

Facts Check

“Why is 40% GHG reduction too ambitious”

An “unreferenced” analysis document circulated among EU Council advisors and decision makers.

LowCarbonFacts reports on the latest developments and media coverage of climate science, low carbon economics and EU climate and energy policy.

In the framework of the release by the European Commission of the EU 2030 Climate & Energy package, we also produce independent briefings, analysis and fact checks and publish a monthly newsletter.

Executive Summary

On 22 January 2014, The European Commission has released a communication for a proposal on the [EU 2030 climate and energy policy framework](#).

The key elements of the 2030 policy framework set out by the Commission are summarized as follows:

- 1. A binding greenhouse gas reduction target:**
A centerpiece of the EU's energy and climate policy for 2030, the target of a 40% emissions reduction below the 1990 level would be met through domestic measures alone.
- 2. An EU-wide binding renewable energy target:**
Driven by a more market-oriented approach with enabling conditions for emerging technologies, an EU-wide binding target for renewable energy of at least 27% in 2030. An EU-level target for renewable energy is necessary to drive continued investment in the sector.
- 3. Energy efficiency:**
Improved energy efficiency will contribute to all objectives of EU energy policy and no transition towards a competitive, secure and sustainable energy system is possible without it. The role of energy efficiency in the 2030 framework will be further considered in a review of the Energy Efficiency Directive due to be concluded later this year.
- 4. Reform of EU ETS:**
The Commission proposes to establish a market stability reserve at the beginning of the next ETS trading period in 2021. The reserve would both address the surplus of emission allowances that has built up in recent years and improve the system's resilience to major shocks by automatically adjusting the supply of allowances to be auctioned.
- 5. Competitive, affordable and secure energy:**
The Commission proposes a set of key indicators to assess progress over time and to provide a factual base for potential policy response. These indicators relate to, for example, energy price differentials with major trading partners, supply diversification and reliance on indigenous energy sources, as well as the interconnection capacity between Member States.
- 6. New governance system:**
The 2030 framework proposes a new governance framework based on **national plans for competitive, secure and sustainable energy**

It is now to the European Parliament and to the Heads of States (EU council) to discuss and endorse the EC proposal. A negotiation phase is expected to take place until Q4 2014.

In this context, an unreferenced document ““Why is 40% GHG reduction too ambitious” was circulated among EU Council advisors. The document is available [here](#).

The purpose of the present analysis is to evaluate the robustness and the validity of arguments developed in this document.

Analysis

Argument 1: "Increasing speed of reduction of GHG will be very difficult"

- EU-27 has shown a consistent decrease of -18,4% GHG emissions from 1990 to 2012¹. With the exception of 2010 - when emissions temporarily increased due to post crisis economic rebound in many countries coupled with a colder winter - emissions have shown a continuous year on year decline since 2004, indicating reductions have been achieved in period of economic growth.

At a sectorial level, emissions decreased in almost all main emitting sectors, except transport where a huge abatement potential still remains untapped.

- EU is committed to reduce GHG emissions by 20% by 2020² and by 80% to 95% by 2050³ compared to 1990 emissions levels. This means, based on 1990 levels, emissions are committed to be reduced by 20% (from 100% to 80%) between 1990 and 2020 and by at least 75% (i.e. from 80% to 20% or less) between 2020 and 2050, representing a commitment to reduce emissions 3 to 4 times quicker in the second period.

During this second period, a 40% emissions reduction by 2030 (based on 1990 levels) represents a 25% reduction from 2020 to 2030 (from 80% to 60%) that is perfectly in line with 2050 commitment of (at least) 80% emissions reduction.

In the view of these commitments, any lower reduction by 2030 would assume even higher speed of reduction post 2030 which will not be on the least cost pathway and may be more difficult to achieve.

Argument 2: "Reference scenario 2030 (-32%) not at all "Business As Usual"

- The Reference Scenario (-32%) was defined in a study⁴ commissioned by the European Commission, finalised in July 2013 and released in January 2014.

Using official statistical data from EUROSTAT, the reference scenario was produced by using the EC reference models, i.e. the PRIMES model for energy and CO₂ emissions projections, the GAINS model for non-CO₂ emissions projections and the GLOBIOM-G4M models for LULUCF emissions.

