



European  
Commission



# 2030

**FRAMEWORK**for**CLIMATE&ENERGY**

#EU2030

# Outline

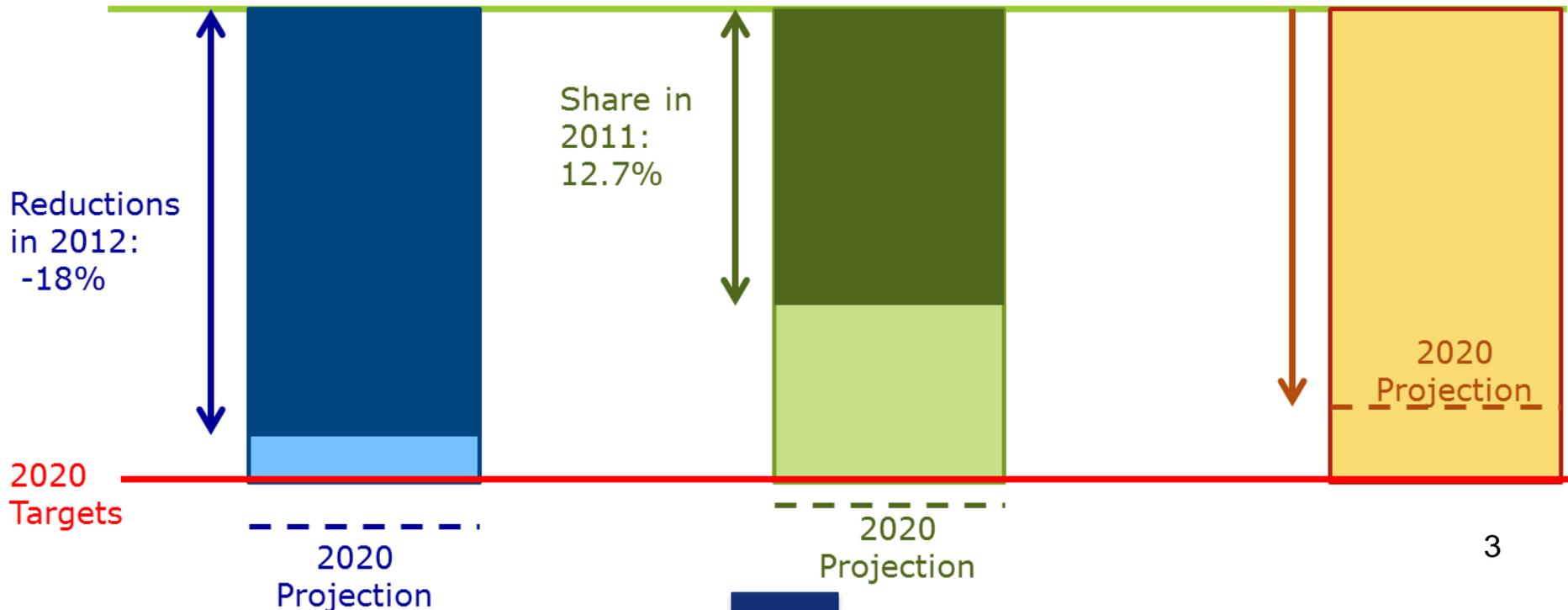
- 1. Climate and energy: where do we stand?**
- 2. Why a new framework for 2030?**
- 3. How it works**
- 4. Main challenges...**
- 5. ...and benefits**
- 6. Other key points**
- 7. Next steps**

