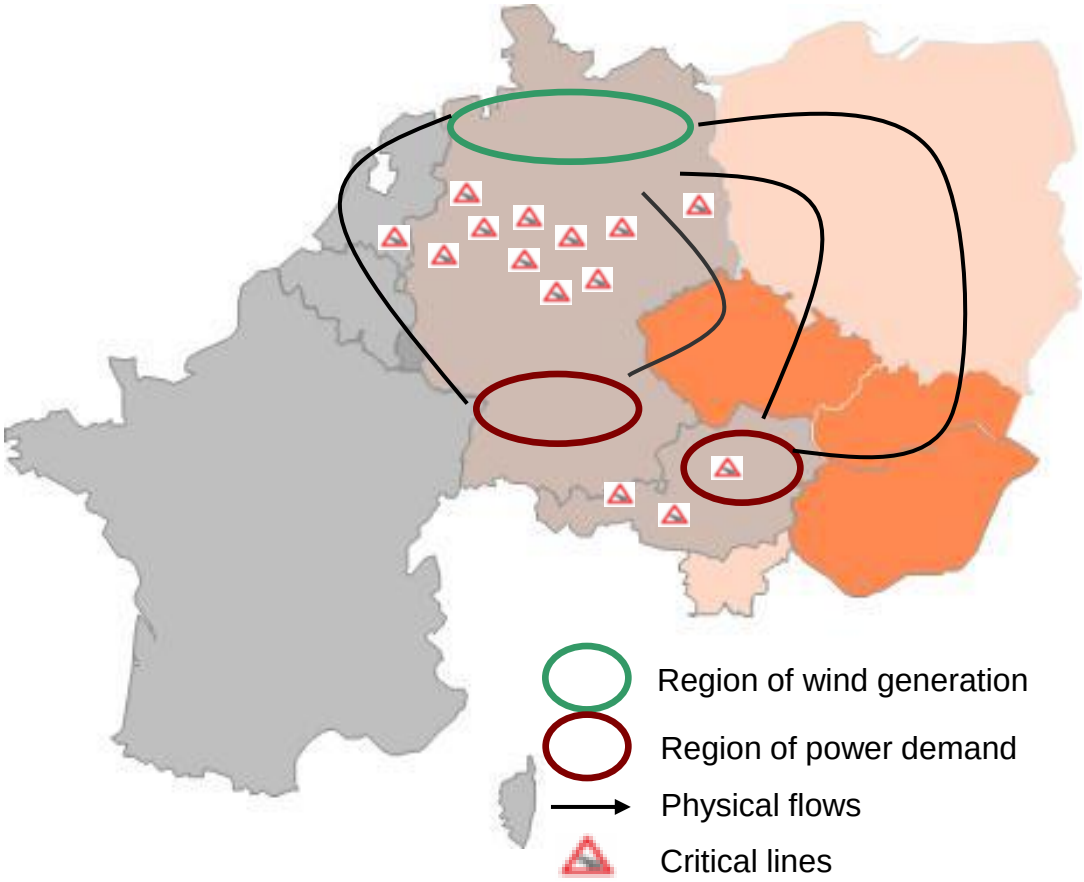
WITHOUT DEPLOYMENT OF RENEWABLES THE PRICE OF ELECTRICITY IN GERMANY COULD HAVE BEEN LOWER BY 50%



- The final electricity prices are rising dramatically as more renewable capacity is installed
- The RES charge in DE in 2013 is around 62 EUR/MWh
- If there had been no RES, the wholesale prices would have increased just by 9 EUR/MWh (with the same cost of fuels, carbon etc.)

THE PRESSURE ON THE TRANSMISSION GRID RISES AS THE PACE OF THE INFRASTRUCTURE DEVELOPMENT IS MUCH SLOWER THAN THE INCREASE IN THE RES GENERATION