The exact definition of the "Reference Scenario" can be found on pages 11-12 of the study⁵ that states in particular:

- "...The Reference 2013 scenario includes all binding targets set out in EU legislation regarding development of renewable energies and reductions of greenhouse gas (GHG) emissions, as well as the latest legislation promoting energy efficiency..."
- "... The modelling has involved Member States experts at various stages starting from responses to a very detailed policy

Low Carbon Facts

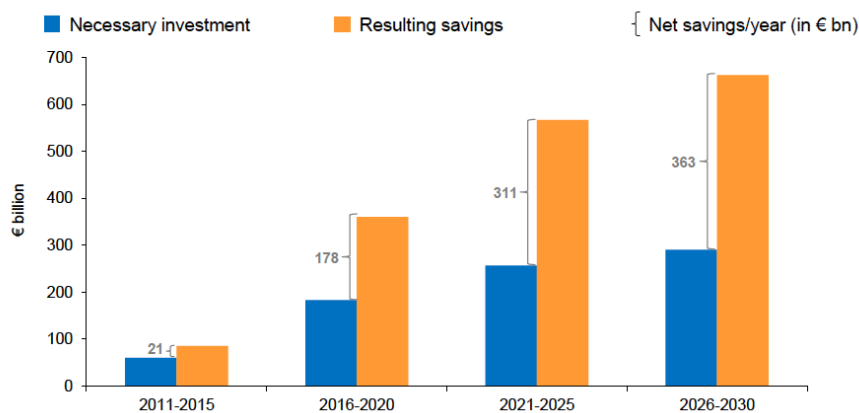
questionnaire and the Member States' comments on macro-economic and sectorial economic projections ...”

The reference scenario therefore represents the best 2030 estimate of the GHG emissions trajectory of EU-28 under current policies, and can be assumed to represent the “Business As Usual” scenario

- It is widely recognized that significant increase in energy infrastructure investments will be needed in Europe as a result of ageing assets and lasting structural under-investment over the last decades in many energy infrastructure areas. Investments in **Energy Infrastructure** represent one of the most productive forms of infrastructure investment available⁶. In addition, unlocking the huge energy investments needed in Europe will also help support Europe’s economic recovery by generating fiscal multipliers⁷.

On the other hand, investment in **Energy Efficiency** can payback within 2 years⁸ making much Energy Efficiency investments a clear net positive – even in the short term – and often the most cost effective and quickest way to decarbonise.

Estimated savings from current commitments on energy efficiency



Source: Presentation of J.M. Barroso to the European Council, 20-21 March; Data from the European Commission

Argument 3: “GHG-40% is probably beyond our Economy’s investment Capacity”

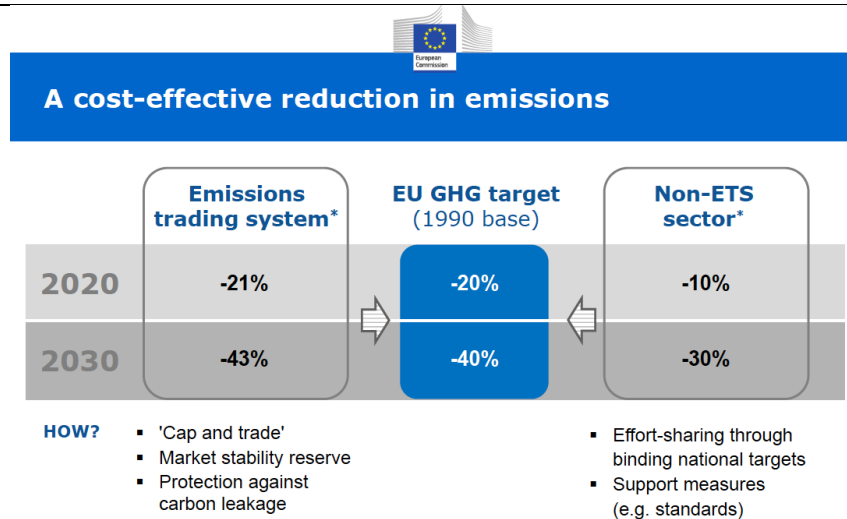
- The average annual additional investments needed over the period 2011 to 2030 to meet the targets are projected to amount to € 38 billion for the EU as a whole, to a large extent compensated for by fuel savings⁹. More than half of these investments are needed in the residential and tertiary sectors. The total cost of the energy system in 2030 is thus projected to increase by 0.15% if targets are met cost-effectively, with the average cost of the

energy system over the period 2011 to 2030 projected to increase by € 2 billion per year; these costs are projected to shift from operational costs (fuel) to capital costs (investments).

