



APREN Associação  
de Energias  
Renováveis

30  
ANOS APREN  
1988-2018



# MERCADO E RENOVÁVEIS

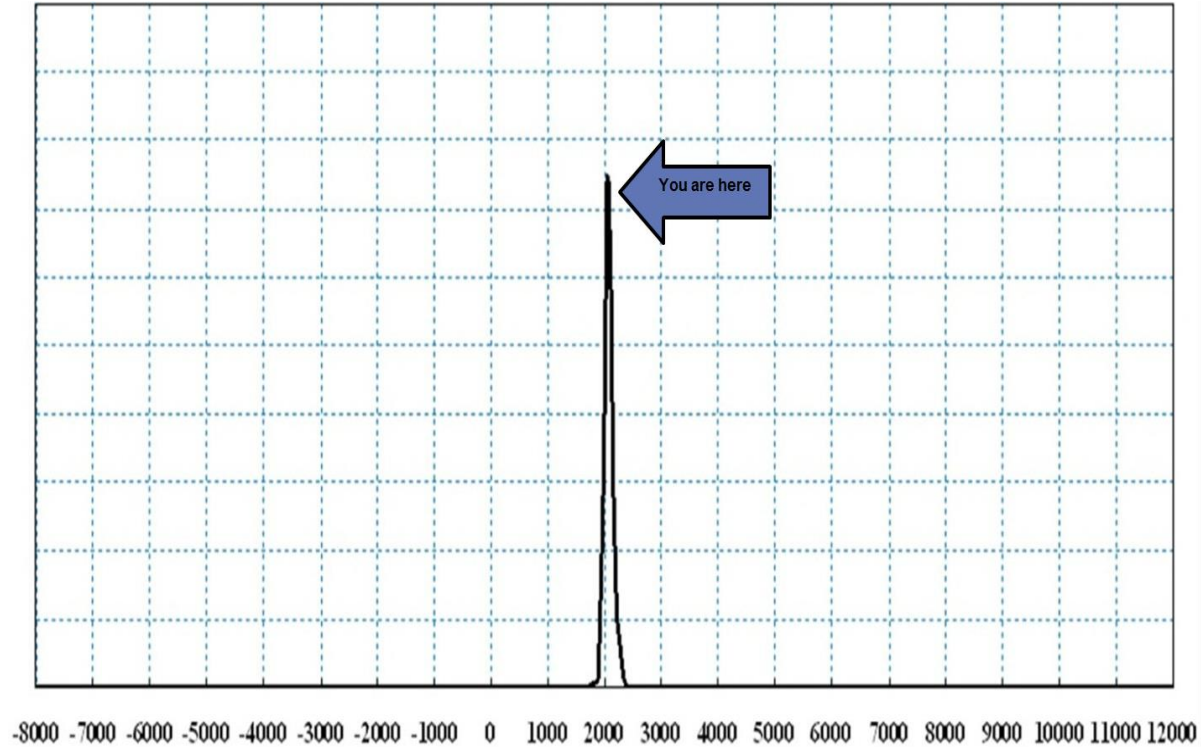
PORTUGAL RENEWABLE  
SUMMIT 2018

Energias  
em Movimento

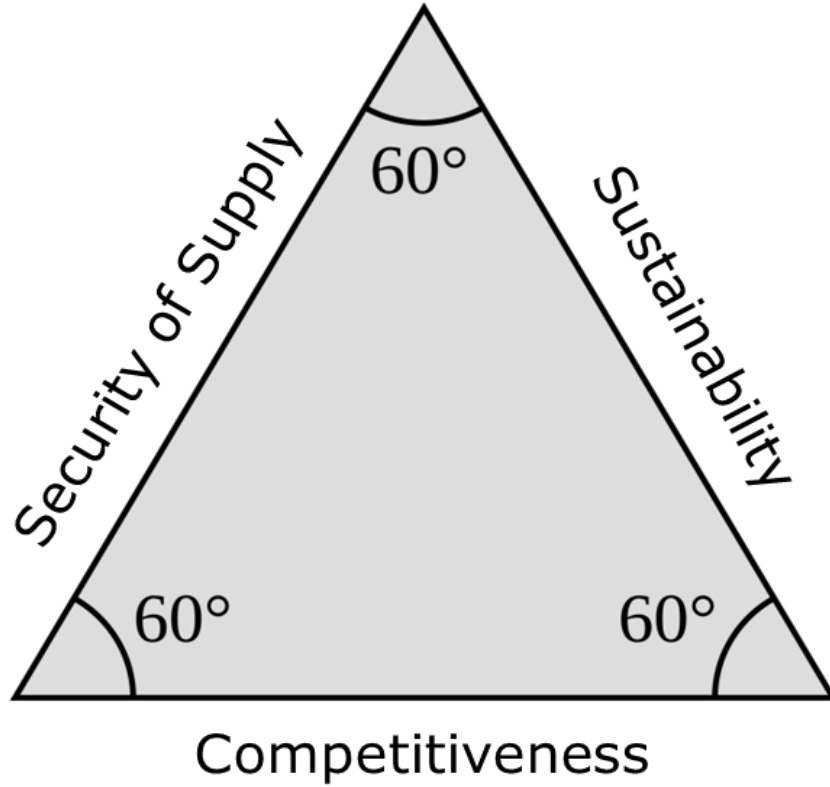
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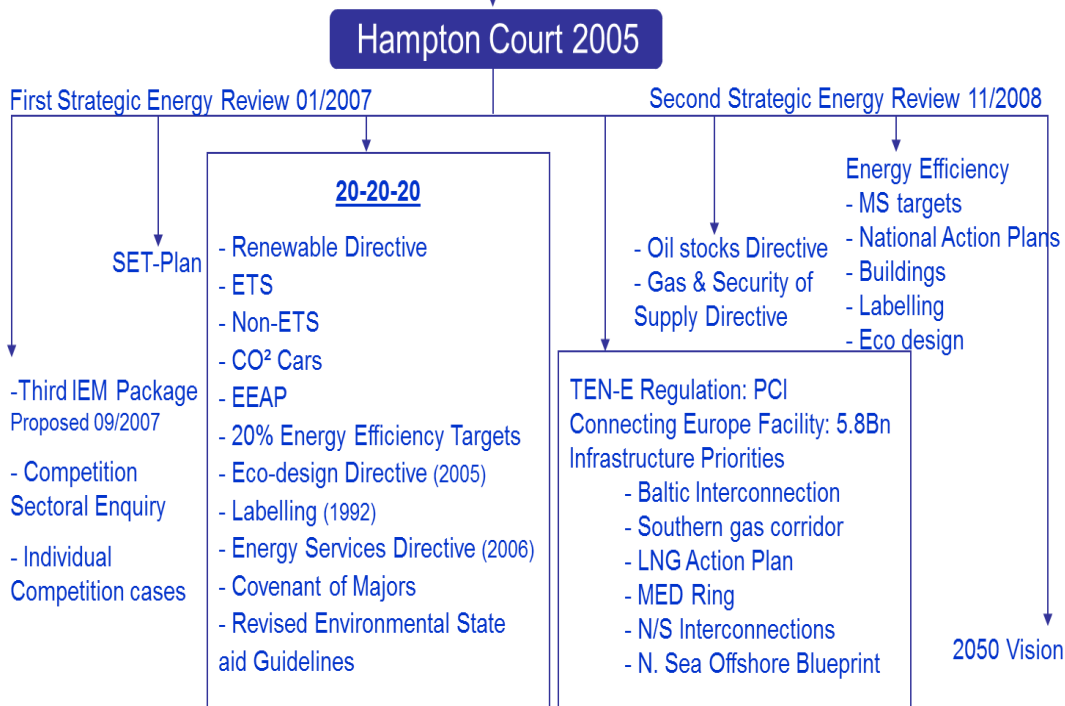
## **EU Energy Policy Challenges and Opportunities for Industry**