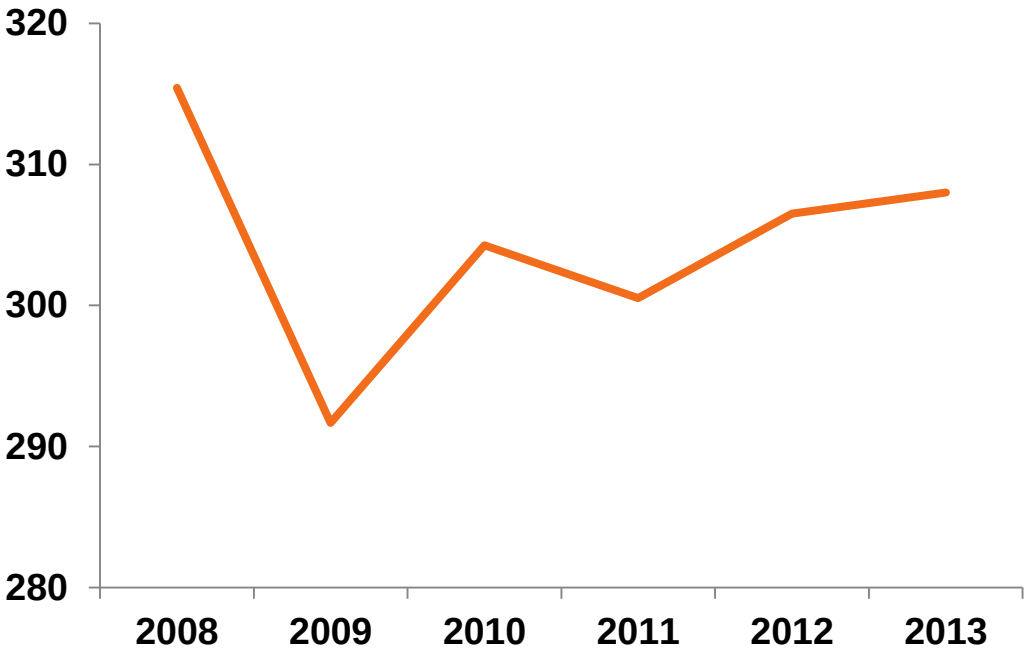
Physical Flows of Wind Power in Central Europe



- RES electricity from the Northern Germany flows to the demand centers in the South which, together with large volatility of RES generation, creates pressure on the transmission grid
- Management of flows has become increasingly difficult after the first phase-out wave of nuclear units
- Majority of subsidies is allocated directly to the RES and not to the development of infrastructures

THE EMISSIONS ARE RISING DESPITE THE GROWTH OF GENERATION FROM RENEWABLE SOURCES

CO_2 Emissions in Power and Heat Sector
mil. t., Germany



- Emission are rising due to increased coal use as the carbon price plummeted
- The power generation from lignite in Germany is the highest since 1990, also the generation from hard coal has increased by 10% since 2010
- On the other hand gas power generation – the low carbon fuel – is currently out of money

WITH THE VISION OF HIGH CO2 PRICE THE EUROPEAN UTILITIES HAVE MADE CARBON SAVINGS INVESTMENTS ONLY TO WRITE THESE OFF NOW

RWE

- In 2013 and 2014 RWE has written off 3-5 billion EUR mainly from its gas-fired conventional fleet

Vattenfall

- Vattenfall has recorded 2,3 billion EUR impairment in 2013 – this concerned its Dutch gas-fired generation assets

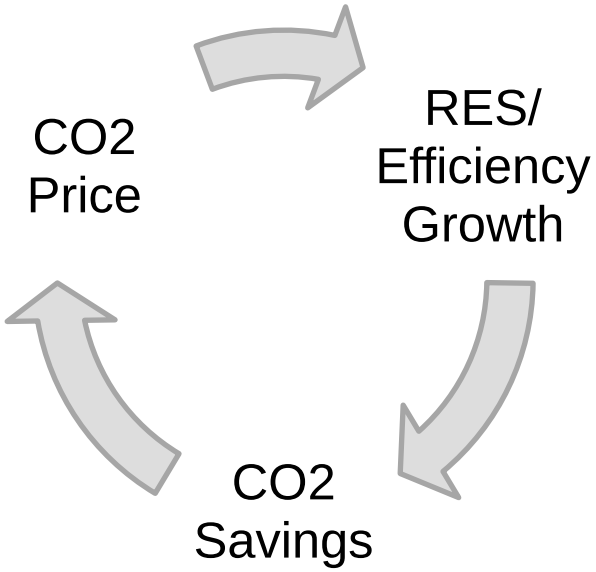
Verbund

- In 2012 160 mil. EUR was written off from brand new CCGT Mellach (started operations in 2012)

E.ON

- One of the most modern European CCGT Irsching 5 is not dispatched in commercial operation but as a strategic reserve for TSO Nejmodernější
- Considerations of re-location of Slovak CCGT in Malzenice (online 2011)

WITH 2030 REFORM THE CARBON MARKET COULD RESTORE ITS PREVIOUSLY PROJECTED LEADING ROLE IN THE ENERGY SECTOR TRANSFORMATION



- Low carbon price does not stimulate emission savings
- Negative price feedback between CO2 price and RES production will ensure a long term organic growth of renewable energy sources
- This system would bring predictability and long term stability needed for long-term investment