- There is no lack of private money, just a perceived lack of opportunity¹⁰. Resource costs are low and the potential to crowd-out alternative investment and employment is much smaller now than when the economy is operating close to full capacity. Pension funds alone in OECD countries receive annual contribution inflows of about \$ 850 bn and manage \$ 28 trillion in assets. However their asset allocation to green investments remains very low with less than 1% going to infrastructure projects and even a smaller slice going to green infrastructure projects. Such projects would be perfectly suited to provide long-term stable returns that institutional investors need, if they were backed by a long-term stable and predictable policy framework.
- In addition to the multiple economic and environmental benefits, the 2030 framework will also have significant collateral benefits. Not only GHG emissions but also air pollution will be cut, benefiting human health. For instance, cuts in particulate matter (pm 2.5) concentrations compared to present policies would reduce health damage from air pollution in 2030 by around € 5 to 11 billion and air pollution control costs by more than € 2 billion.

Argument 4: Member States and EP will not agree to the necessary reform of the ETS

- The 2030 package foresees a GHG emissions reduction target of 40% percent below 1990 levels, to be achieved through domestic measures alone (i.e. without the use of international credits). This will ensure that the EU is on the cost-effective track, set out in the Commission's low-carbon Roadmap, towards meeting the 2050 objective of a 80 - 95% emissions cut. In addition to setting a strong example to the international community in the framework of the international climate negotiations, the target will result in stronger benefits in terms of energy independence, the EU's external fuel bill, health impacts, employment and competitiveness.
- To achieve the target efficiently, it is projected that ETS emissions would need to be cut by around 43% from 2005 levels, whereas the non-ETS sector would reduce less, by around 30% compared with 2005. This means that the ETS emissions will have to be reduced by 22% in 2030 compared to 2020 levels, corresponding to a 2,4% linear reduction factor.



Source: Presentation of J.M. Barroso to the European Council, 20-21 March; Data from the European Commission

- By contrast with the ETS back loading decision that constitutes a short term recovery measure constituting a market intervention and therefore implemented through an amendment to the EU ETS Auctioning Regulation, adjusting the reduction factor in a new ETS phase is the natural parameter to set market rules expected to yield the agreed reduction objectives. Its approval process should therefore by no means be compared to the back loading decision process.

Argument 5: GHG-40% implies ambitious Energy Efficiency Policies that are not realistic

- Energy efficiency is a key component of the 2030 framework, and the Commission will return to this later this year, to update the Energy Efficiency Directive.
The EU's energy efficiency will improve more than under current policies, helping to reduce costs, create jobs, enhance competitiveness and bring also energy security benefits linked in particular to lower fossil fuel use and imports.
Compared to 2010, energy import volumes would decrease by at least 10% and those of natural gas by at least 9%.
In terms of employment, new growth sectors are expected to create opportunities in fields such as engineering, basic manufacturing, transport equipment, construction and business services.
- A 2012 Fraunhofer Institute study¹¹ demonstrated that maximising Europe's energy efficiency potential could cut EU energy demand by 57% by 2050 compared with baseline.
This would represent saving 118% of EU 2008 energy imports; it would

deliver financial savings of €500bn annually by 2050 and emission cuts of by 79% on 1990 levels.

In addition, it is cheaper and easier for the EU to meet its renewables target – which is expressed as a percentage of final energy – when final energy consumption is reduced.

- But even though efficiency measures are cost-effective, they are not automatic; a binding target is the only way to ensure energy savings really happen. The EU made the mistake of not setting a binding target for energy savings for 2020 and the current voluntary target has proved partially ineffective.

Argument 6: Industry is suffering and pushing us to be careful

- For the vast majority of industries, energy prices have only a marginal effect on competitiveness¹². The cost of energy is just one of several factors affecting the overall cost of producing goods and services^{13 14}. Other costs include e.g. labour, capital, raw materials, maintenance etc.. They play a relative minor part in the calculation of competitiveness as in most sectors and countries, energy accounts for a minor part of production costs.
In Germany and in UK for instance, energy represent about 3% on average of production costs in the manufacturing industry^{15 16}. An important exception is the energy intensive industry (primary aluminium, steel and iron, pulp and paper chemical's, petrochemicals, glass and cement where energy cost take a large proportion of production cost and have implications on competitiveness for those products that are easily transportable / tradable.
For these industries the specific measures were implemented to ensure a level playing field with competitors in countries not subject to stringent climate policies.
- According to an Ecorys study¹⁷ prepared for the European Commission, there has been no sign of carbon leakage during the first two ETS periods. This has been confirmed in recent CEPS studies¹⁸ for the European Commission on the accumulative costs of EU regulation for several Energy Intensive Industries:

“Studies have predicted the risk of a significant amount of production leakage in a number of energy-intensive industries. To address the danger, they were included in the EU ETS carbon leakage list, which gave them access to free allowances. However, a limited number of studies undertaken after the end of the second trading period (2012) show little evidence of production leakage and asks the question whether the issue has not been blown out of proportion.”

