



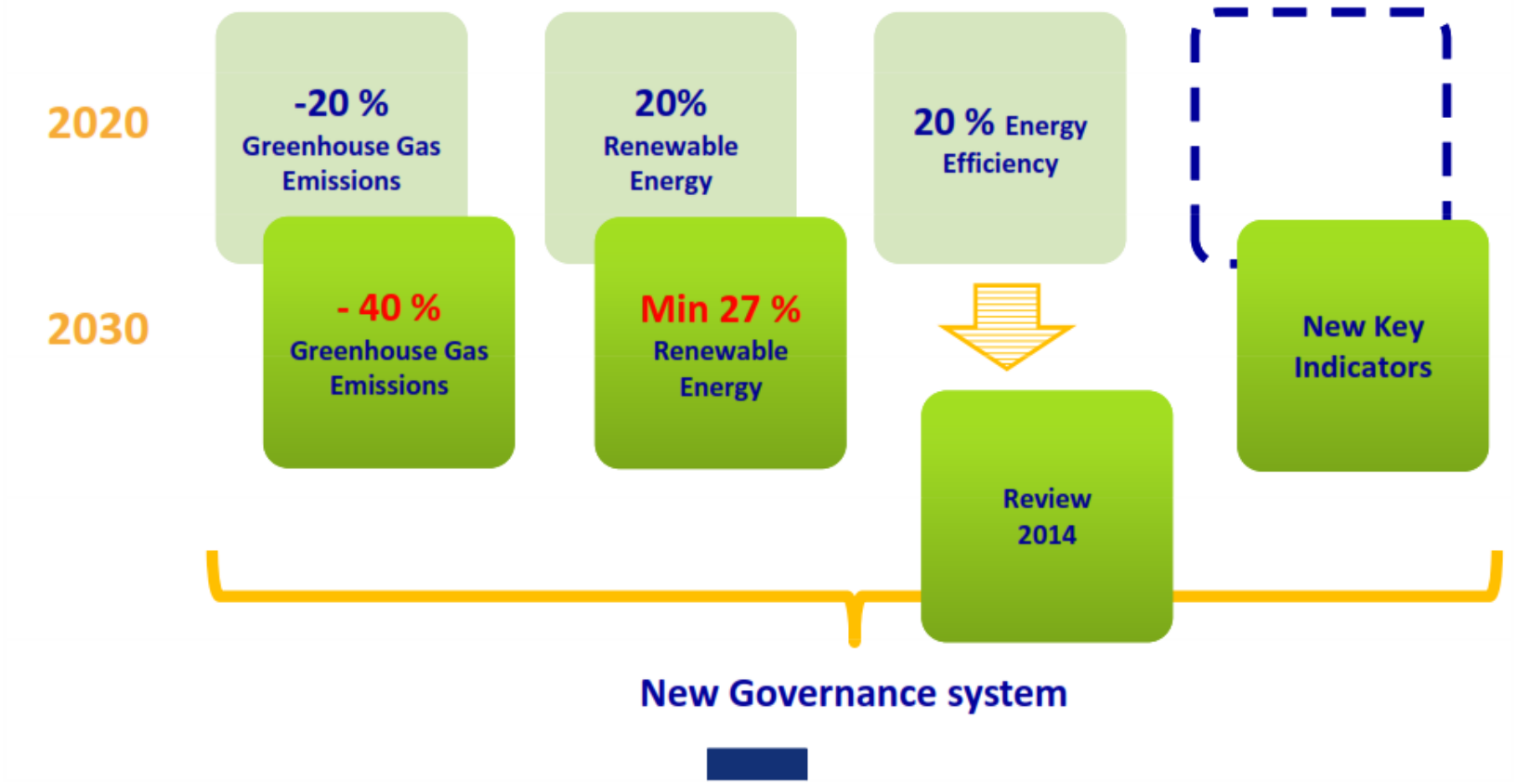
# EU policy signals for investment in power sector transformation