Fossil fuel consumption (8000BC to 12000AD)

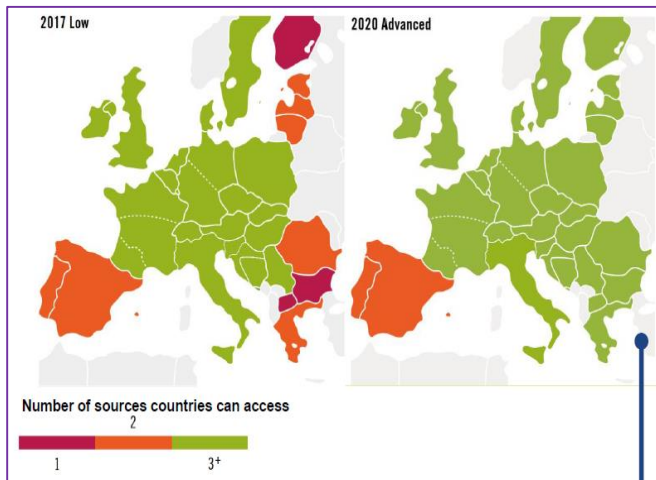


# Europe's 2020 Energy Policy



## EU is connecting all national markets to multiple sources of gas via our infrastructure policy: TEN-E strategy, PCI's and CEF funding

The 2017 TYNDP of ENTSOG shows that when the present PCIs are implemented, virtually all shortcomings of gas network would be addressed: exposure to route disruption, N-1, dependence on a single supply source