# 1. Climate and energy: where do we stand?

- Progress towards the 2020 goals

Reduce GHG levels  
by 20%

Increase share of  
Renewables to 20%



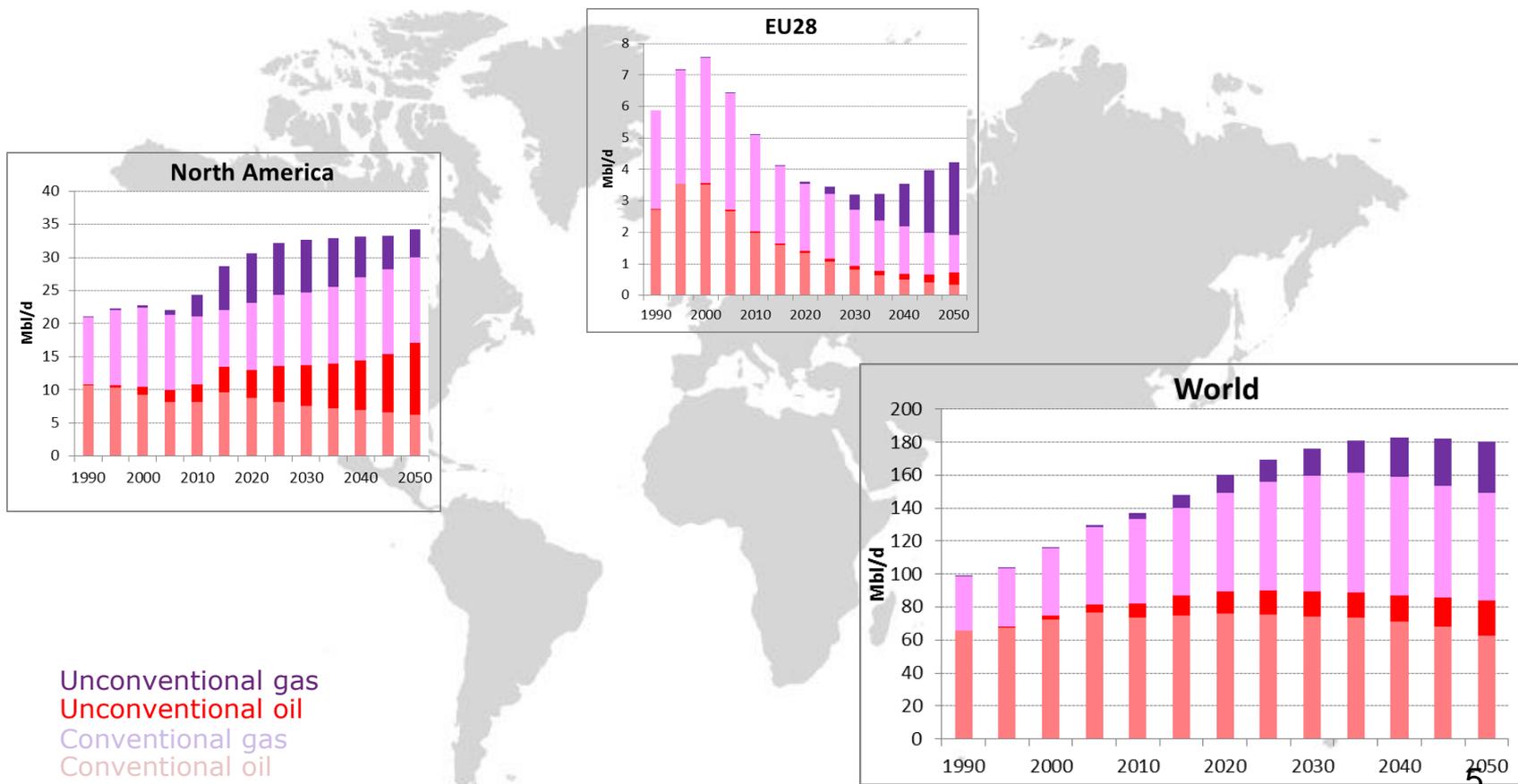
# 1. Climate and energy: what is new?