Jesse Scott



European Commission

## Proposed 2030 Framework for Climate and Energy (4): The main components

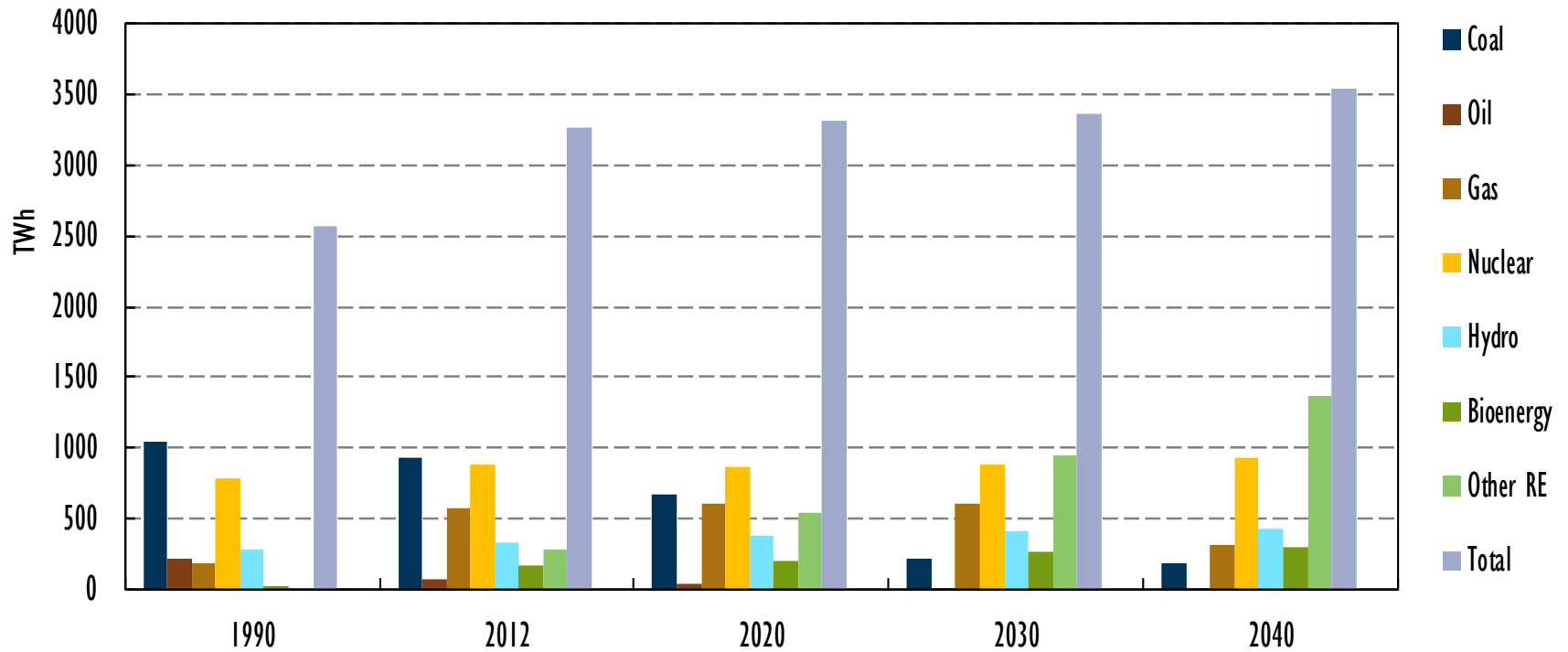


HC out, LC in

# High-carbon retirement / power

## WEO 2014 - European Union 450 scenario

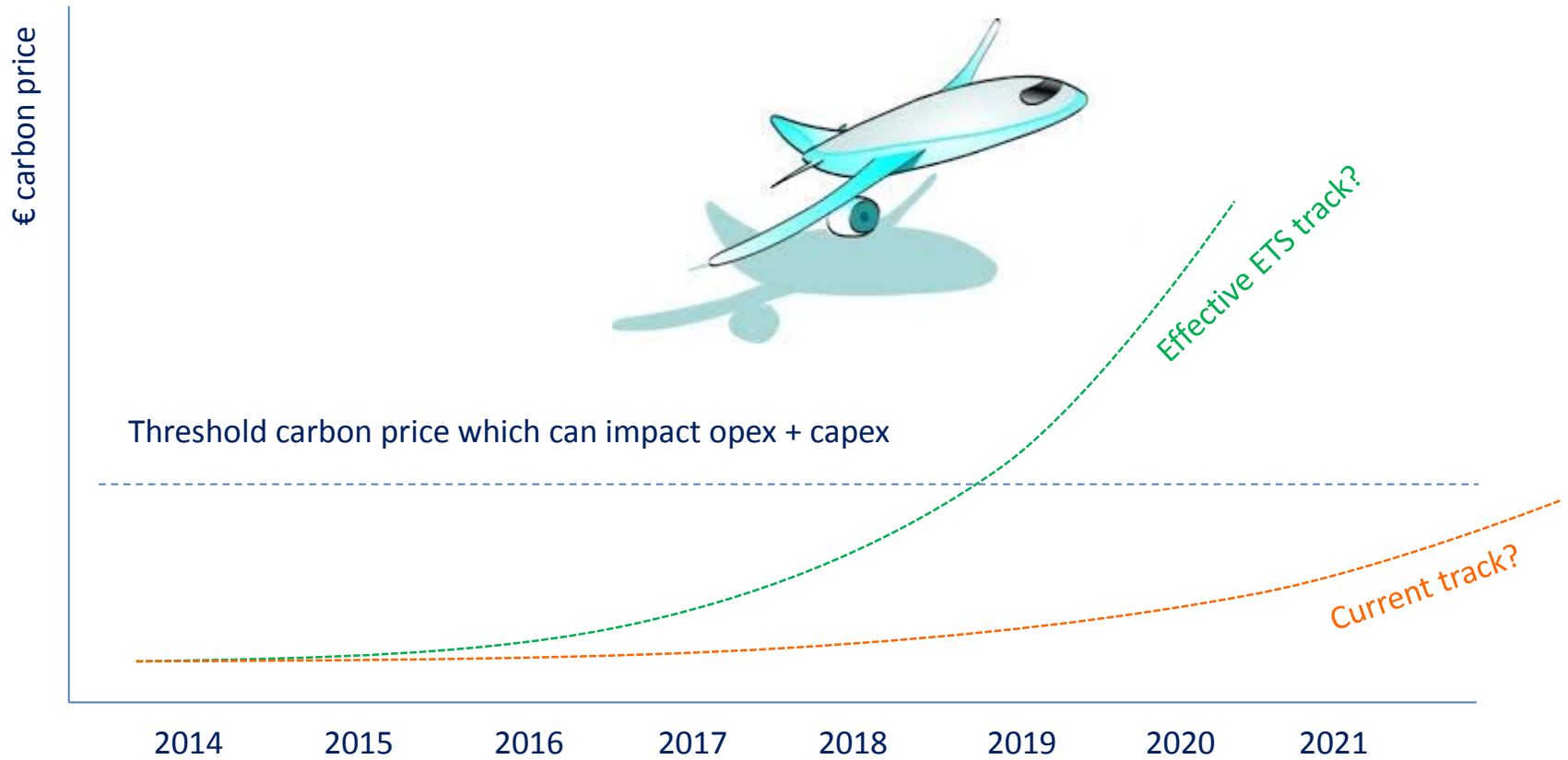
Increasing low-carbon requires high-carbon retirements