### Access to supply sources 2020 vs. 2017

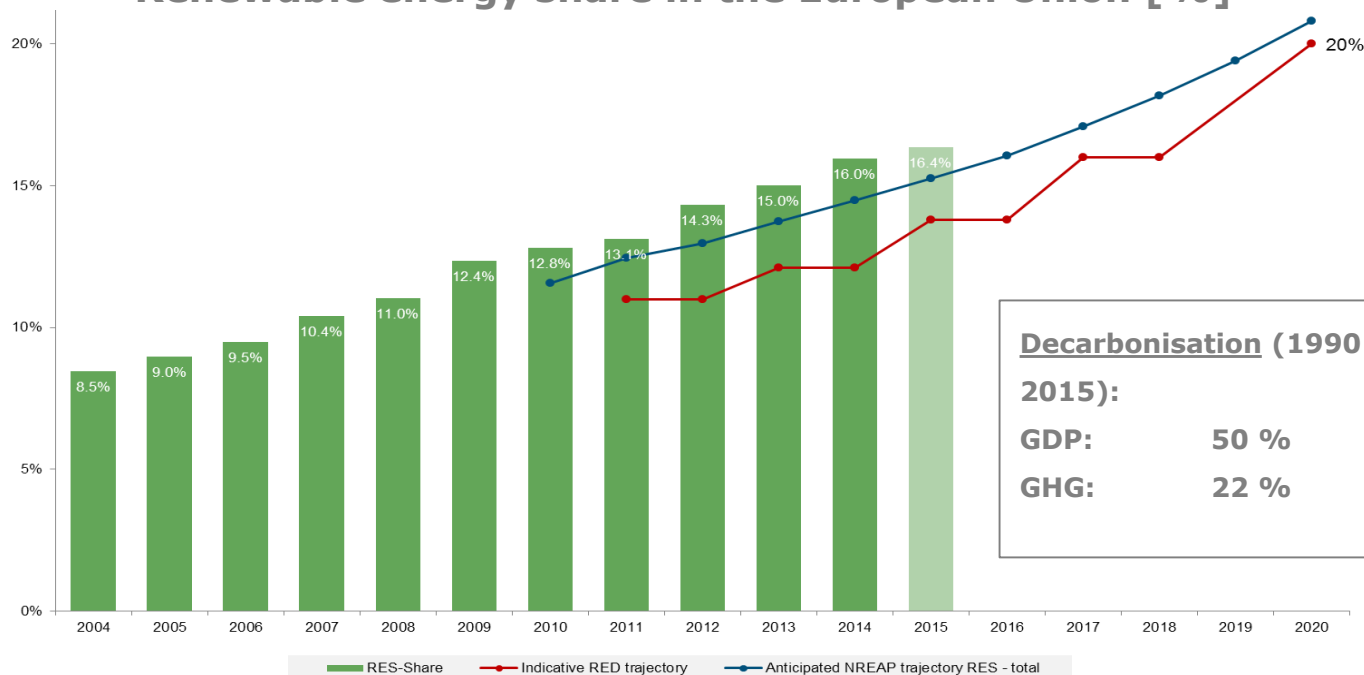


In the context of CESEC, the improvement comes from the completion of TAP and further downstream infrastructures (IGB, IBR, IBS)

Overall: TEN-E gas transmission grid almost completed; beyond 2020 TEN-E gas infrastructure policy expected to be marginal