- ❑ **New, unconventional fossil resources in some countries**
- ❑ **Impact of the financial crisis: fall in private investments, tight financial conditions**
- ❑ **Fukushima: some countries decommissioning nuclear**
- ❑ **Rising demand & rising prices in the international context**
- ❑ **Renewable energy experienced rapid cost decreases and technologies become gradually competitive**



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# Future Oil and Gas production, Baseline



Unconventional gas  
Unconventional oil  
Conventional gas  
Conventional oil

Source: POLES model, JRC

# Why the need for a framework?

- Cost-effective pathway to achieve long term climate objectives of at least -80% in 2050
- Need for credible policy context up to 2030 for long-term investments in energy system and research

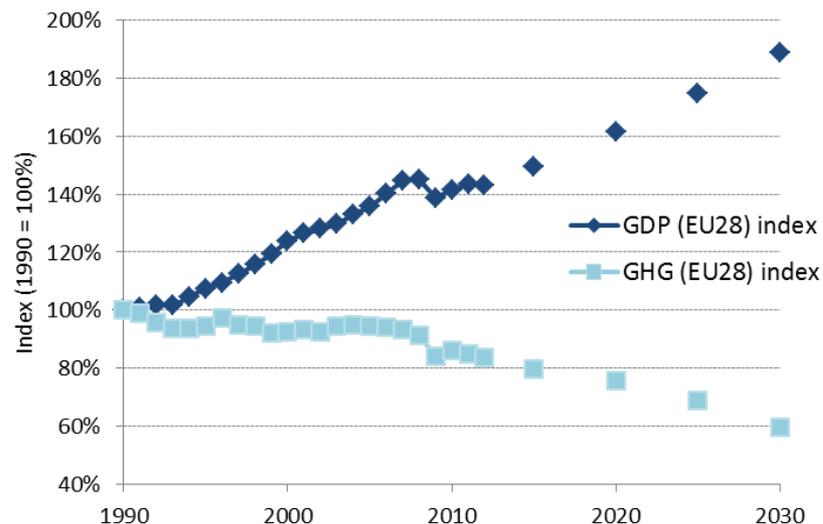
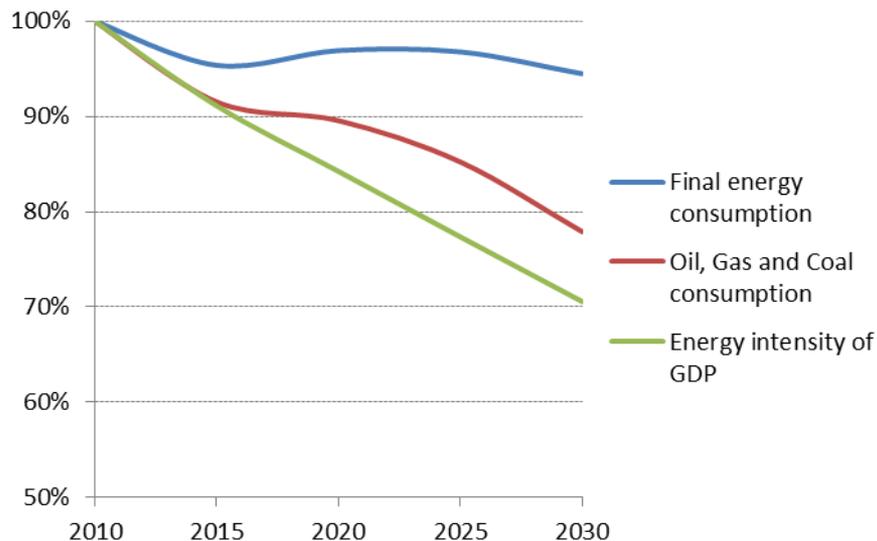
# International context

- US administration and states take real reaction: expectation further step-up after mid-terms at the end of the year (need for international partner)
- China is moving fast
- Carbon markets in South Korea, California, and regional pilot system in China
- International Agenda:
  - Ban Ki-Moon Climate Summit (23/09/2014)
  - COP 2015: Paris Summit

## Benefits

- Avoided damage: climate impacts (PESETA), as well as health and air pollution
- Energy security: less dependence on instable regions and price shocks of fossil fuels (-11% energy imports by 2030)
- Financial security: net energy import bill is 400 billion € in 2012 (3.1% of EU GDP), twice level of past 2 decades
- Innovation and improved energy efficiency
- Employment and Growth if wise use of carbon tax revenues

