Chairman and CEO

European Commission
Directorate-General Climate Action
Unit A.4 – Strategy and Economic Assessment
Directorate General Energy
Unit A1 – Energy Policy

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Object: response to the public consultation for a framework for 2030 climate and energy policies

Dear Director-General,

I would like to thank you for undertaking a public consultation process on the framework for 2030 European climate and energy policies. I hereby wish to present to you our understanding of the issues as a complement to IETA's contribution which we also support.

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I. THE SIX LESSONS LEARNED FROM THE 2020 FRAMEWORK IN TERMS OF DRAWING UP POLICIES FOR 2030

1. A 20% reduction in CO_2 emissions by 2020: a target that has apparently been achieved

The 2020 climate & energy package consists of three targets: reducing greenhouse gas (GHG) emissions by 20% compared with their 1990 level (i.e. by 21% compared with 2005), reaching a 20% renewable energy (RE) target in the European energy mix (of which 10% for transport), and generating additional energy efficiency savings of 20% (decrease in primary energy consumption). The first two targets are binding, although the third one is not.

The most outstanding success of this 2020 Climate & Energy Package is achieving the EU CO_2 emission reduction target. In fact, the EU's CO_2 emissions saw a reduction of around 12% in 2012 compared with 2005, i.e. 85% of the target was achieved eight years before the target date. Forecasts tend to show that the 20% target is achievable, all other things being equal. Most of these reductions were achieved in the industrial and power generation sectors, which are governed by the European Union Emission Trading Scheme (EU ETS), while the "non-EU ETS" sectors were covered by other kinds of European and national measures. At the end of Phase 2, CO_2 emissions covered by the EU ETS had decreased by 11.9% since 2008, and by 7.3% since 2005. CDC Climat Research's research shows that the two main factors behind the 1.1 $GtCO_2$ reductions between 2005 and 2011 were the fact that around 30% of the reduction was the result of a fall in manufacturing output, while around 40% of the reduction was caused by the increasing roll-out of renewable energy. The carbon price impact recorded by the EU ETS does not seem to have been the main driver for CO_2 emission reductions in Europe (Gloaguen O. *et al.*, 2013). Lastly, although the EU is reducing the CO_2 emissions generated by its manufacturing output and power generation, CO_2 emissions from consumption within the EU have been rising steadily, in view of increasing goods imports[1].

Good progress towards the RE target has also been made, including a significant increase in RE's share of the energy mix, especially in the power generation sector. Our estimates point to the fact that the increase in RE generation will reduce emissions by 3.2 $GtCO_2$ over the period between 2008 and 2020, i.e. 63% of the effort that needs to be made if the targets are met (Berghmans, 2012). However, public investments and support mechanisms have seen something of a slowdown since 2010, as a result of the economic downturn and of its impact on public finances.

The third target, which is not binding, relates to energy efficiency, and is the one that is least likely to be achieved by 2020. The Energy Efficiency Directive, which is expected to enable an improvement of only 17%, actually points out that this target is very ambitious, and that it involves substantial efforts (and investments) in order to reduce energy consumption in many economic sectors, including housing and transport, while such efforts remain dependent on Member States showing a strong political will. Lastly, in contrast to the two other targets (GHG emissions and RE), which are easy to understand and assess, the concept of energy efficiency is less immediate and more complex to measure, and therefore less likely to attract political backing and determination.

2. The EU ETS & project mechanisms = lower-cost CO_2 emission reductions

A key issue for any emission trading scheme is knowing whether a market price is developing for allowances, and whether participation in this market is broad enough to reach the environmental target at a lower cost. In terms of the way the carbon price is determined, Phases 1 and 2 of the EU

[1] According to the Eurostat (2012) data, the value of the EU-27's imports increased by 38.4% between 2005 and 2012, while the import index rose by 30 pts over the same period. http://epp.eurostat.ec.europa.eu/portal/page/portal/international_trade/data/database#