## > 25 Member States exceeded their indicative national trajectory in 2015

### Renewable energy share in the European Union [%]

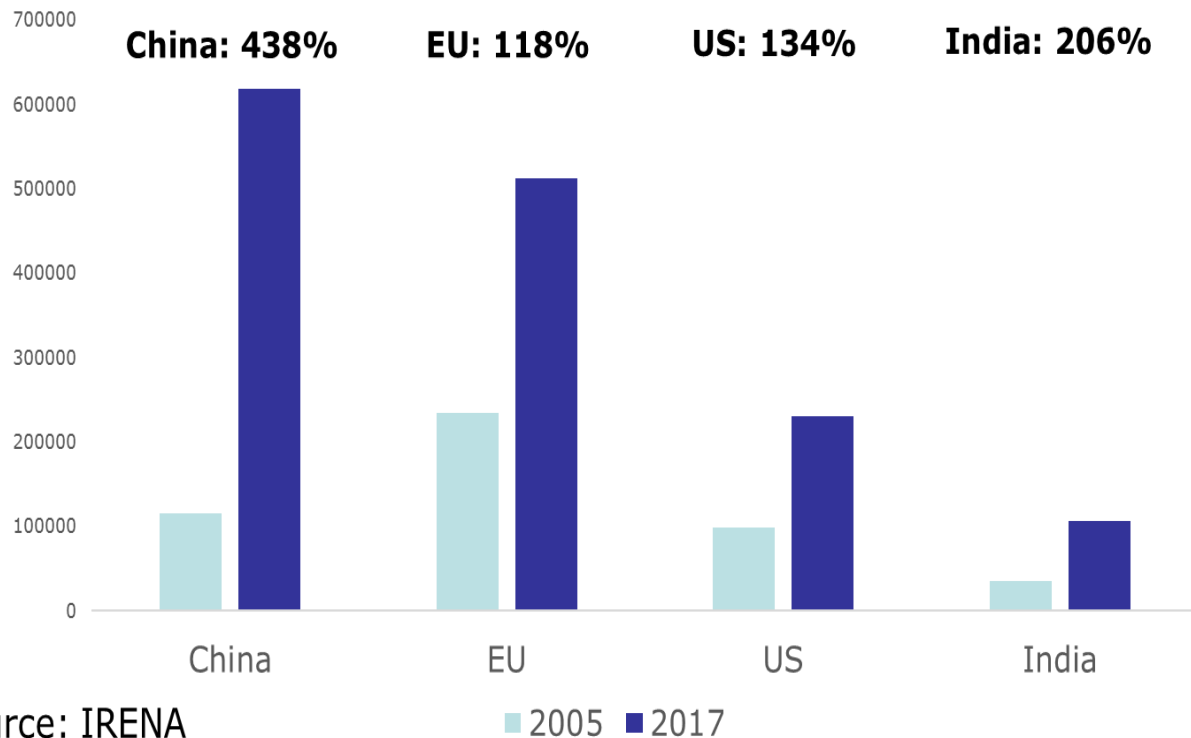


**Decarbonisation (1990 to 2015):**

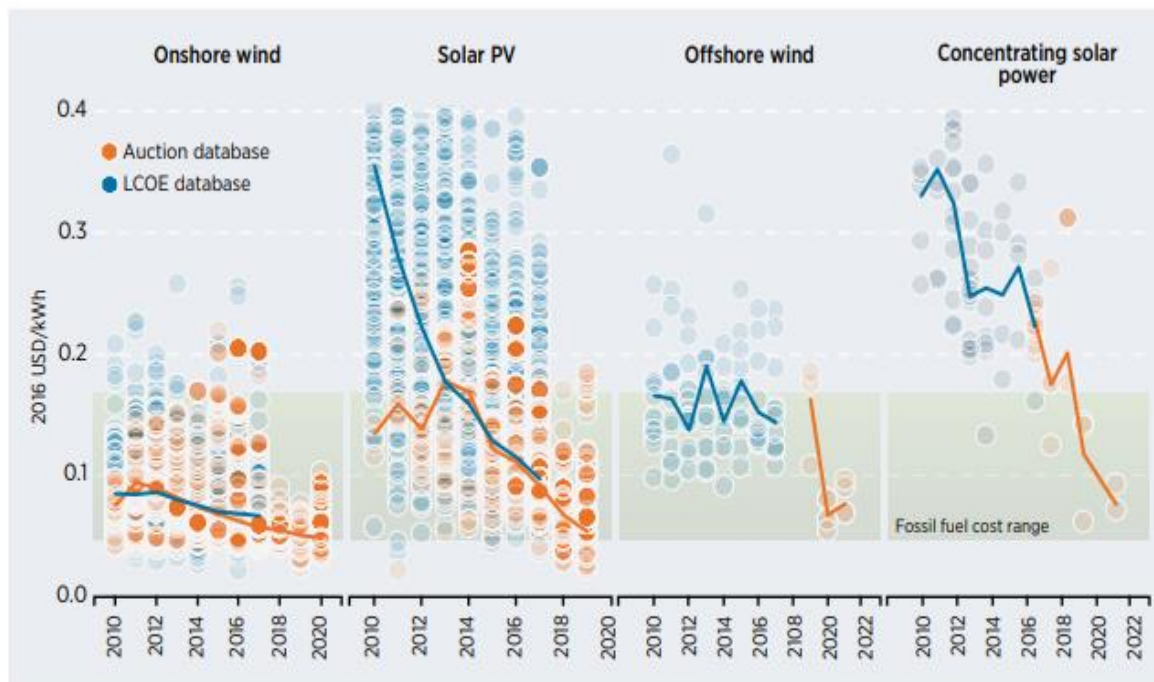
**GDP: 50 %**

**GHG: 22 %**

## % Growth in RES installed capacity 2005 - 2017



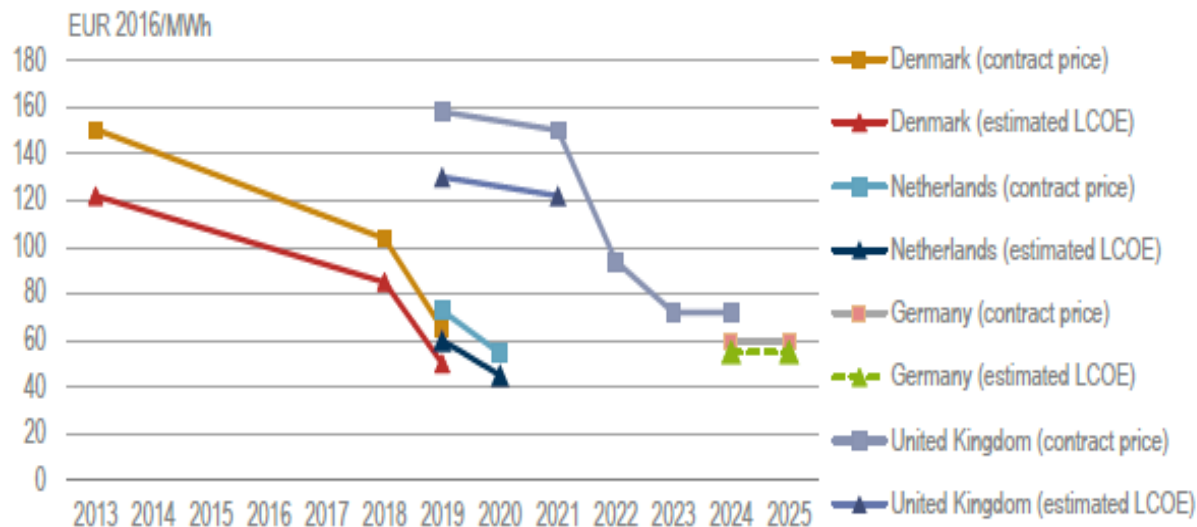
**Figure ES.2** The levelised cost of electricity for projects and global weighted average values for CSP, solar PV, onshore and offshore wind, 2010-2022



Source: IRENA Renewable Cost Database and Auctions Database.

Note: Each circle represents an individual project or an auction result where there was a single clearing price at auction. The centre of the circle is the value for the cost of each project on the Y axis. The thick lines are the global weighted average LCOE, or auction values, by year. For the LCOE data, the real WACC is 7.5% for OECD countries and China, and 10% for the rest of the world. The band represents the fossil fuel-fired power generation cost range.

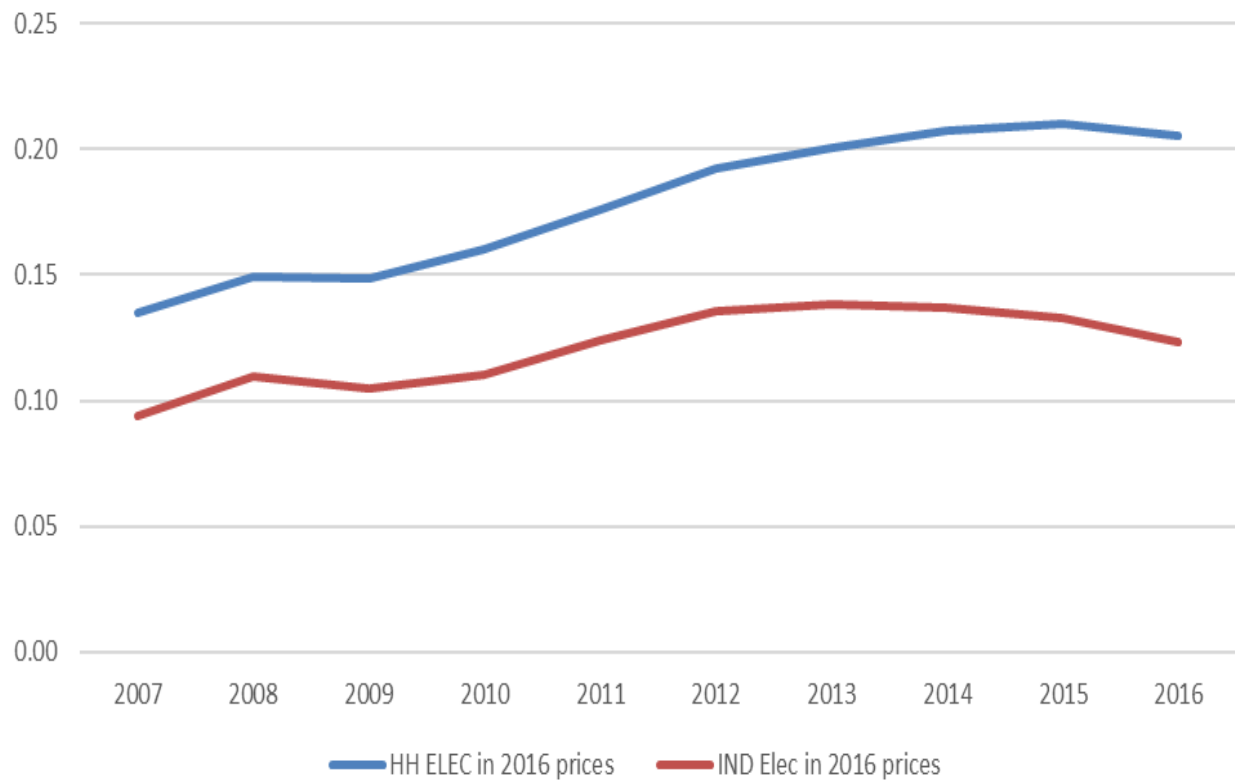
Figure 5.15. Offshore wind auction results and LCOEs by expected commissioning date



