

CLIMATE ACTION: NOW OR NEVER

The article below is an English adaptation of the fifth working paper in the series, which explores the challenges both the world and France will face in fighting climate change in the decade to come. You can read the original on the “2017/2027” French-language website [here](#).

The success of the Paris Agreement in rallying the world to take collective action against climate change and global warming has highlighted the stark challenge that lays ahead: Humankind must achieve a net zero carbon emissions target by the second half of this century.

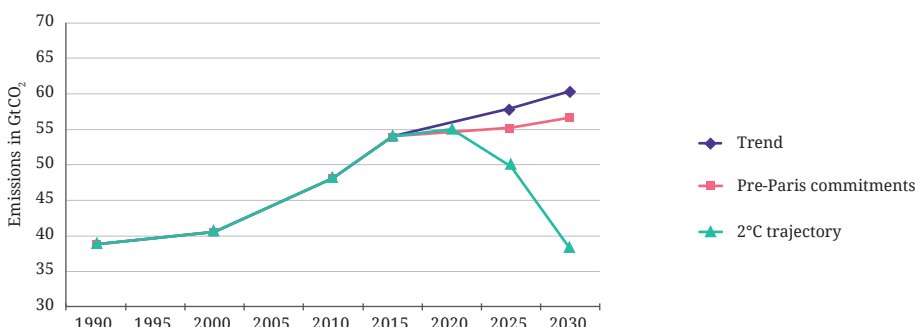
If the goal of keeping warming within 2°C is to be met, all countries will have to reduce their greenhouse gas (GHG) emissions by about 30% more than the amount that was pledged in the run-up to the Paris conference in December 2015. This makes the action taken over the next decade absolutely critical in reaching this goal.

The fact that affordable fossil fuels are likely to remain readily available is certain to complicate this collective effort even further.

Together with the US and China, the European Union will have to go beyond its goal of reducing its emissions by 40% of its 1990 levels by 2030. This means it will have to both lower its consumption of fossil fuels – coal in particular – and create a credible carbon price signal for its economy by establishing a floor price in its Emissions Trading System (ETS) and possibly a European carbon tax.

France, for its part, must concentrate on reducing emissions from transport, residential and commercial housing and agriculture as its emissions from electricity generation are already very low. Having brought down its emissions by close to 19% since 1990, France is clearly committed to taking climate action. The economic crisis notwithstanding, this reduction comes mostly from the manufacturing sector and energy production itself. However, if the country is to reach carbon neutrality by the second half of the 21st century without hampering its competitiveness, it will have to rethink the scope and rate of action to be taken.

📍 WORLDWIDE GREENHOUSE GAS EMISSIONS: A FURTHER 30 % REDUCTION REQUIRED BY 2030



SOURCE: France Stratégie from UNFCCC Synthesis report on the aggregate effect of the INDCs, November 2015

APRIL 2016

FRANCE WILL FACE IMPORTANT CHALLENGES WHEN IT GOES TO THE POLLS IN 2017 TO ELECT ITS NEXT PRESIDENT. TO BOTH FOSTER AND INFORM DEBATE AMONG CITIZENS IN THE MONTHS LEADING UP TO THE ELECTIONS, FRANCE STRATÉGIE HAS LAUNCHED ITS “2017/2027” PROJECT. IT AIMS TO ZERO IN ON WHAT IS LIKELY TO SHAPE POLICY OVER THE NEXT DECADE BY PUBLISHING A SERIES OF WORKING PAPERS ON TWELVE ISSUES VITAL TO THE FUTURE OF THE COUNTRY. MEMBERS OF THE PUBLIC WILL BE ABLE TO SUBMIT WRITTEN REACTIONS ONLINE. A DEBATE WITH THE AUTHOR(S) AND OTHER EXPERTS WILL THEN BE ORGANIZED FOR EACH ISSUE ON THE BASIS OF THE WORKING PAPER AND THE SUBMISSIONS.

BUILDING ON AN AMBITIOUS AGREEMENT

As part of the United Nations Framework Convention on Climate Change (UNFCCC), the 2015 Conference of the Parties 21 (COP21) in Paris culminated in a historic agreement among 195 countries and the EU to take decisive action to lower GHG emissions. Specifically, the parties agreed to reduce their carbon output “as soon as possible” and to do their utmost to limit global warming “to well below 2 degrees C”. Moreover, they pledged to continue efforts to keep a global temperature rise as close as possible to 1.5°C.