# Getting to the goal on ETS

## Reforms need to impact on opex + capex





# The RES increase challenge

21% of electricity mix 2014, to 45% by 2030

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EU RES 2013 – approx 21%



5% biomass



10% hydro



6% intermittent

EU RES 2030 – approx 45%



5% biomass



10% hydro



30% intermittent

**a x5 increase in intermittent generation ?**

EU or national

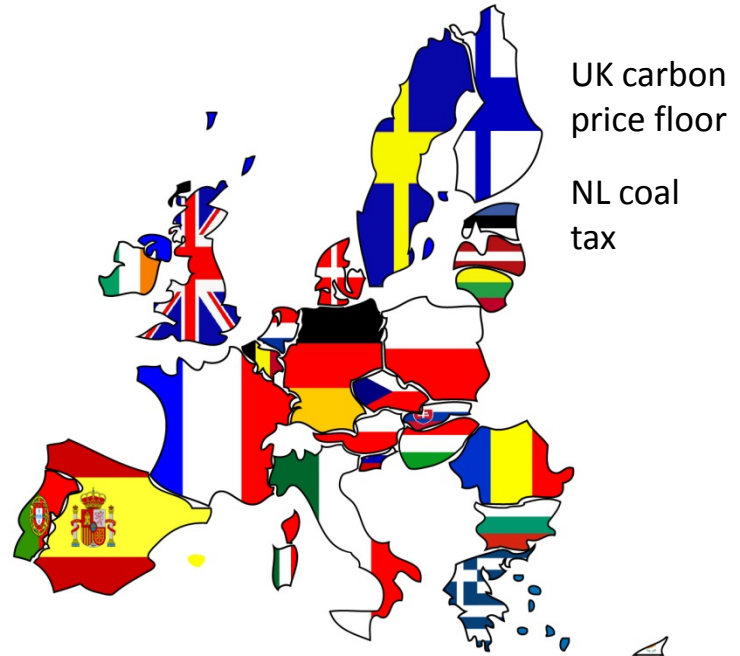
# Today: internal energy market or x28 chaos?

ENERGY MARKET INTEGRATION  
AND (MORE) PREDICTABLE POLICIES



ETS as the key driver  
Strong innovation policy

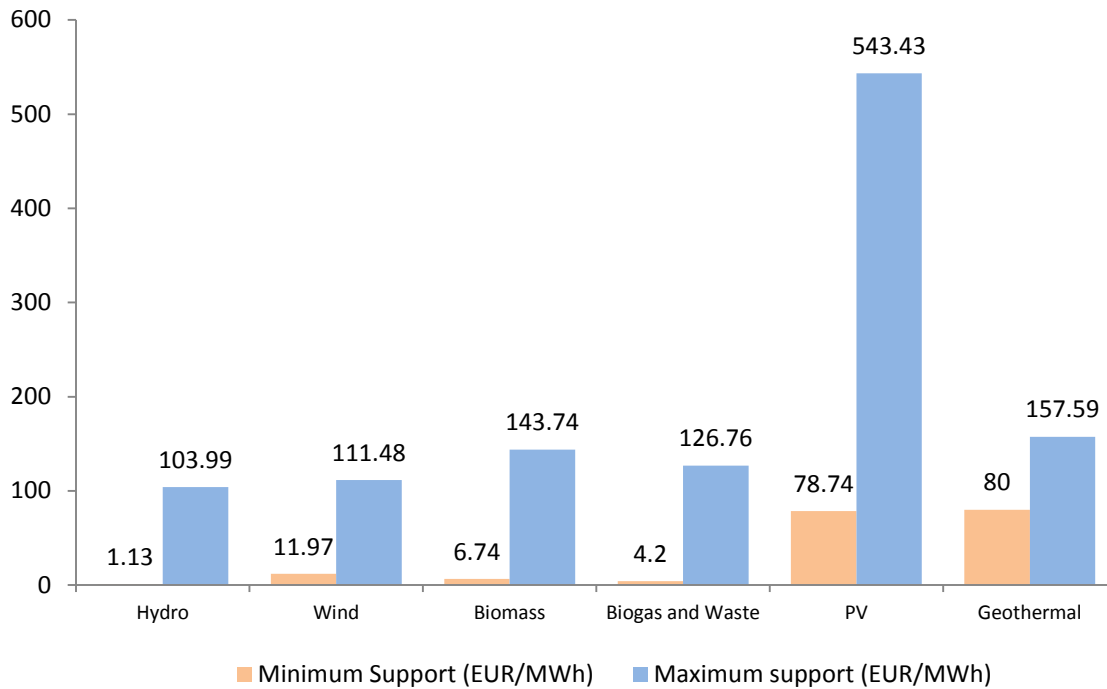
MARKETS ARE FRAGMENTED AND POLICIES  
ARE START/STOP






National RES and EE schemes  
National carbon price floors/taxes  
National capacity mechanisms