ETS have shown that the carbon price adapts to market fundamentals, even in a period when political uncertainty is high. Several research papers on the EU ETS have shown a net correlation between the carbon price and the relative price of fuel, which is an indicator of marginal reduction costs. This link is also evident where the impact of major events on the EUA price is concerned. The decline in the carbon price, which has fallen from a level of €25-30 to around €6.50 during Phase 2, is a good example, as it is a rational reaction to the fact that the European economic situation undoubtedly means that no additional reduction will be necessary to meet environmental targets during Phase 3 of the EU ETS. The carbon market mechanism has therefore proved its great capacity to adjust, as expected, to short and medium-term market fundamentals, in order to ensure a predefined reduction level at a lower economic cost (Sartor *et al.*, 2012). Where liquidity since 2005 is concerned, the EU ETS has been the most liquid allowance trading scheme in the world, and one where the trading volume and allowance turnover rate have continually increased. In total, 26.3 million EUAs were traded in Phase 2 of the EU ETS, based on the issuance of around 9.9 billion EUAs, which therefore corresponds to a turnover rate of 264% (*Tendances Carbone*, 2013).

The reduction in CO_2 emissions at a lower cost was also achieved via the use of project mechanisms. Kyoto credits have always been cheaper than EUAs, initially as a result of asymmetric information, and then due to the maximum credit return threshold (around 1.6 billion tCO_2e at the European level), which does not exist for allowances. The return of credits therefore enables installations to reduce their costs. According to CDC Climat Research's estimates, the minimum savings (Table 1) achieved by the EU ETS operators who returned their international credits for compliance purposes amounted to €4 billion, including €2.3 billion through purchasing credits generated by the Clean Development Mechanism (CDM), and €1.6 billion as part of Joint Implementation (JI). These savings are under-estimated, as they do not take into account the additional benefits that industrial companies have been able to obtain through also being at the origin of the project, and therefore obtaining credits at a lower price on the primary market (Stephan *et al.*, forthcoming). The under-estimate is also due to the fact that the higher prices for EUAs that could have been charged in the absence of foreign credits due to a weaker supply and demand ratio are not taken into account (Shishlov *et al.*, 2012).

Table 1 – Estimated minimum savings achieved by EU ETS installations in Europe

Year	Average EUA-CER annual spread, weighted according to the volume of CERs traded (Dec contract)	Returned CERs (mt)	Minimum CER savings (€m)	Returned ERUs (mt)	Minimum ERU savings (€m)
2008	4.05	**83.5**	338.2	**0**	0.0
2009	1.54	**77.4**	119.6	**3.2**	4.9
2010	2.06	**117.1**	240.7	**20.1**	41.3
2011	3.34	**177.8**	593.6	**75.8**	253.1
2012	4.87	219.5	1 068.7	284.1	1 383.2
Total		**675.3**	**2 360.8**	**383.2**	**1 682.5**

Source CDC Climat Research, CITL and ICE Futures Europe

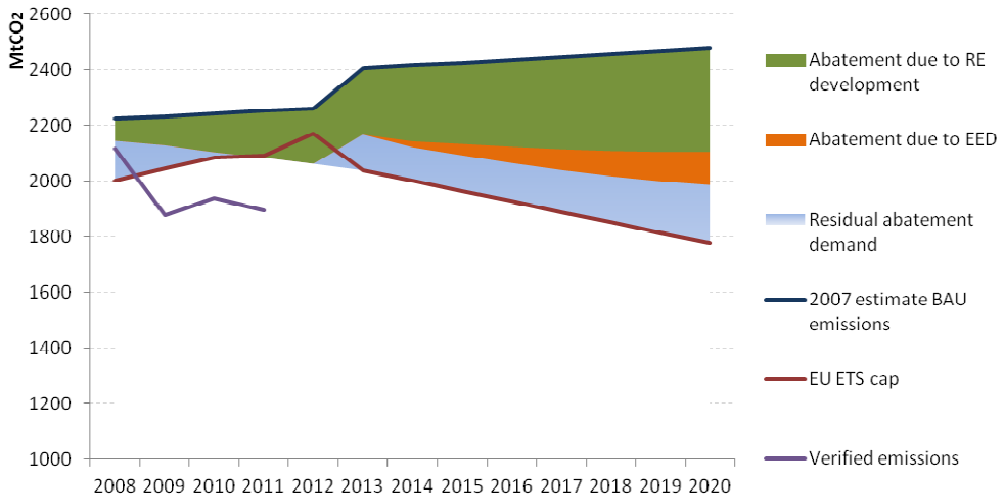
3. Overlapping policies & the coordination and consistency of targets with no long-term goal mean that the EU ETS has been marginalised