All countries submitted their Intended Nationally Determined Contributions (INDCs) in the lead-up to COP21, with substantial variations both in terms of scope and timeframes from country to country. According to the non-governmental global research organization the World Resources Institute, the sum total of the INDCs would result in a rise of anywhere between 2.7° to 3.7°C by the end of the century.

What this means is that in order to keep the increase in the average global temperature below 2°C all countries must reduce their emissions by 2030 by about 30% more than their INDCs¹.

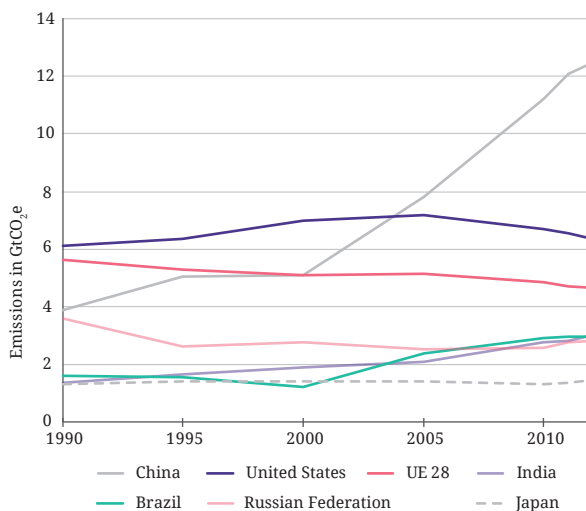
One solution could be that technological progress in geoengineering would achieve this by capturing more GHG than emitted by human activity in the second half of the century. However, carbon sequestration techniques as they currently stand will need to be substantially improved if they are to be used effectively, making it a highly risky bet.

Under the Paris Agreement the parties committed to reviewing national pledges every five years beginning in 2018, with the EU set to play a major role in this process.

AN ABUNDANCE OF OIL AND GAS

Over the past decade it has become increasingly clear that fossil fuels are likely to remain abundant and affordable in the foreseeable future, further complicating the task of achieving carbon neutrality.

MAIN GHG EMITTERS



SOURCE: France Stratégie from *Emission Database for Global Atmospheric Research (EDGAR)*, 2015.

Indeed, considerable improvements in horizontal drilling and hydraulic fracturing (i.e. fracking) have substantially increased at moderate costs the supply of both oil and gas, the combustion of which is clearly incompatible with the goal of limiting global warming (according to the IPCC's latest report, its most pessimistic scenario would lead to an average temperature increase of 4°C by the end of the century).

A case in point is the US' non-conventional oil production: It has unexpectedly increased in less than five years by over four million barrels per day, reaching the equivalent of 40% of Saudi Arabia's production.

Shale gas extraction in the US has also spiked, driving down the price of gas and leading to the latter replacing coal in US electricity production, thereby reducing its GHG emissions.

TEN YEARS TO RESHAPE EUROPE'S ENERGY AND CLIMATE POLICIES

The EU has undertaken ambitious measures to fight climate change, starting in 2005 with the creation of the ETS. Three years later it adopted the 2020 climate and energy package, binding legislation to ensure the EU cuts GHG emissions from 1990 levels by 20%, obtains 20% of its energy from renewables and makes a 20% improvement in energy efficiency.

According to the *Annual European Union greenhouse gas inventory 1990-2012 and inventory report 2014*, the EU (the 28 Member States) reduced its GHG emissions by 23% from 1990 to 2014 (this figure excludes international aviation and emissions and capture related to land use, land-use change and forestry).

Despite this progress, there have been obstacles along the way. For one, the economic crisis and the drop in fossil fuel prices have meant renewables have remained relatively expensive. Moreover, Europe has failed to become a market leader in the latter due to international competition. To make matters worse, its carbon and electricity markets are in tatters: Not only has the ETS not resulted in the creation of a carbon price signal as intended, but the price of electricity on the wholesale market has plummeted. This has jeopardized the profitability of most European power plants – apart from those subsidised – while consumers in most countries across the continent have seen the cost of electricity rise.

Against this backdrop, the EU will have to raise its goal for reducing carbon emissions as of 2030 if it is to stay within the level necessary to limit warming to 2°C. Though it has announced it will not do so unilaterally, it will have to act in the next five years in concert with the US, China and other developed countries if it is serious about lowering its emissions by about 60% from 1990 levels by 2030.