# Levels of promotion

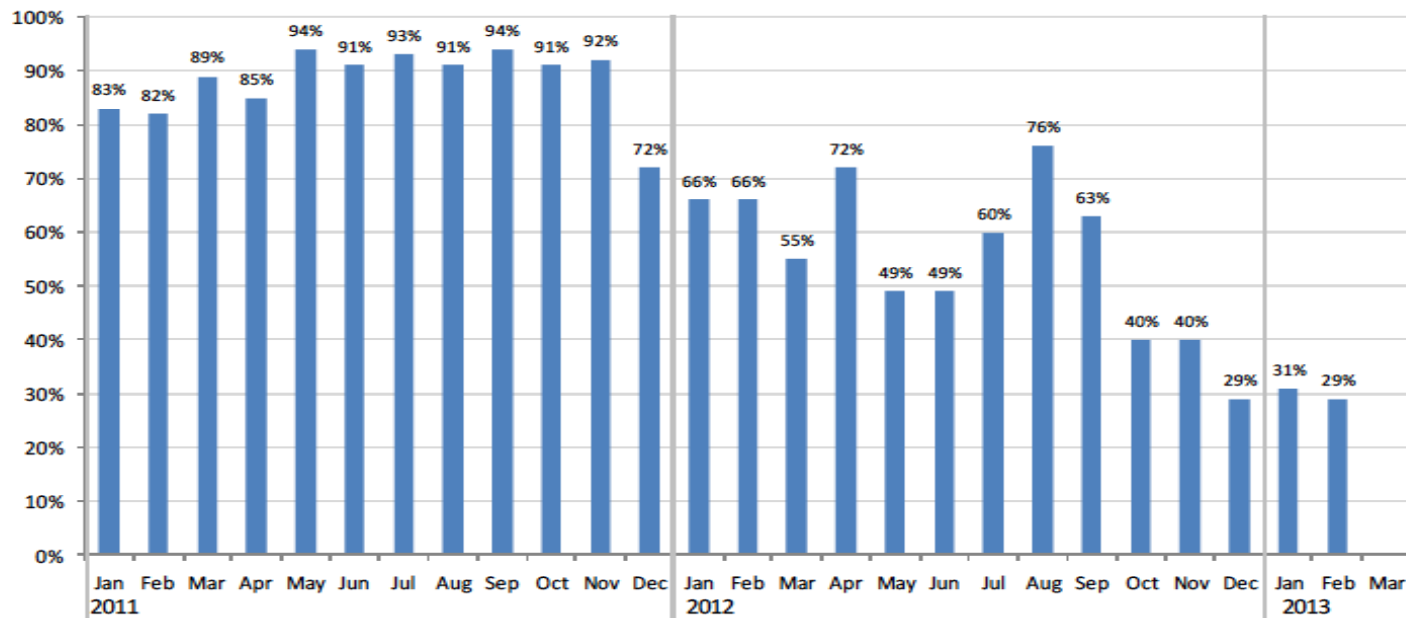


Technology	Min	Max
Hydro		
Wind		
Biomass		
Biogas/Waste		
PV		
Geothermal		

Highly divergent promotion levels across technologies and countries

\* Source: Status Review of Renewable and Energy Efficiency Support Schemes in Europe

# Resulting in renewed price divergences



Renewed price divergences between Germany and the Netherlands show the impact of national climate and energy policies on the internal energy market

*Source: Energie Trends 2012, ECN, Energie-Nederland and Netbeheer Nederland*

# EU Energy Union?

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“The Energy Union can only be achieved through a combination of coherent and coordinated measures at EU and national level while preserving Member States’ right to define policies matching national preferences”



## TITLE XX Environment

Article 191 – objectives of EU environment policy

Article 193 – Member States may take more stringent measures

## TITLE XXI Energy

Article 194 – a Member State's right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply

# The core EU policy objectives

## 2011-2014 Key Commission Communications

DG Energy

DG Climate

DG Competition

**Energy and climate goals for 2030**

**2030 Framework Climate Energy**

**Energy Roadmap 2050**

**energy roadmap 2050**

**EU greenhouse gas emissions and targets**

Policy | Documentation

- 28/10/2014 - IP/14/1202 - EU gears up for 2030 with more emissions reductions
- Annual European Union greenhouse gas inventory 1990-2014 and inventory report 2014 (European Environment Agency)
- Fact sheet - Closing the pre-2020 'ambition gap': the EU contribution (942 kB)
- EDGAR - Emission Database for Global Atmospheric Research
- 26/05/2010 - COM(2010) 265 - Communication from the Commission on the analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage
- 25/06/2002 - 2002/358/CE - Council Decision concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder

**Annual reports on progress towards achieving the Kyoto objectives**

- 2014: Communication (COM(2014) 689) and Annex (SWD(2014) 338)
- 2013: Communication (COM(2013) 698) and Annex (SWD(2013) 510)
- 2012: Communication (COM(2012) 626) and Annex (SWD(2012) 353)
- 2011: Communication (COM(2011) 624) and Annex (SEC(2011) 1331)
- 2010: Communication (COM(2010) 569) and Annex (SEC(2010) 1204)
- 2009: Communication (COM(2009) 630) and Annex (SEC(2009) 1581)
- 2008: Communication (COM(2008) 651) and Annex (SEC(2008) 2636)
- 2007: Communication (COM(2007) 757 final) and Annex (SEC(2007) 1575)
- 2006: Communication (COM(2006) 658 final) and Annex (SEC(2006) 1412)
- 2005: Communication (COM(2005) 655 final) and Annex (SEC(2005) 1642)
- 2004: Communication (COM(2004) 818 final)
- 2003: Communication (COM(2003) 735 final)

**COMPETITION**

**State Aid Modernisation (SAM)**

On 9 May 2012, the Commission set out an ambitious State aid reform programme in the [Communication on State aid modernisation](#).

The modernisation has three main, closely linked objectives:

- Foster growth in a strengthened, dynamic and competitive internal market
- Focus enforcement on cases with the biggest impact on the internal market
- Streamlined rules and faster decisions

State aid control should more effectively target sustainable growth-enhancing policies while encouraging budgetary consolidation, limiting distortions of competition and keeping the single market open.