## Decoupling of GDP and GHG



Source: POLES model, JRC

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- **Fuel savings:** additional € 18 billion fuel per year next 2 decades
- **Energy security:** additional 11% cut in energy imports in 2030
- **Innovation:** jobs & growth
- **Health and air pollution benefits:** €7-13.5 billion in 2030

# **What are the key initiatives in 2030 Climate and Energy Package?**

- **Communication: "A policy framework for climate and energy in the period up to 2030"**
- **A Communication and a report on Energy Prices and Costs for the European Council**
- **A Communication on industrial policy "For a European industrial renaissance"**
- **A Recommendation on the sustainable exploitation of shale gas**

# What is proposed?

- **Binding and unconditional target of 40% domestic GHG reduction in 2030:**
  - 40% = EU ETS Target + national non-ETS targets
- **Binding EU renewable target of 27% in 2030**
- Later in 2014: Review of the Energy Efficiency Directive, based on progress assessment

# Energy market and system

- Transformation of EU energy infrastructure
  - **Cross-border connections**
  - **Storage potential**
  - **Smart grids**
- Need for undistorted competition and enforcement of state aid rules
- More flexibility for MS to set national RES targets
- Supportive EU environment: e.g. strengthened EU ETS: reduce need for financial support
- Strong European Governance Framework

## Energy: New Governance system

- National plans for competitive, secure and sustainable energy

Commission develops **detailed guidance**

Member States prepare plans based on **an iterative process**

**Commission assesses** Member States' plans and commitments

Include **domestic objectives** on:

- non-ETS GHG emissions
- renewable energy
- energy savings
- energy security
- ....

# ETS

- -43% compared to 2005
- Maintain role as credible and cost-effective instrument
- Reform of ETS to correct current market imbalances: introduction of **market stability reserve** (backloading is temporary fix)
- Increase linear reduction factor as of 2021 from **1.74 %** to **2.2%**
- Higher carbon prices reduce need for national RES support and are a signal for investment

## Non-ETS

- Increase from -10% to -30% by 2030 compared to 2005
- Translation into national GHG targets
- More equitable distributional mechanisms
  - **Differentiation of non-ETS targets**
  - **Distribution of auctioning revenues**

# Competitiveness

- **Taking into account the concerns of energy intensive industries on carbon leakage**
- **Maintain system of free allocation after 2020, if no comparable climate action at international level. With increased focus on sectors most at risk.**

## Other key policy areas I

### *Agriculture*

- **Agricultural non-CO<sub>2</sub> emissions** included in own EU 2020 target
- This EU target does **not include** CO<sub>2</sub> emissions and absorptions from **land use** (e.g. CO<sub>2</sub> stored in forests and soil carbon)
- **Sectors are overlapping** (e.g. fertiliser and tillage methods impact non-CO<sub>2</sub> emissions as well as soil carbon)
- All sectors need to be included in the 2030 framework to contribute in a cost-effective way to the **mitigation efforts**

## Other key policy areas II

### *Transport*

- **Transport White Paper** goal to reduce GHG Emissions from the transport sector by 20% by 2030 compared to emissions in 2008
- Will require gradual transformation of the entire transport system

### *Air Quality*

- **Clean Air Policy Package** presented on 19/12/2013
- New targets to reduce (non-GHG) air pollutants by 2030

### *Carbon Capture and Storage*

- Carbon Capture and Storage important for **long term Greenhouse Gas Emissions reductions**, certainly for certain industrial processes
- Supportive EU framework with support from Member States:
  - Use of **auctioning revenues**
  - Development storage and **transport infrastructure**

## Role of JRC?

- *As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.*
- **Quantitative assessment and modelling of policy proposals of the European Commission: IMPACT ASSESSMENT**