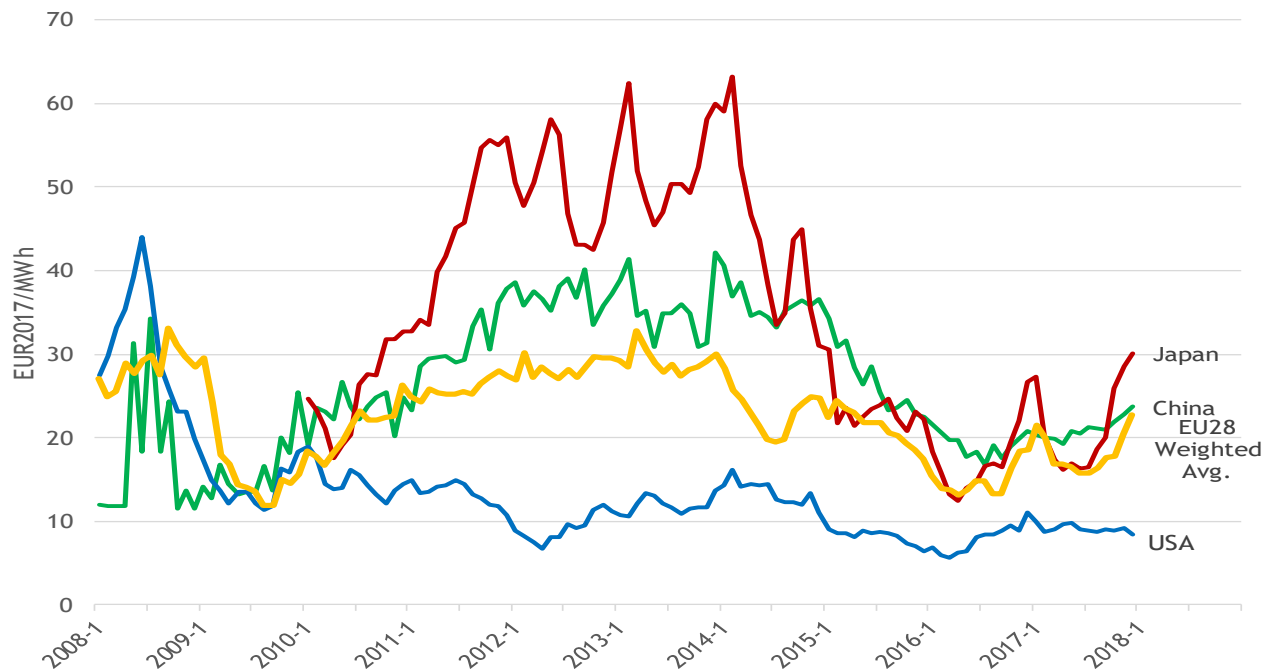
Notes: UK projects include all transmission costs, which usually account for about 10-15% of total generation costs; in other countries, national transmission system operators are responsible for building the offshore and onshore transmission infrastructure; LCOE estimates for bids in Germany are based on the Gode Wind project bid price as other projects will receive wholesale electricity price.

Source: IEA

## Household and Industry Electricity Prices (EUR / kWh)



- **Gas: EU28 average wholesale prices have tended after 2009 to move +/- 10 EUR around the 20 EUR/MWh price level**



## > Key files in the Energy Union

**Summer 2015:**  
ETS Directive  
Energy Labelling  
Regulation

**Regular Reporting:**  
1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> State of  
the Energy Union

**November 2018:**  
Long-term strategy for  
energy and climate

**February 2016:**  
Security of Supply  
Package

Energy Security,  
Solidarity and  
trust

Research,  
innovation and  
competitiveness

A fully  
integrated  
internal energy  
market

**2017**  
Mobility packages

**July 2016:**  
Effort Sharing (GHG)  
LULUCF  
Low-emission mobility  
strategy

Decarbonisation  
of the economy

Energy  
Efficiency

**November 2016:**  
Clean Energy for all  
Europeans package  
(RED, EE, MDI, Governance)

Entered into force



## > The Clean Energy Package



### Energy Union Governance



### Energy Efficiency

(Energy Efficiency Directive, European Performance of Buildings Directive)



### Renewables

(Revised Renewable Energy Directive)



### New Electricity Market Design

(including Risk Preparedness)