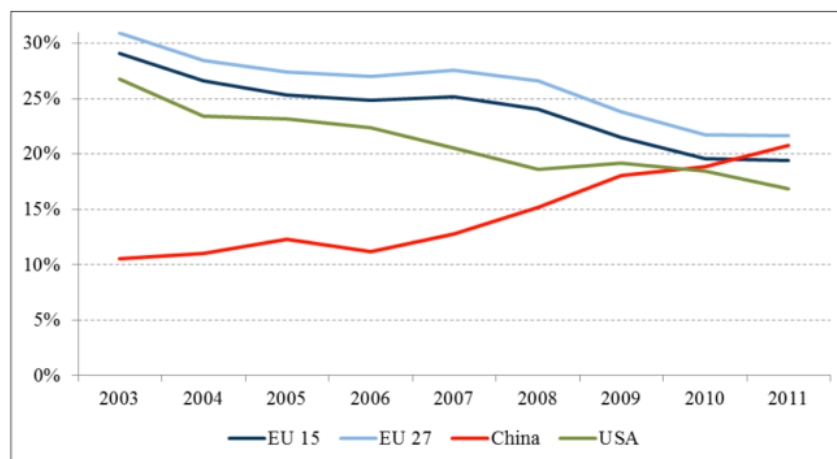
Low Carbon₂ Facts

Indeed, many energy intensive industries already have low-carbon solutions available now or on the horizon - meaning that they also have the opportunity to benefit from a low-carbon transition if given the right incentives and requirements¹⁹.

- The ETS Directive mandates the Commission to determine a new carbon leakage list in 2009 and every five years thereafter. Therefore, the current list expires at the end of this year and needs to be replaced by a new list valid for the period 2015 to 2019.

To comply with this legal obligation, while guaranteeing continuity on the composition of the list, the Commission intends to present a proposal to the EU Climate Change Committee that would maintain the current criteria and existing assumptions (including an assumed carbon price of € 30).

- The EU is losing global manufacturing market share, but energy price pressure from the US does not appear to be the major driver²⁰. Despite higher energy prices in China than the US, China's continued rise is taking manufacturing market share from both the US and the EU²¹.

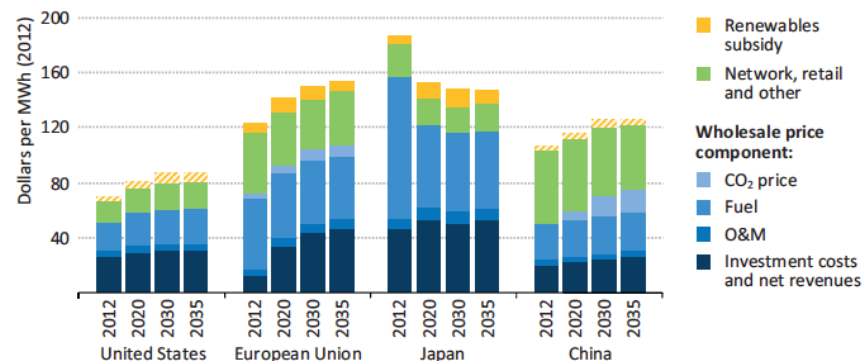


WEO 2013 – Share of manufacturing output

- Even though gas and electricity prices gap will tend to narrow over time with the United States, a long term structural price difference will remain between the United States and other major economic blocs, mainly as a consequence of the shale gas revolution.

The figure below shows the projected evolution of industrial electricity prices by region under IEA New Policy scenario²²

Figure 5.18 ▷ Average industry electricity prices (excluding taxes) by region and cost component in the New Policies Scenario



- The figures indicates that although electricity prices in Europe are expected to remain substantially higher than in the United States, this differential will be much narrower with China and will even be negative with Japan, positioning EU in the mid position among United States competing economic blocs. The figure also indicates the very marginal impact of climate policies on electricity prices.
- If the EU wants to improve the competitiveness of its businesses, the evidence suggests that it should not focus on energy prices alone. Instead, the EU should concentrate on its comparative advantages in complex and high-quality product segments and in the development of new areas of activity such as environmental technology – where it is well equipped to be a major actor.