# Where do Impact Assessments fit into the decision-making?

- An assessment of the potential economic, social and environmental consequences before proposing new initiatives
- A process preparing evidence for political decision-makers on all benefits and costs of policy options by assessing the potential impact.
- Impact assessment is an aid to political decision, not a substitute for it. It informs decision-makers of the likely impacts of proposals, but it leaves the decision to them.
- Responsibility of for both policy development and assessment of the impact (IA unit + horizontal steering group).
- 
- Expertise within the Commission together with inputs from stakeholders
- Quality control and Transparency: IA Board with publication of IA's and IAB opinions

# Steps of Impact Assessment

1. Identify problem and assess need for EU-level intervention
2. Define objectives
3. Develop policy options
4. **Design a robust baseline**
5. **Analyse impacts of the options**
6. **Compare the options**
7. Outline future monitoring and evaluation arrangements

# Modelling in the 2030 Energy and Climate Package

- JRC contribution with GEM-E3\*
- Other in-house models: POLES, TransTools
- 'Modelling Toolbox' of Impact Assessment
  - PRIMES (NTUA): Energy System
  - CAPRI (EuroCare): Agriculture
  - GAINS (IIASA): non-CO2 GHG emissions
  - GLOBIOM-G4M (IIASA): LULUCF emissions
  - E3ME/E3MG (Cambridge Econometrics): macro-economics

# Free allocation: windfall profit or not?

1. Product price includes carbon price:
  - **Windfall profit? Reason to auction (E.g. power sector)**
  - **Taxation with revenue recycling is better than free allocation (soft double dividend)**
  
2. Product price does NOT include carbon price
  - **Trade exposed sectors**
  - **Future allocation depends on current output**
  - **Higher output levels than in option 1**
  - **Higher carbon price, and higher electricity price**
  - **Potentially higher revenues if power and non-ETS are taxed**

# EU only -40%: GDP and Employment

Auctioning in ETS	Only Power sector	Only Power sector	Only Power sector	All sectors ETS
Tax in the Non ETS sectors	No	No	Yes	Yes
Recycling method for revenues from carbon pricing	Subsidy for consumers	Labour cost reduction	Labour cost reduction	Labour cost reduction
% change GDP	-0,45%	-0,40%	-0,21%	-0,10%
% change employment	-0,61%	-0,44%	-0,02%	0,20%
<b>Millions of jobs</b>				
Millions of jobs	<b>-1.33 mio</b>	<b>-0,96 mio</b>	<b>-0,04 mio</b>	<b>0,43 mio</b>
Ferrous metals	-4%	-4%	-3%	-2%
Non-ferrous metals	0%	0%	2%	2%
Chemical Products	-1%	-1%	0%	1%
Non-metallic minerals	-3%	-3%	-3%	-2%

# EU action with international action

	Reference	35% GHG domestically	45% GHG domestically	45% GHG with 35% domestically	
<b>Other countries</b>	Reference	Reference	Global action domestically	Global action domestically + effort for carbon markets	
	EU	EU	EU	EU	Global
<b>Total GHG vs 1990</b>	-32%	-35%	-45%	-35%	/
<b>ETS GHG vs 2005</b>	-36%	-37%	-49%	-34%	na
<b>Non-ETS GHG vs 2005</b>	-20%	-25%	-35%	-28%	na
<b>GDP</b>	na	-0,21%	-2,20%	-0,53%	-1,86%
	Reference	40% GHG domestically	50% GHG domestically	50% GHG with 40% domestically	
<b>Other countries</b>	Reference	Reference	global action domestically	Global action domestically + effort for carbon markets	
	EU	EU	EU	EU	Global
<b>Total GHG vs 1990</b>	-32%	-40%	-49%	-42%	/
<b>ETS GHG vs 2005</b>	-36%	-43%	-54%	-45%	na
<b>Non-ETS GHG vs 2005</b>	-20%	-30%	-38%	-32%	na
<b>GDP</b>	na	-0,45%	-3,40%	-1,22%	-1,97%