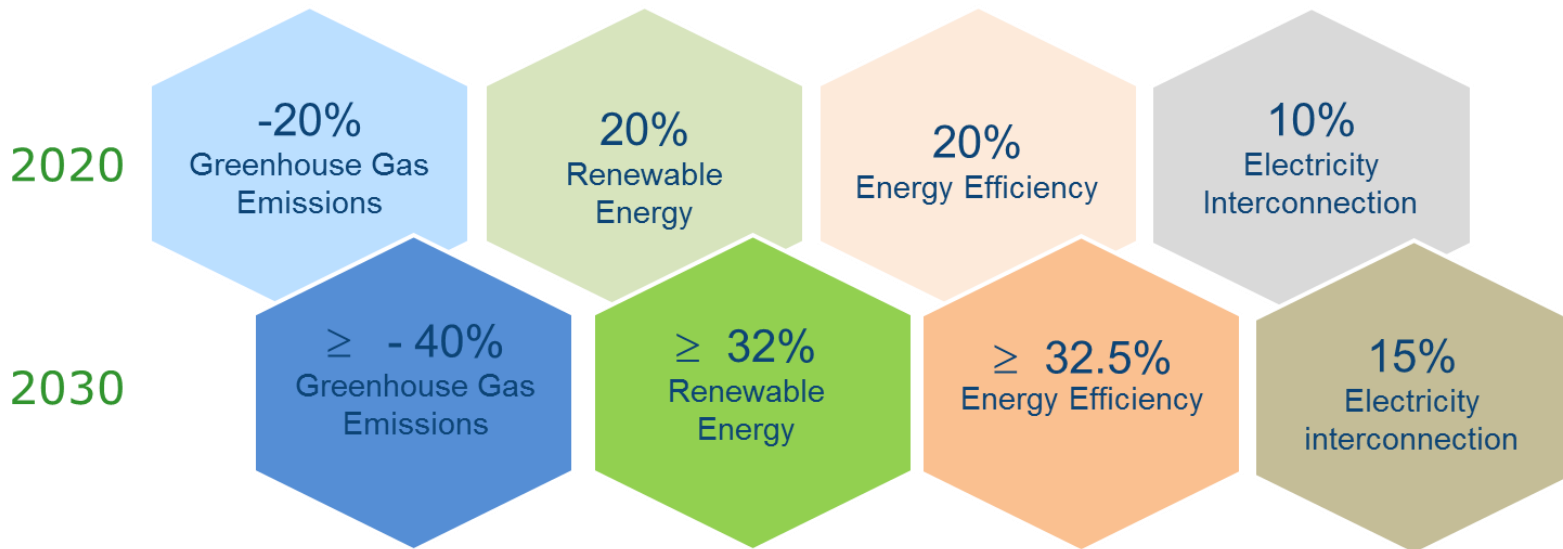


### Energy prices and costs report

Impact assessments indicate major economic benefits of the legislative proposals:

- **GDP:** an increase of up to 1% in GDP over the next decade
- **Employment:** an estimated 900 000 jobs
- **Investment:** c. EUR 380 billion is estimated each year from 2021 onwards

## > The Clean Energy Package: updated 2030 targets



## > EU Climate Policy to implement Paris

### A revised ETS Directive

- **To achieve the at least 40% EU emissions reduction target, the sectors covered by the ETS have to reduce their emissions by 43% compared to 2005.**
- The overall number of emission allowances will decline at an annual rate of 2.2% from 2021 onwards, compared to 1.74% currently.
- To tackle the existing surplus of allowances more quickly, between 2019 and 2023 the pace at which surplus allowances are removed from the market and placed in the Market Stability Reserve (MSR) will be doubled.
- An updated system for the provision of free allowances

### A revised Effort Sharing Regulation

- **To achieve the at least 40% EU emissions reduction target, the non-ETS sectors have to reduce their emissions by 30% compared to 2005.**
- Binding annual greenhouse gas emission targets, limited via 'annual emission allocations' (AEAs) that set out a trajectory for non-ETS emissions reductions for each Member State for each year between 2021 and 2030.
- These trajectories lead to overall 2030 targets for member states' non-ETS emissions reductions that range between 0 % and 40 %.

### LULUCF Regulation

- **The proposal sets a binding commitment for each Member State to ensure that accounted emissions from land use are entirely compensated by an equivalent removal of CO<sub>2</sub> from the atmosphere through action in the sector (the "no debit rule").**



## > The Clean Energy Package: Renewables

### 1. AN AMBITIOUS TARGET

- A headline target of 32% energy from renewable sources at EU level for 2030
- An upwards revision clause by 2023 in case of changes in demand of energy consumption or the EU's international obligations.

### 2. AN IMPROVED SUPPORT SCHEME DESIGN

- An end to retroactive changes in support
- The possibility of technology specific support, if aligned with state aid guidelines.
- A voluntary opening of renewable support towards neighbouring member states aiming for at least 5% between 2023 and 2026 and 10% between 2027 and 2030.

### 3. RENEWABLE HEATING AND COOLING

- The annual increase of energy from renewable sources in heating and cooling will be 1.3 percentage points indicatively, or 1.1 percentage points if waste heat is not taken into account.

### 4. STREAMLINED ADMINISTRATIVE PROCEDURES



## > The Clean Energy Package: Energy Efficiency

### ACHIEVING THE BINDING 32.5% ENERGY EFFICIENCY TARGET BY 2030

#### Energy Efficiency Directive

- Binding 32.5% energy efficiency target for 2030;
- Create 400,000 new jobs;
- Reduce gas imports by 12%;
- Save € 70 billion in fossil fuel imports;
- Empower consumers by granting access to information on their energy consumption.

#### Energy Performance of Buildings

- Clear vision for a decarbonised building stock by 2050;
- Smart & Efficient buildings through use of Information and Communication Technologies and Smart Technologies;
- Smart Finance for Smart Buildings initiative:
  - More effective use of public funding
  - Aggregation of funds
  - De-risking
- Protect vulnerable groups & address energy poverty.

#### Ecodesign Working Plan 2016-2019

- List of new product groups;
- Outline on how ecodesign will contribute to circular economy objectives;
- Specific measures on air conditioning;
- Guidelines on voluntary agreements.