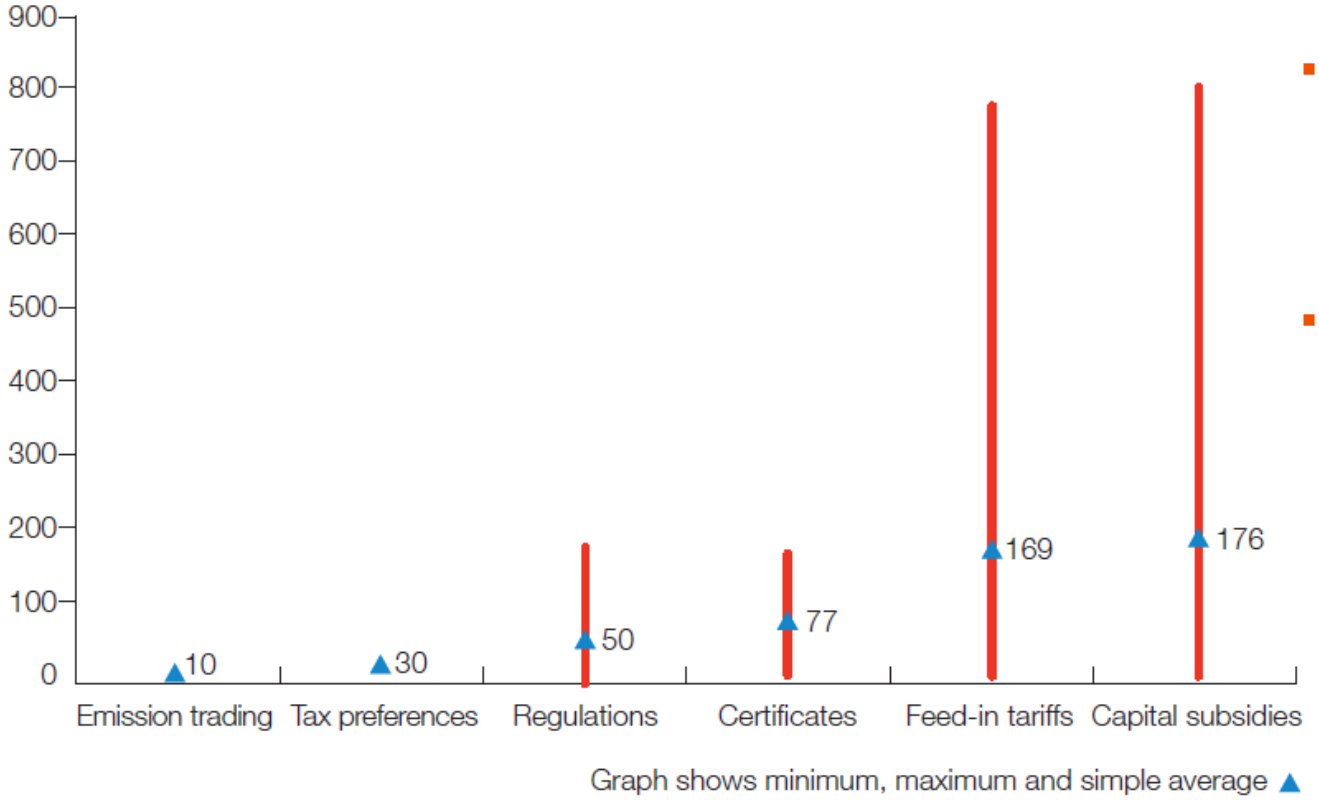
THE MOST EFFICIENT WAY FORWARD IN THE 2030 CLIMATE POLICY IS SETTING ONLY ONE TARGET –

40% REDUCTION OF CO2 EMISSIONS

- A single**, European wide target of 40% emission reduction** is the most efficient and most consistant tool with the internal market
- **No new targets for RES and efficiency** - if needed, all other targets set on a voluntary and national basis should correspond to the national strategic plans
- Multiple goals and measures bring along the risk of negative interactions and overlappings resulting in the reduction of synergies and mutual cannibalization
- The **revised EU-ETS** system must be preserved as the only and fundamental driver of the European decarbonisation efforts as well as the investments into a changing energy sector
- To provide for stability in the decarbonisation effort; the EU-ETS should include supply flexibility feature to reflext the economic conditions

CARBON CREDITS AND TRADING REPRESENT EFFICIENT WAY FOR EMISSION ABATEMENT

Estimated effective carbon prices in the electricity sector by instrument
2010 EUR per tonne CO2 abated