# THANK YOU!

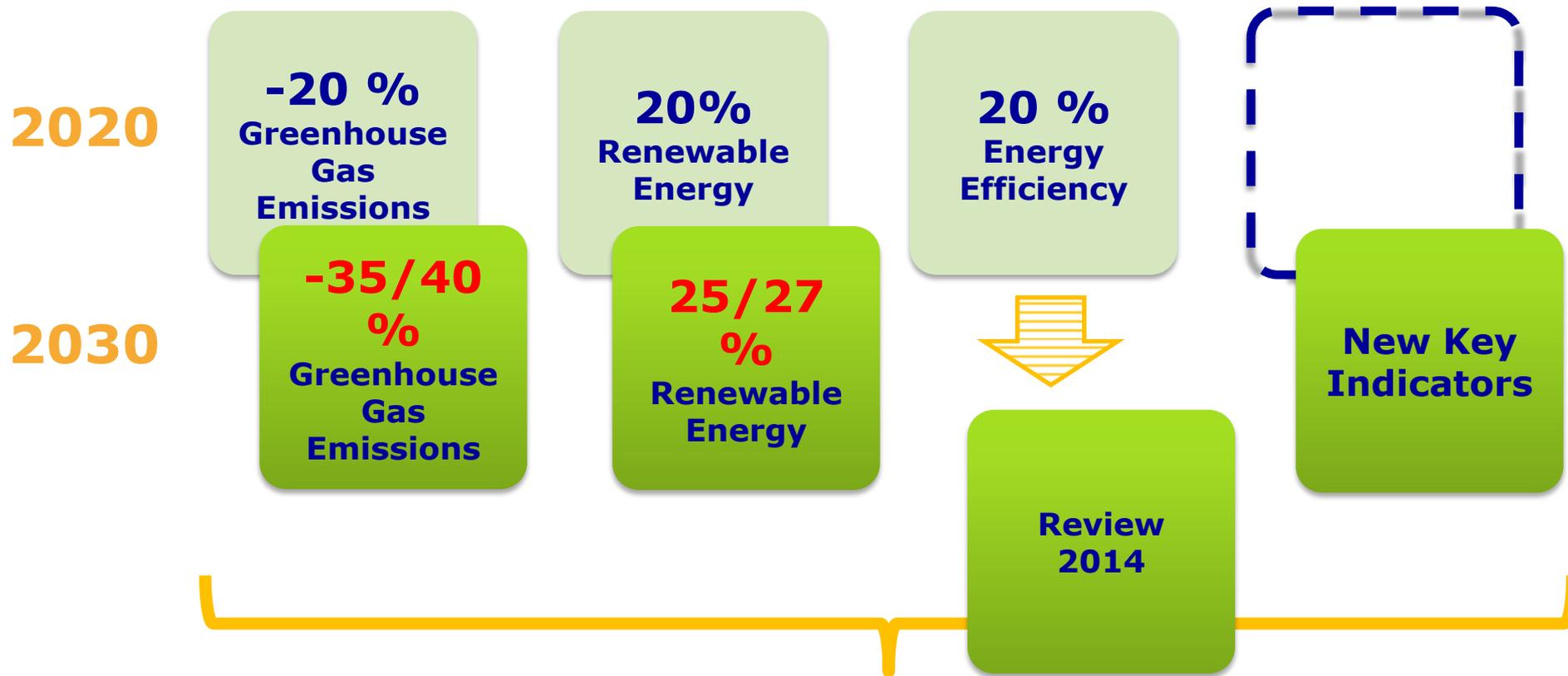
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[ec.europa.eu/energy/2030](https://ec.europa.eu/energy/2030)

[ec.europa.eu/clima/2030](https://ec.europa.eu/clima/2030)

## How it works



**New governance system**

## How it works

- **Key indicators**



Energy price  
**differentials**



**Diversification**  
imports,  
**share** of  
indigenous energy



**Smart grids** &  
connectors  
between Member  
States



**Intra-EU**  
**coupling** energy  
markets



**Competition** and  
market  
**concentration**



Technological  
**innovation**

## Main challenges...

### Energy costs

- **Increasing** in any event: renew **ageing** energy system, rising fossil **fuel prices**, adherence to **existing policies**