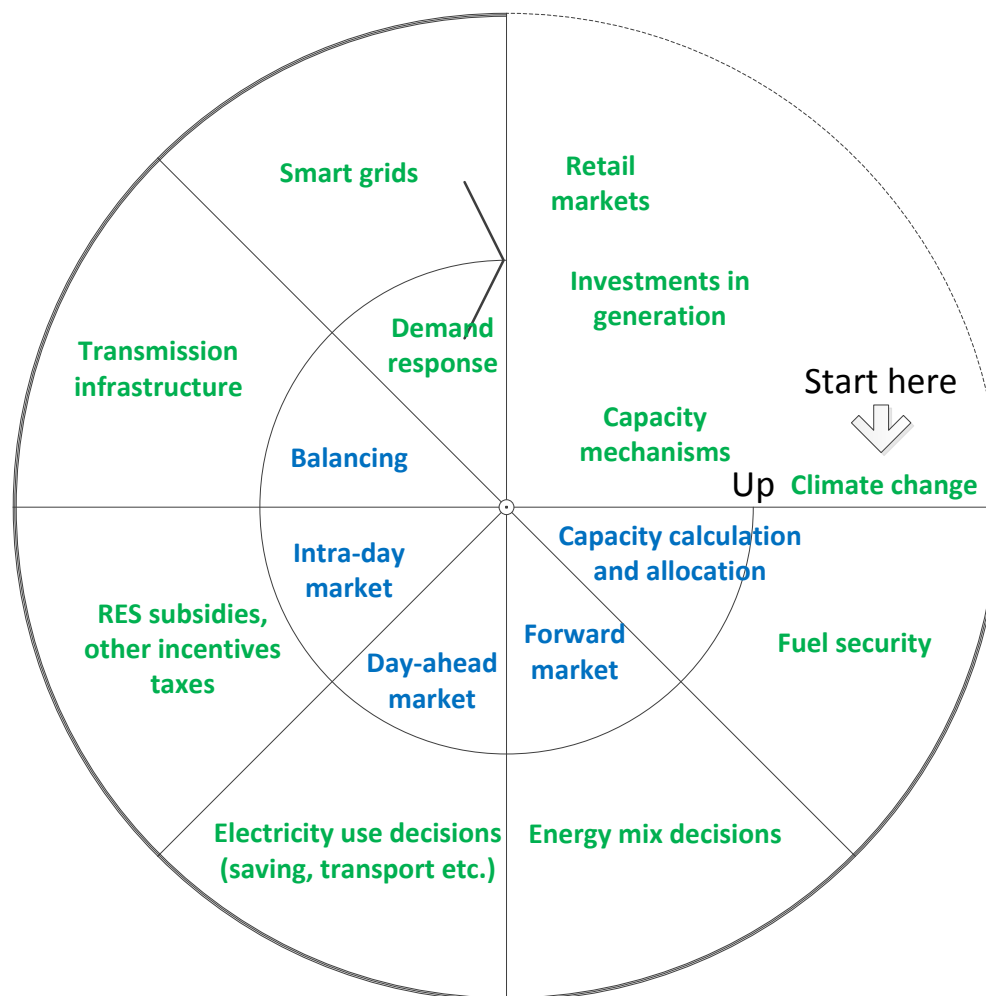
On 17 January 2013, the European Parliament adopted a [Resolution on State Aid Modernisation](#), broadly supporting the initiative and its objectives. On 15 November 2012 the European Economic and Social Committee adopted an [opinion](#) on SAM. Likewise, on 29 November 2012, the Committee of the Regions adopted an [opinion](#) on SAM.