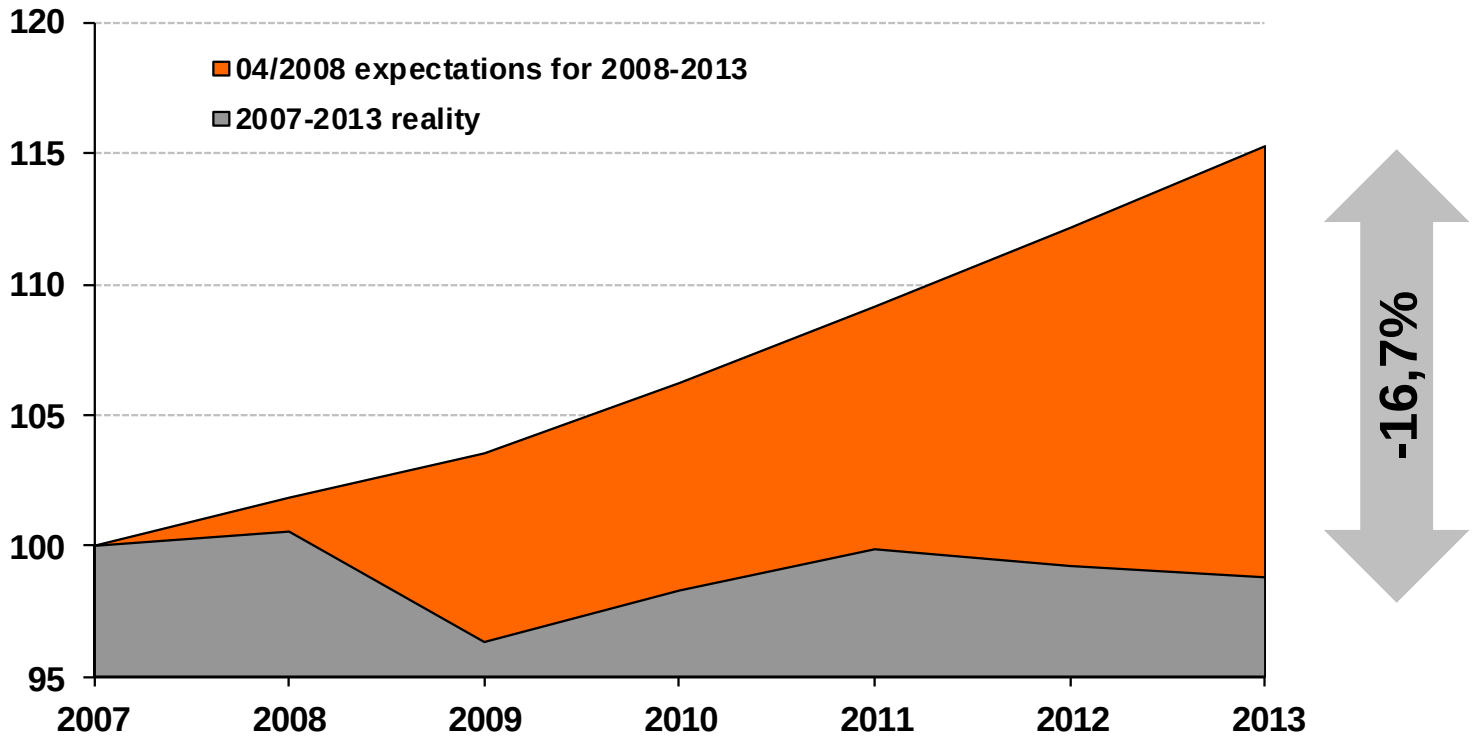


- The carbon savings instruments vary a lot - similar level of CO2 abatement could be achieved at lower cost
- If more reliance was placed on cheaper policy instruments (i.e. the more cost-effective market-based instruments)

 Source: OECD Policy Paper: Climate and Carbon – aligning prices and policies

CURRENT EU-ETS CARBON CREDITS SUPPLY WAS BASED ON PROJECTED ECONOMIC DEVELOPMENT WHICH DID NOT MATERIALIZE

Expectations of IMF and reality of economic growth in the EU
Index HDP, basis 100 in 2007



Source: IMF

THE INTRODUCTION OF MARKET STABILITY RESERVE INTO THE EU-ETS IS THE STEP INTO RIGHT DIRECTION BUT SOME QUESTIONS REMAIN

	European Commission	ČEZ
TARGET	▪ Emissions volume	▪ Emission intensity of economy
SUPPLY	▪ Slightly flexible (stability reserve implemented)	▪ Flexible - based on real production needs and emissions targets
REACTION SPEED IF ECONOMY SLOWS DOWN	▪ Up to 2 years	▪ In months
PRICE STABILITY	▪ Potentially volatile – driven by speculation (future supply is based on current surplus)	▪ Stable – supply based on real production and decarbonisation effort

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