### Additional **investments** to achieve 2030 framework

- Shift away from **fuel expenditure** towards investments, additional **€ 38 billion** investment/year 2011-2030

### Differences between Member States

- Future discussion will have to be centred on how to ensure an **equitable burden sharing** affordable for all

## Other key points

- **Reform of the European carbon market (EU Emissions Trading System)**
- Large and persistent **market imbalance** (surplus >2 billion)
- **Back-loading** of auction volume only a first, temporary step
- Proposal to create a **market stability reserve** from 2021 onwards to make EU **Emissions Trading System more resilient** to demand shocks
- After decision on 40% Greenhouse Gas Emissions reduction target: Increase linear reduction factor as of 2021 from 1.74 % to 2.2% to **align the Emissions Trading System** cap to agreed 2030 target
- **Carbon leakage**: Stable framework for this decade, continued but more focused free allocation after 2020

## Next steps

### At a **European level**

- **March 2014: European Council, European Parliament**
- **Energy Efficiency Directive:** 2014 Review and proposals
- **Emissions Trading System proposal:** co-decision procedure
- Development/implementation of new governance structure
- Competitiveness and energy security indicators

### And at an **international level**

- 2014: Ban Ki-moon Climate Summit of World leaders
- 2015: contributions from Parties; Paris conference adopts **international agreement**

# Background information

## Market stability reserve

- **Regular publication** of the market balance ("total number of allowances in circulation")
- In **case of large number of allowances** in circulation, i.e. not needed for compliance, **auction volume is reduced** by transferring allowances into reserve
- In case of **increasing demand and small number** in circulation, **auction volume is increased** by releasing allowances from reserve
- Reserve transfers (in and out) **protect carbon market** from demand shocks

# Background information

## Competition in integrated markets

- Completion of the **internal energy market** continued priority
- **Households** (integrated and competitive energy market could result in cost savings of €40-70 billion until 2030)
- Reform of subsidy mechanisms for renewables to more **market oriented approach** for mature technologies
- For industries exposed to **international competitiveness**: to limit risk of carbon leakage continue system of free allocation after 2020 if other major economies do not take comparable action, but improve the system to focus it more

# Background information

## Innovation and finance

- Upscale **funding for R&D and innovation** beyond current Horizon 2020
- Use of an **expanded NER300 system** will be explored (including innovative technologies for industry)
- **EU funding 2014–2020** is available under the European Structural and Investment Funds (23 billion Euro ring-fenced for the "Shift to low-carbon economy")
- Reflections need to start on instruments for after 2020 to **leverage finance**, particularly in Member States that have less access to it, **empowering regional and local authorities** to invest and exploit low-carbon opportunities

# Background information

## Other key policies

- **Land sector**
  - **Agricultural non-CO<sub>2</sub> emissions** included in own EU 2020 target
  - This EU target does **not include** CO<sub>2</sub> emissions and absorptions from **land use** (e.g. CO<sub>2</sub> stored in forests and soil carbon)
  - **Sectors are overlapping** (e.g. fertiliser and tillage methods impact non-CO<sub>2</sub> emissions as well as soil carbon)
  - Both sectors need to be included in the 2030 framework to contribute in a cost-effective way to the **mitigation efforts**
  - Consider how best to **integrate both** (national GHG targets, sectorial pillar, combination?)

# Background information

## Other key policies

- **Transport**
  - **Transport White Paper** goal to reduce Greenhouse Gas Emissions from the transport sector by 20% by 2030 compared to emissions in 2008
  - Will require gradual transformation of the entire transport system
- **Carbon Capture and Storage**
  - Carbon Capture and Storage important for **long term Greenhouse Gas Emissions reductions**, certainly for certain industrial processes
  - Supportive EU framework with support from Member States:
    - Continued and strengthened use of **auctioning revenues**
    - Development storage and **transport infrastructure** (Connecting Europe Facility and any potential successor)