The various climate and energy policies implemented in Europe (and by Member States) suffer from a certain level of overlap, which hinders their cost effectiveness for companies, citizens, and consumers. Is a 20% RE target genuinely compatible with a 20% efficiency gain and a 20% reduction in emissions? To what extent are the 20% RE target, and therefore the related support

policies and mechanisms, compatible with an allowance system and a CO_2 price that is neutral as far as promoting low-carbon technologies?

When the 2020 Climate & Energy Package was drawn up, the reduction effort required in the EU ETS sectors had been set at 5 $GtCO_2$ during the period between 2008 and 2020 (excluding the aviation sector, which was added in 2012). Previous estimates, which were based on the same scope and period, were planning on a reduction arising solely from expanding RE to 2 $GtCO_2$ (4% of the effort). Meanwhile, adding the energy efficiency target would also enable emissions to be reduced by around 2.5 $GtCO_2$, i.e. 50% of the effort required. If we add the Kyoto credits, namely 1.65 $GtCO_2$ (Bellassen *et al.*, 2011), the residual domestic emission reduction requirement is estimated at 900 $mtCO_2$, i.e. only 18% of the total effort (Berghmans, 2012). Since then, the economic downturn has changed the rules of the game. During the period between 2008 and 2011, emissions in the ETS sectors were around 1 $GtCO_2$ lower than analysts' pre-downturn estimates[2], which resulted in the net emission reduction requirement within the EU ETS disappearing over a four-year period, and in making this instrument for reducing emissions at a lower cost obsolete (Figure 1).

Figure 1 – Abatement due to Renewable Energy and to the Energy Efficiency Directives within the EU ETS framework



Source: CDC Climat Research from, impact assessment of the Climate and energy package (2008), CITL data, impact assessment on the Energy efficiency directive (2011) and reports on MS' National Renewable Action Plan (2011).

Moreover, policies aimed at promoting renewable energy and energy efficiency meet other targets than simply reducing CO_2 emissions (energy security, productivity, and industrial development, etc.). Although it is not calling the legitimacy of these policies into question, CDC Climat Research is underlining the crucial need for genuine coordination between the various climate and energy policies in the future. The interaction between these policies may make a certain number of them redundant, or even useless, in terms of achieving the CO_2 emission target, and may cancel a portion of the benefits expected from all the policies' emission reduction efforts (Berghmans, 2012). In the case of the EU ETS, the expected benefits are meeting the reduction targets at a lower cost.

The spectacular fall in the CO_2 allowance price between 2008 and 2012, which was primarily due to the incorporation of renewable energy and to the fall in manufacturing output, also shows this need for coordination (Gloaguen *et al*. 2013; Berghmans, 2012). We would remind you of the fall in allowance price when the draft Energy Efficiency Directive was published in June 2011. Even though the operation of the EU ETS is not being called into question, the price fall that it displays has had an extremely negative impact on its development prospects.

[2] Deutsche Bank (2008) report: "It takes CO_2 to Contango"

4. Competitiveness of industrial companies and carbon leakage: a minor effect of the CO_2 price

Now that the EU ETS has been operating for eight years, there is no empirical evidence of carbon leakage. Ellerman *et al*. (2010) have shown that, from the introduction of the EU ETS in 2005 and until 2009, when carbon prices were at a record high, net European imports of steel, cement and aluminium products had not increased due to the introduction of carbon pricing, once other relevant factors had been taken into account. Other studies seem to confirm these results. For instance, the IEA (2008) and Sartor (2011) have observed that there was no sign of carbon leakage in the aluminium industry during Phases 1 and 2 of the EU ETS. Meanwhile, Quirion (2011) did not notice any sign of carbon leakage in the cement, steel, aluminium and paper sectors in his econometric research. Overall, these studies show that even though some of these sectors have seen instances of relocation occur since the EU ETS was set up, this was due to more general changes in the global production structure and in the organisation of trade. Therefore, the carbon price does not appear to be a major explanatory factor.