# Markets and policies



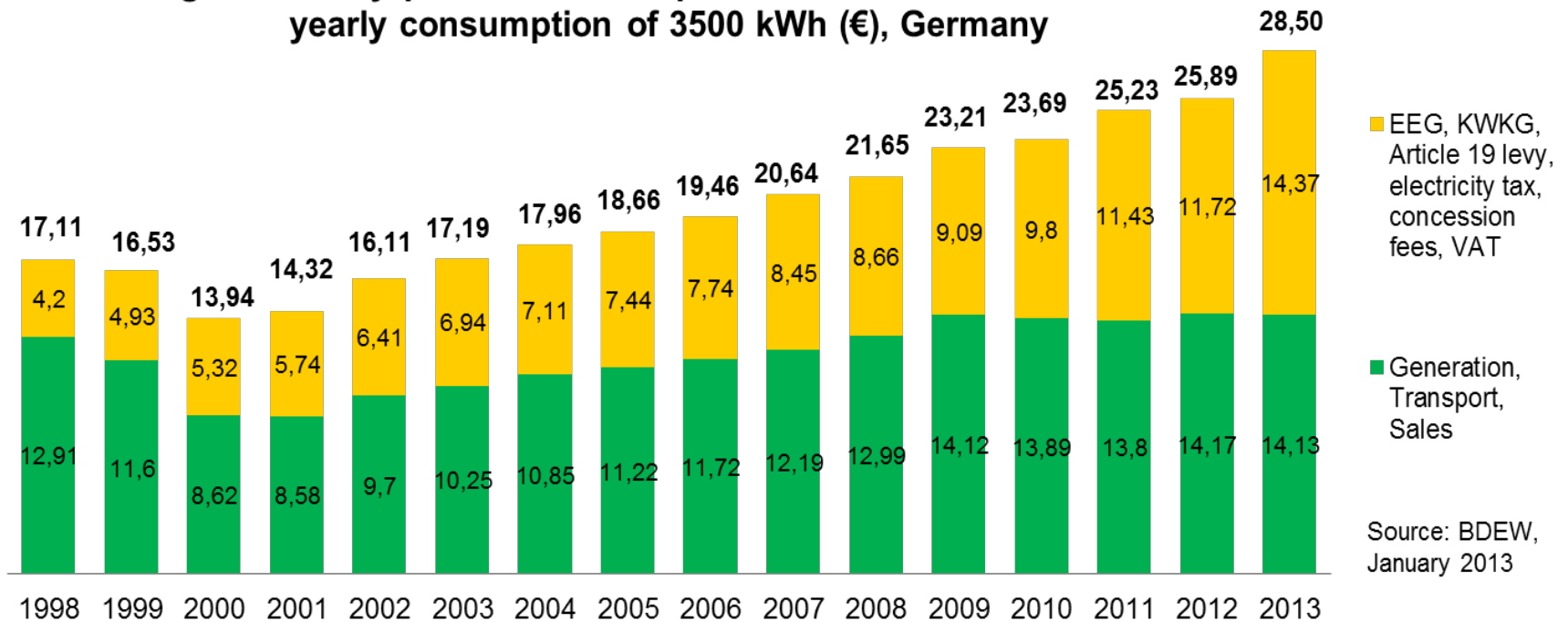
# The core EU policy objectives

## DG Energy view on the evolution of climate and energy policy



# What's driving price rises?

Average electricity price for a three-person household in ct/kWh with a yearly consumption of 3500 kWh (€), Germany



Investing?





# Institutions and politics

## Junker Commission work plan and policy teams for decarbonisation

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The leaked early Commission draft on Energy Union includes some useful clarity about which Commissioners will team up to tackle different pieces of the decarbonisation/2030 drafting task during 2015-16.

- EU position on international climate process - **Arias Cañete, Georgieva, Mogherini, Mimica**
- ETS and carbon leakage - **Arias Cañete, Bienkowska**
- Effort-sharing - **Arias Cañete**
- Renewables - **Arias Cañete, Vella, Hogan, Bill, Moedas**
- Fuel economy/transport - **Arias Cañete, Bulc**
- Smart meters - **Arias Cañete, Oettinger**
- Energy efficiency and energy performance of buildings - **Arias Cañete**
- CCS - **Arias Cañete, Moedas**
- Biomass - **Arias Cañete, Moedas, Vella, Hogan, Bulc**
- Governance - **Junker, Sefcovic, Arias Cañete**
- IED/air quality - **Arias Cañete, Vella, Bienkowska, Hogan, Bulc, Moedas**
- Land use - **Arias Cañete, Hogan, Vella, Moedas**

Does the 2015-16 timeline imply that the 2030 draft legislative package would not be published until after Paris?

# The road to a 2030 framework

## It's not over until...

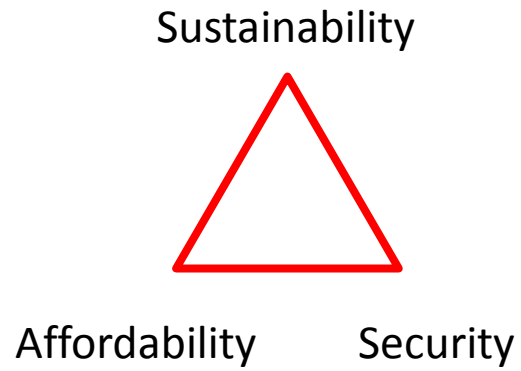
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- Step 1: 22 Jan 2014: Commission proposals on goals
- Step 2: October 2014: European Council political decision on goals
- Step 3: 2015: Commission drafts legislation to implement goals, spread burdens  
**The devil is in the details**  
**And new Commissioners might have new ideas**
- Step 4: 2016-18: Parliament and Council Co-Decision on legislation  
**The EP definitely has its own ideas**  
**Elections in Member States can mean changes of government**
- Step 5: 2018-19: National transposition where necessary  
**More details**



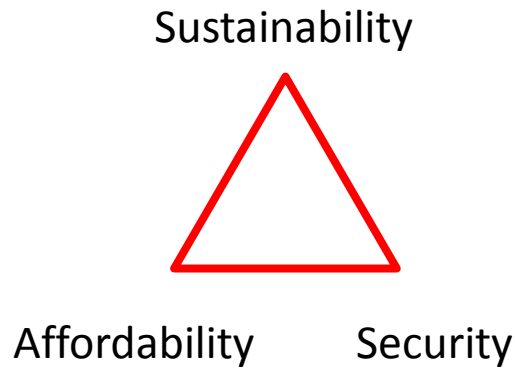
# EU energy policy decisions – a double “trilemma”

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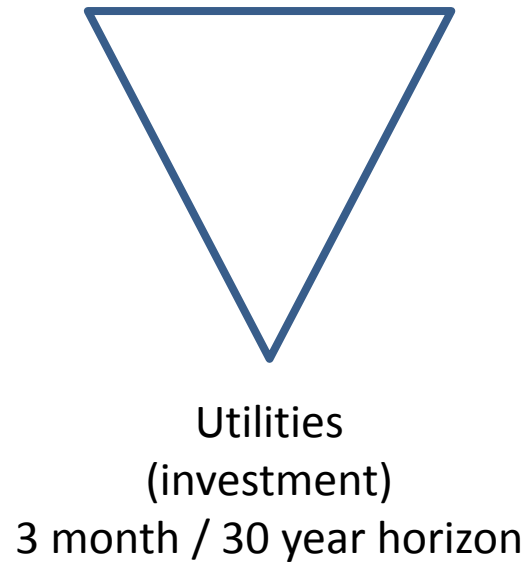
# EU energy policy decisions – a double “trilemma”