## > The Security of Supply Package

### IGA Decision

- A compulsory ex-ante compliance check of intergovernmental agreements on gas and oil to be conducted by the Commission

### Security of Gas Regulation

Requires EU countries to work together in regional groups to:

- assess the potential for disruption to their gas supplies
- agree on joint actions to prevent or mitigate the consequences
- introduce a 'solidarity principle', where MS help neighbouring countries guarantee gas provision to vulnerable consumers in emergencies
- improves transparency of commercial contracts

### Heating and Cooling Strategy

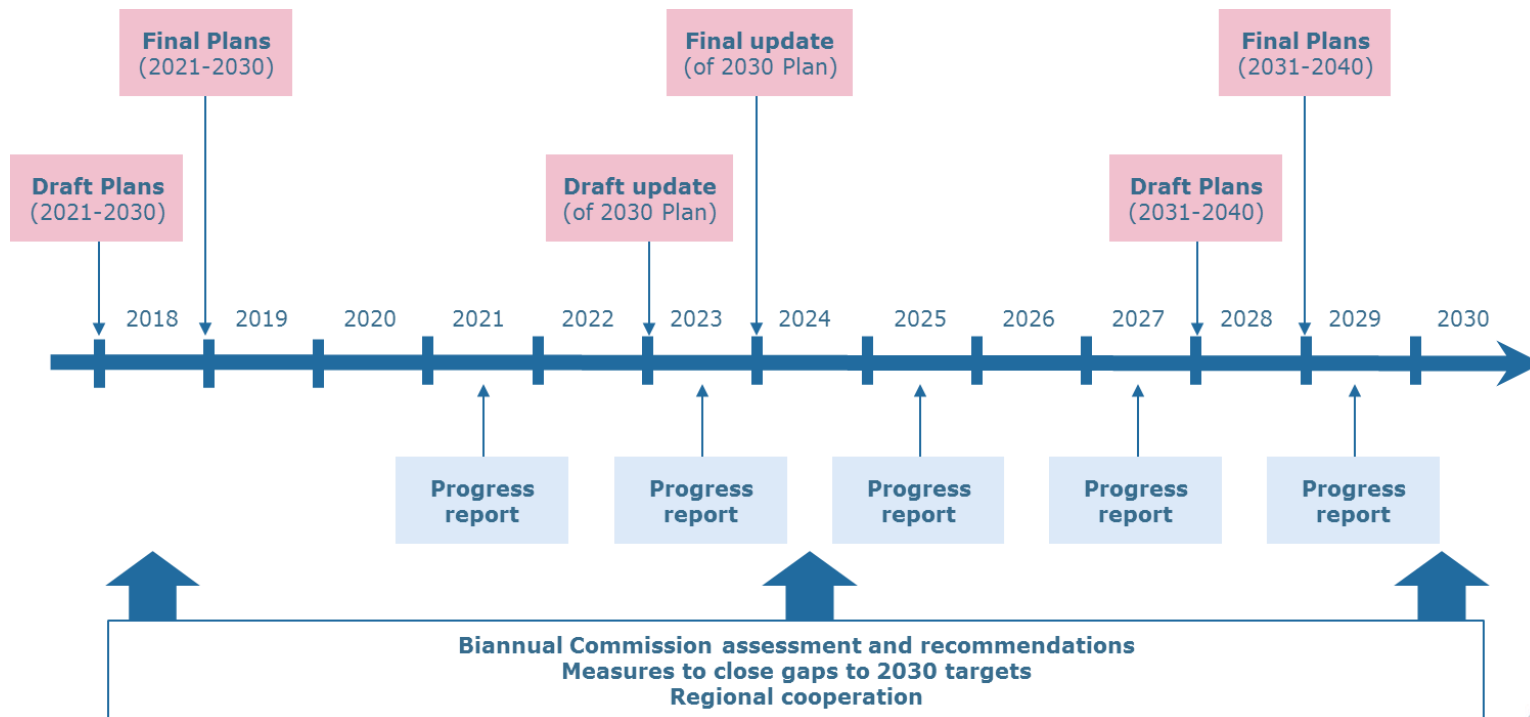
- invites Member States to pursue actions on heating and cooling in a number of areas

### LNG Strategy

- sets out the main actions needed to improve the access for EU Member States to LNG and storage as an alternative source of gas



## > The Clean Energy Package: Governance Timeline



## > The EU's next Multiannual Financial Framework (2021 - 2028)

- **Climate mainstreaming increased to 25% of overall budget to implement Paris**
- **CEF Energy €8.7 billion** for trans-European energy networks
- **LIFE Programme, €5.4 billion:** focused on environmental, climate and clean energy solutions.
- **Cohesion Policy €273 billion:** supports investments in climate change adaptation and risk prevention in less economically developed regions.
- **Horizon Europe €97.6 billion:** a research and innovation programme including major allocations for energy and climate
- **InvestEU:** the Union's new investment instrument. It provides an EU guarantee with a view to mobilising public and private financing, including in the energy sector and it helps orient capital flows towards sustainable investment.



## > **The Paris Agreement to hold global temperature increase to well below 20 C, and pursue efforts to limit to 1.50 C**

- Global emissions to peak as soon as possible, net zero emissions in the second half of the Century.
- Legally binding Nationally Determined Contributions to maintain successive targets and to pursue domestic mitigation measures.
- A global stocktake every five years from 2023 with increased ambition over time.
- The EU targets for 2030 already reflect action needed to stay below 2 degrees Celsius.