To be successful, the EU must recover its leadership in low-carbon technologies and overcome the problems its diversity presents. Indeed, its Member States' wide array of energy sources, power plants and climate change policies all conspire to make collective and decisive action fraught with difficulty.

1. In the “Decisions adopted by the Conference of the Parties” during the COP21, parties acknowledged that “...much greater emission reduction efforts will be required than those associated with the intended nationally determined contributions in order to hold the increase in the global average temperature to below 2 °C above pre-industrial levels by reducing emissions to 40 gigatonnes [in 2030]....”

A FECKLESS ETS

Due to the low price of CO₂ – roughly € 5 per tonne of CO₂ as of April 2016 – financial institutions do not factor in the price signal in their investment plans. One way to redress this would be to establish a price corridor for carbon, initially only enforceable for electricity production so as not to hinder industrial competitiveness (the UK, which has effectively used this to switch from coal to gas and thus reduce emissions, and France have recently made a proposal to other Member States to implement such a price corridor).

In addition to this, the EU must seriously consider creating a regulatory body for the ETS to make it more reactive than is currently the case, where a rule change requires approval from the Commission and all Member States.

Failing this, the EU should consider implementing a carbon tax. For however the EU achieves it, if it is to meet the challenges posed by the Paris Agreement it has no choice but to put a price on GHG emissions.

AN ELECTRICITY MARKET IN TATTERS

If the EU wants to further bolster the wholesale price of electricity and prevent major historic producers from going out of business, it must transform its electricity market.

In the short term, as mentioned above, a floor price could be instituted in the carbon market. This will have the added effect of raising the wholesale price of electricity and spurring a reduction in the use of coal.

Over the longer term, there are three possibilities:

- Take heed of the UK's recent move to regulate the market through capacity mechanisms and fostering investment through long-term contracts.
- Consider remunerating not only energy produced but power installed through calls to tender along the lines of what has been done in South America.
- Foster confidence in the markets by regulating carbon and electricity and ending subsidies for energy sources.

THE DIFFICULT ENERGY TRANSITION AHEAD

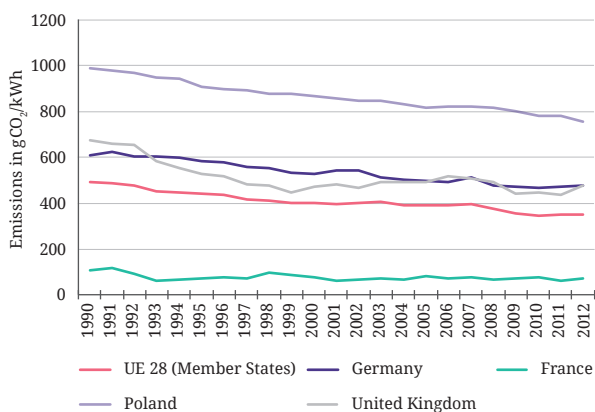
France's 2015 law on the energy transition for green growth confirmed the country's goal of reducing its GHG emissions from their 1990 levels by 40% by 2030 and 75% by 2050. Its national low-carbon strategy, published in 2016, defines the carbon budgets to be respected over the coming decade and emphasizes energy efficiency, in particular in housing.

While, as mentioned above, France has made significant progress in lowering its GHG emissions from 1990 to 2014 by about 19 %. This must be put in perspective: It is in part related to the fact that many more products consumed in the country are manufactured abroad.

That said, the energy transition faces two important hurdles:

- Once the country's last coal-fired plants are shut down, electricity generation will account for less