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Commission  
(market rules)  
10-15 year horizon

Member States  
(energy mix)  
3 year horizon



# Politics is rarely linear

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In theory:

$$2 + 2 = 4$$

In reality:

$$1 + 5 - 3 + \frac{1}{2} = 3\frac{1}{2}$$

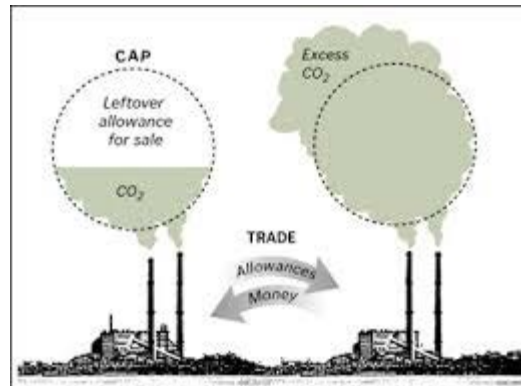
Back up slides

# Carbon reduction signals

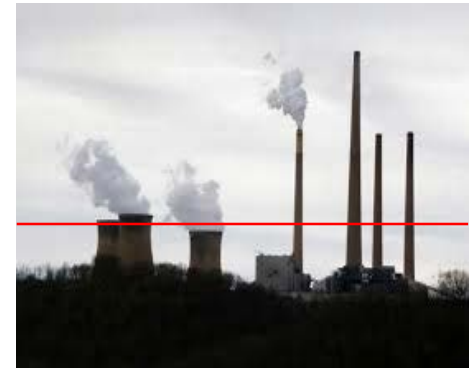
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Carbon tax (x28 national, not EU)



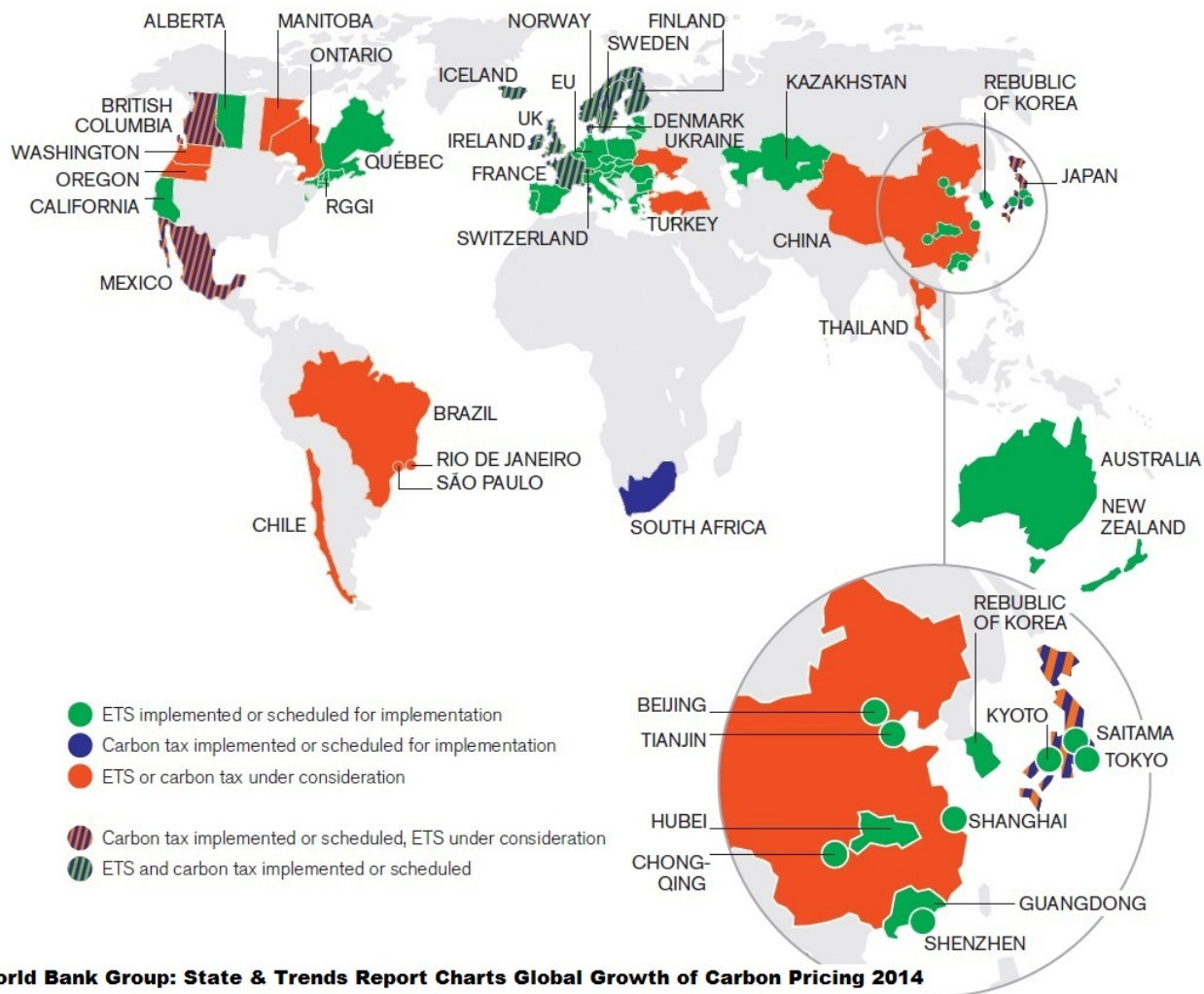
Cap-and-trade market = ETS



Emissions limit values (portfolio/plant)