References

LowCarbonFacts

Author: Adel El Gammal

Contact & enquiries: adel.elgammal@lowcarbonfacts.eu

Visit : www.lowcarbonfacts.eu

¹ Greenhouse gas emission trends (CSI 010/CLIM 050) - Assessment published May 2013

² DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

³ European Commission, A Roadmap for moving to a competitive low carbon economy in 2050 SEC(2011) 287 final

- 4 European Commission, EU Energy, Transport and GHG emissions Trends to 2050, The 2013 Reference Scenario, 2014
- 5 European Commission, EU Energy, Transport and GHG emissions Trends to 2050, The 2013 Reference Scenario, 2014
- 6 Zenghelis, The Grantham Institute (2012) A strategy for restoring confidence and economic growth through green investment and innovation, see:
<http://www.lse.ac.uk/GranthamInstitute/publications/Policy/docs/PB-Zenghelis-economic-growth-green-investment-innovation.pdf>; IDDRI Sciences Po (2012) Green Investments in a European Growth Package, see: http://www.iddri.org/Publications/Collections/Idees-pour-le-debat/WP1112_European%20growth%20package.pdf
- 7 IDDRI Sciences Po (2012) Green Investments in a European Growth Package, see:
http://www.iddri.org/Publications/Collections/Idees-pour-le-debat/WP1112_European%20growth%20package.pdf
- 8 IDDRI Sciences Po (2012) Green Investments in a European Growth Package, see:
http://www.iddri.org/Publications/Collections/Idees-pour-le-debat/WP1112_European%20growth%20package.pdf; IEA World Energy Outlook 2012, see:
<http://www.worldenergyoutlook.org/publications/weo-2012/>
- 9 Questions and answers on 2030 framework on climate and energy European Commission - MEMO/14/40 22/01/2014
- 10 Zenghelis, The Grantham Institute (2012) A strategy for restoring confidence and economic growth through green investment and innovation, see:
<http://www.lse.ac.uk/GranthamInstitute/publications/Policy/docs/PB-Zenghelis-economic-growth-green-investment-innovation.pdf>; IDDRI Sciences Po (2012) Green Investments in a European Growth Package, see: http://www.iddri.org/Publications/Collections/Idees-pour-le-debat/WP1112_European%20growth%20package.pdf
- 11 Fraunhofer Institute (2012) Contribution of Energy Efficiency Measures to Climate Protection within the European Union until 2050
- 12 International Energy Agency (IEA) World Energy Outlook (WEO) 2013
- 13 International Energy Agency (IEA) World Energy Outlook (WEO) 2013
- 14 De Bruyn, S., Markowska, A., & Nelissen, D. (2010). Will the energy-intensive industry profit from EU ETS under Phase 3? CE Delft Report.; Laing, T., Sato, M., Grubb, M., & Combetti, C. (2013). Assessing the effectiveness of the EU Emissions Trading System. Centre for Climate Change Economics and Policy, Grantham Research Institute Report; Climate Strategies (UK) Reports (2007 - 2009) on: Tackling Leakage in a world of unequal carbon prices, see:
<http://climatestrategies.org/our-reports/category/32.html>; Hourcade et al (2007) Differentiation and Dynamics of EU ETS Industrial Competitiveness Impacts, Climate Strategies (<http://www.climatestrategies.org/research/our-reports/category/6/37.html>); Öko-Institut (Germany), Fraunhofer ISI, DIW (September 2008) Impacts of the EU Emissions Trading Scheme on the industrial competitiveness in Germany, see:
<http://www.umweltdaten.de/publikationen/fpdf-l/3625.pdf>; Carbon leakage and the future of the EU ETS market - CE Delft, see:
http://www.cedelft.eu/art/uploads/CE_Delft_7917_Carbon_leakage_future_EU_ETS_market_Final.pdf
- 15 European Commission, J.M. Barrroso presentation 22/05/2013, data from Eursotat
- 16 International Energy Agency (IEA) World Energy Outlook (WEO) 2013
- 17 Ecorys, "Carbon Leakage Evidence Project", September 2013
- 18 CEPS: Carbon Leakage, an overview, Special Report No. 79/December 2013
- 19 For example : CEPI 'Unfolding the Future - Two Project Team", November 2013
http://www.cepi.org/system/files/public/documents/publications/innovation/2013/finaltwoteamprojectreport_website_updated.pdf
- 20 IEA World Energy Outlook 2013
- 21 Ibid
- 22 Ibid