4 EUROPEAN CO₂ EMISSIONS PER KWH

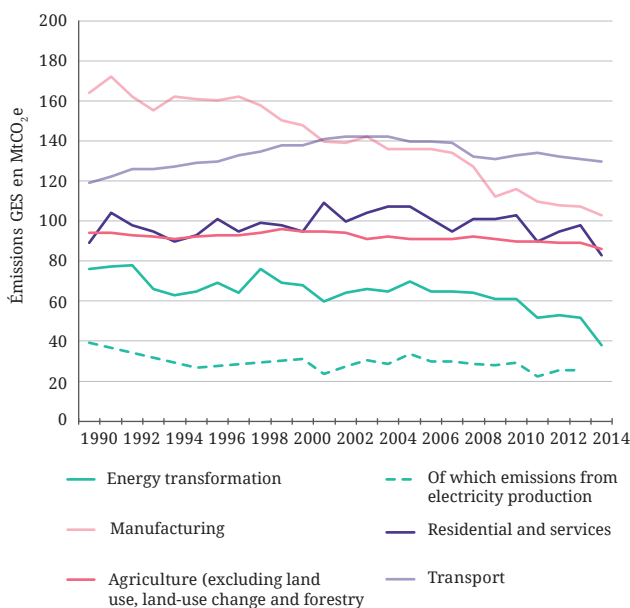


SOURCE: France Stratégie from Emission Database for Global Atmospheric Research (EDGAR), 2015; International Energy Agency, March 2014.

than 4% of the country's total emissions. This means in the future, as previously mentioned, the effort to reduce GHG emissions will have to focus on transport, residential and commercial housing and agriculture, sectors where it is much more difficult and costly to reduce emissions.

- The drop in fossil fuel prices makes different measures to increase energy efficiency (e.g. renovating housing) costly and may even result in a "rebound effect" in transport, i.e. increased vehicle usage.

5A FRENCH GHG EMISSIONS



Note: Emissions from Metropolitan France, excluding land use, land-use change and forestry.

SOURCE: France Stratégie from Centre Interprofessionnel Technique d'Etudes de la Pollution Atmosphérique (CITEPA) database.

Given this, in the coming decade, reducing GHG by the least expensive means possible must be a priority, with other goals determined in relation to this overarching ambition. For example, reducing energy consumption must be a means to bringing down GHG emissions.

Economic competitiveness, however, must not be left to the wayside when it comes to the energy mix. France's Regulatory Energy Commission (*Commission de régulation de l'énergie*, CRE) estimates that measures to foster developing renewable energy sources could reach

Adapted by
Richard Venturi,
based on “*Climat :
agir maintenant*” by
Dominique Auverlot

€ 8 billion per year in 2025 for a total production of roughly 40 TWh (terawatt-hours). This means that mature renewable energy sources, whose costs are relatively competitive, should be favoured and non-mature renewable energy sources, which can be costly (e.g. offshore wind farms), must be enhanced further until their price comes down.

THE NECESSITY OF INSTITUTING A CARBON PRICE SIGNAL

Progressively instituting a credible carbon price signal adapted to the objective for 2030 constitutes the best means to spark new investment.

Drawing on the 2006 *Stern Review on the Economics of Climate Change*, France has recommended increasing the reference value of carbon 4% per year to € 56 per tonne of CO₂ in 2020 and € 100 per tonne of CO₂ in 2030, which would allow the country to meet its goal of reducing GHG emissions by 75% by 2050 (the law on the energy transition for green growth uses these values to determine a carbon tax on fossil fuels).

However, if the COP21’s ambitious goals are to be met – e.g. reducing the EU’s GHG emissions by 60% by 2030 – the carbon price would have to be raised to ap-

proximately € 150 by 2030 (a precise calculation has yet to be made). Such a tax would be certain to have an impact on household income and consumption. France’s Treasury estimates that if it were redistributed to businesses and households, it could contribute to fostering growth and create jobs by lowering labour costs indirectly.

The sharp decrease in the price in fossil fuels is yet a further reason to increase the reference value of carbon. But despite the importance of setting a price on carbon, it alone cannot steer the energy transition.

Green R&D must be subsidised to encourage manufacturers to innovate via green technologies. Barriers are also present in housing. A carbon tax on the energy sources currently used in buildings could raise funds to renovate housing to make it more energy efficient. Action that is profitable today can be prioritized until expensive projects become more profitable as the price of carbon climbs.

Lastly, public authorities must work to better understand individuals’ behaviour. This will allow them to raise awareness and ultimately change people’s habits, making them less energy intensive and limiting the risk of rebound effects.

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FIVE QUESTIONS TO OPEN UP THE DEBATE

1. How realistic is the objective of limiting global warming to well below 2°C?
2. Should the EU take the lead or go along with the international community? How can competitiveness be reconciled with the ambitious climate goals?
3. How can Europe’s use of coal to produce electricity be reduced?
4. What could a possible path for a carbon price be in France? How can people’s behaviour be made less energy intensive?
5. On what basis should the electricity market be rebuilt?

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