# Global success of the ETS model

Figure 1 Summary map of existing, emerging, and potential regional, national and sub-national carbon pricing instruments (ETS and tax)





# ETS problems and reforms

## 3 different problems, 3 different solutions

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Short-term: Surplus of 2.6bn EUAs by 2020

***Solution: permanent set-aside***

Medium-term: Fixed supply and demand shocks result in price volatility

***Solution: market stability mechanism***

Long-term: The ETS cap is not coherent with the EU 2050 goal

***Solution: strengthen the linear factor***

# What ambition, when?

## Early, economy-wide, high ambition

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- Climate is a lower political priority than before the economic crisis, BUT there is still some priority and therefore some policy ambition
- The power sector is always the first (easy) target for climate policy
- Therefore we face a choice:

No ambition

(Not a realistic option  
for the power sector)

Low ambition  
= few sectors (power)  
= stop/start policies

Costs the power  
sector investment in  
low-carbon  
technologies and loss  
of market share from  
energy saving

High ambition  
= whole-economy  
= stable policies

Gains the power  
sector new market  
share through  
electrification of  
additional sectors

# What ambition, when?

## Power Choices Reloaded – high cost of a Lost Decade

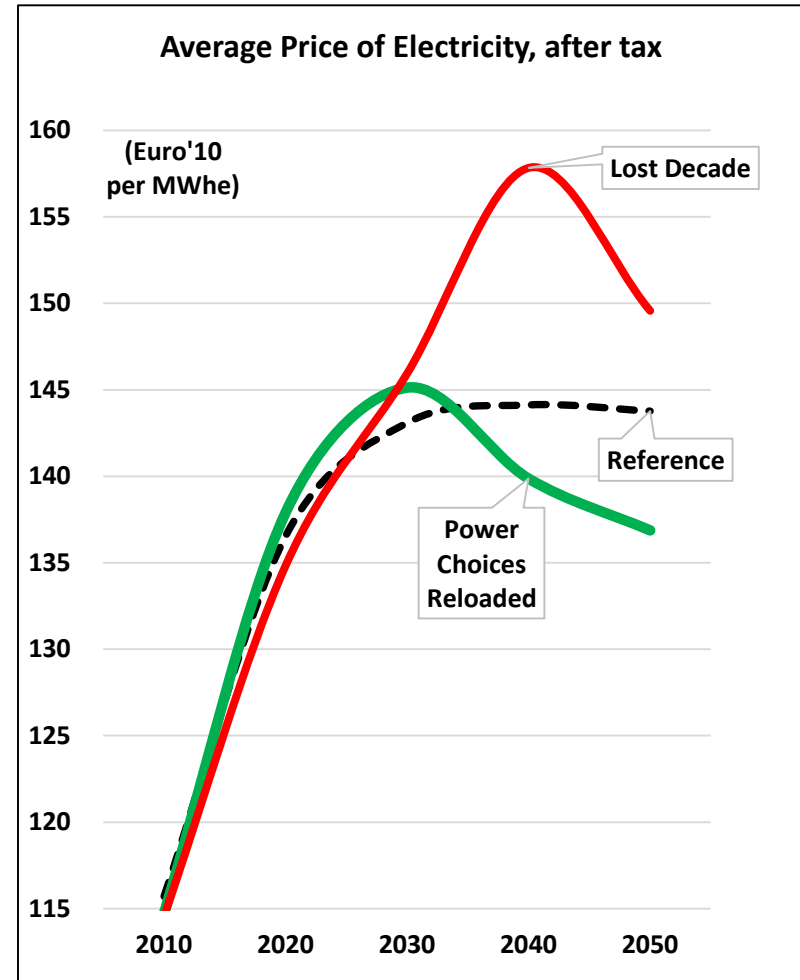
Power Choices Reloaded's *Lost Decade* modelling scenario assumes a complete lack of action in the decade 2020-2030, therefore the entire decarbonisation action has to occur in the last two decades to 2050

Infrastructure, power sector decarbonisation, mobility electrification and technology R&D, as well as energy efficiency in the demand side sectors will have to develop in a very short period of time post-2030

The changes required in the system from 2030 to obtain the necessary cumulative emissions reductions by 2050 result in this scenario being barely feasible in true life

### Key failures involved in the Lost Decade case

- **Weak carbon market until 2030**
- **Limited financing under uncertainty hampering investment**
- **Market coordination failures delaying infrastructure**
- **Non-completion of IEM leading to low cross-border energy trade**
- **Slower pace of technology progress: learning curves and build up of supply chains**
- **Delays to energy efficiency persisting up to 2030, especially on the demand-side and in electrification**

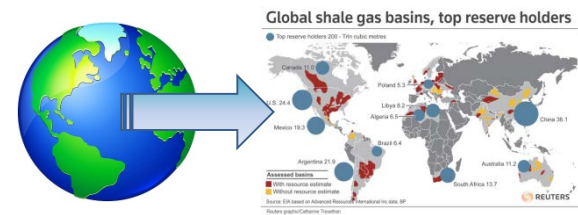


# Competitiveness, energy and climate

## What's at issue?

- **There is no such thing as a global level playing field on energy**

- Europe and the US have different energy situations, so need different energy strategies



- **Competitiveness is a whole-economy issue**

- Policies favouring/exempting one sector may have a negative impact on other sectors



- **Intra-European tax/price/policy differentials result in intra-European leakage**

- Dutch and German steel compete in the same market but under different renewables, carbon and power prices



# Market design for investment in decarbonised electricity