## > EU Total emissions over time (80% CO<sub>2</sub> cut)

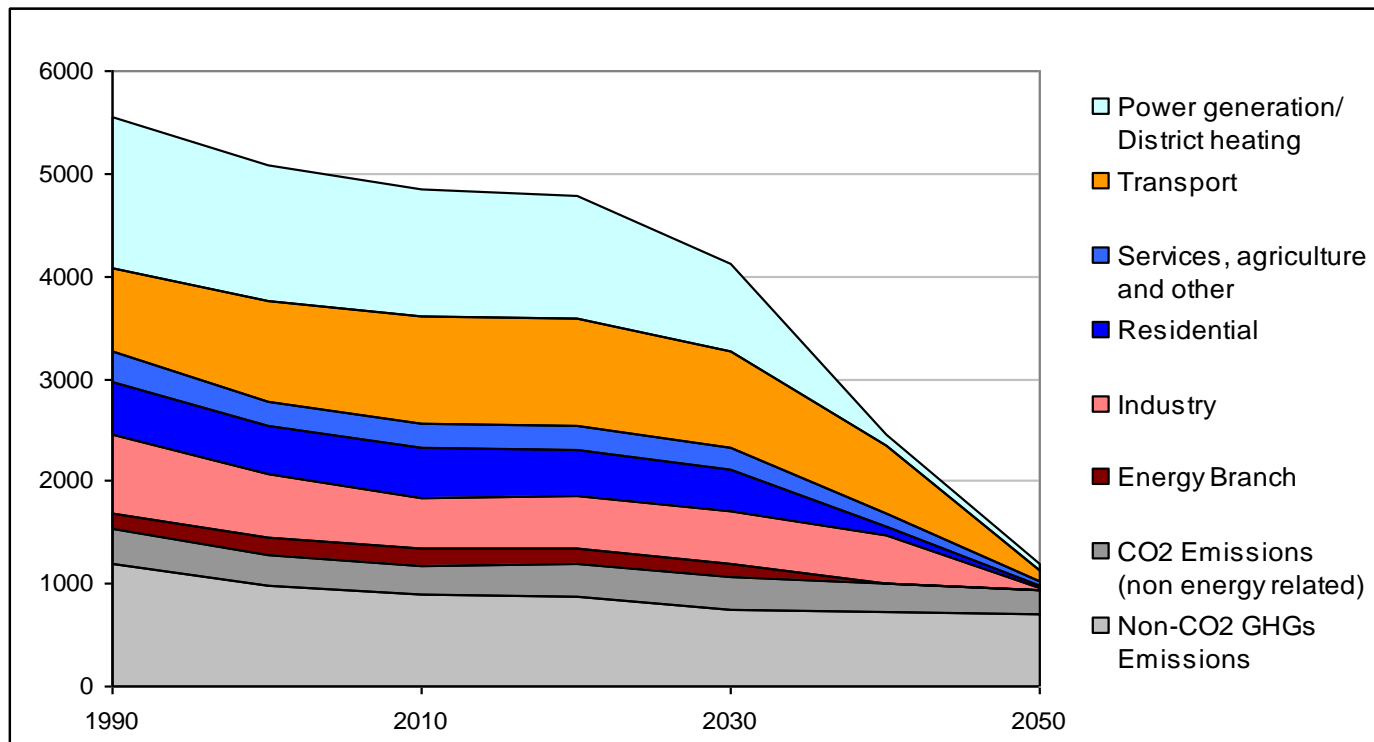
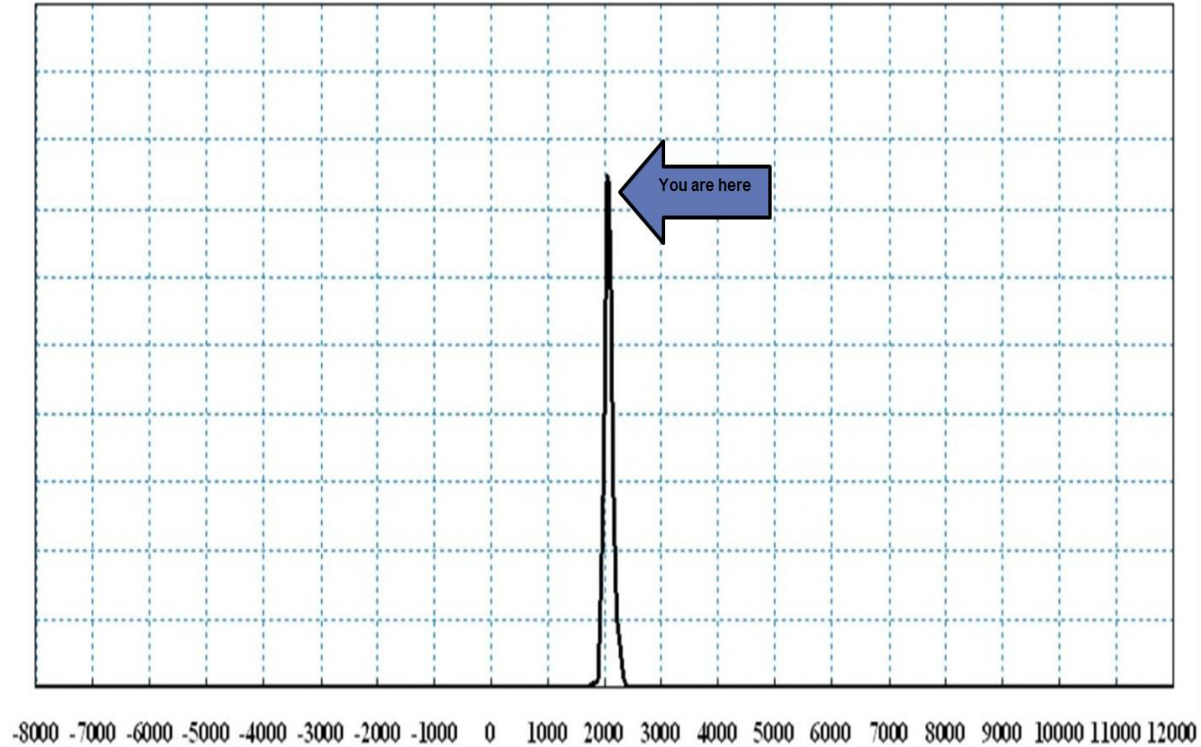


Figure X. Required development of EU-27 total greenhouse gas emissions per sector if the '80%' reduction target (compared to 1990) is to be reached



Fossil fuel consumption (8000BC to 12000AD)



**Thank you!**