Furthermore, even if a future competitiveness issue might not have been identified by this *ex post* research, the current free allocation solution responds to the international competitiveness issue by granting an overall free allowance allocation for the sectors identified as being exposed to carbon leakage outside the EU.

5. The EU has adopted an exemplary position in international climate negotiations, although it has not received an equivalent commitment from other countries

Although the implementation of the 2020 Climate & Energy Package was driven by domestic targets, the EU's aim to reduce CO_2 emissions also extends beyond its borders. Since the 2000s, the EU has played a major role in international climate negotiations, in order to encourage other countries to commit to implementing a domestic and international climate policy.

Within the framework of the UNFCCC, the EU has played a major role in terms of implementing the second commitment period in the Kyoto Protocol, which was agreed at the 2011 Conference of the Parties in Durban, while its technical conditions were determined at the 2012 Conference of the Parties in Doha. Following the defections of Canada, Russia, and Japan in 2011, and then of New Zealand, 37 countries, which represent 14% of global emissions, ultimately committed to reducing their emissions compared with the benchmark year. Despite this outcome, which may appear minimal, this second period enables the economic mechanisms implemented by the Protocol to be retained, together with the ties between industrialised and emerging and developing countries.

The EU has also played a driving role in developing project mechanisms defined by the Kyoto Protocol, i.e. the CDM and JI, by authorising EU ETS participants to use around 1.6 $GtCO_2e$ in international carbon credits between 2008 and 2020, in order to fulfil a portion of their compliance obligations. Through its own EU ETS, the EU has therefore encouraged the introduction of emission trading schemes in other countries. The EU is also involved in rolling out its expertise in this area to countries like China that are willing to introduce such schemes. In addition, the EU is opening a pathway for links between allowance schemes. As from 2015, the EU ETS will be partially connected to the Australian allowance scheme and fully connected to the Swiss scheme. Lastly, the EU is also playing a driving role in defining a sector-based climate agreement for international aviation within the International Civil Aviation Organisation (ICAO), after attempting to include non-European flights in the EU ETS.

However, the EU's increased commitment to reducing its emissions depending on an equivalent commitment by other countries did not work out. This observation at the country level nonetheless runs contrary to the scope of carbon pricing schemes, which now cover 7% of global emissions, primarily due to the entry into effect in 2013 of a carbon exchange in California, the "world's eighth

largest economy" (World Bank, 2013). In addition, allowance exchanges covering around 500 $mtCO_2e$, i.e. one quarter of the emissions covered by the EU ETS, are currently being set up in seven Chinese provinces and districts (World Bank, 2013). Therefore, even though the European example did not have the expected effect on other countries, we can observe a knock-on effect at the international level, through an increasing number of carbon pricing schemes.

CDC Climat Research would stress that global warming is a global problem, which will only find a solution on a world-wide level. As a result, it is obviously necessary for the EU to make significant efforts to reduce its emissions and to continue to introduce ambitious targets; however it is just as necessary and fundamental that the EU puts as much pressure as possible on obtaining a global agreement that encourages the geographical extension of emission monitoring schemes at the next climate negotiations in 2015.

6. The financing of low-carbon technologies: mixed results for CCS technologies

The main mechanism introduced with a view to encouraging investments in low carbon technologies is the so-called "New Entrants Reserve 300" (NER 300) program. This program provides for withholding 300 million allowances from the Phase 3 NER programme and for the proceeds from their sale on the market (carried out the by the EIB) to be used to finance demonstration projects focusing on geological CO_2 capture and storage (CCS), as well as on technological innovations in the RE field.

The first stage of this allowance sale (since December 2011) generated €1.6 billion. Virtually all the RE projects among the twenty projects selected were confirmed, and will receive around €1.2 billion. Conversely, none of the CCS projects was confirmed, for various reasons, including a lack of financing, or projects that were not sufficiently developed, etc.

For the record, the roll-out of new low-carbon technologies like CCS requires economic and political support in order to help develop these technologies during the decade between 2020 and 2030, which is a key condition of the EU 2050 Road Map. Aside from making funding for CCS dependent on the EU ETS, an additional financing policy appears necessary in order to support the NER 300's poor track record in supporting the roll-out of CCS.

II. TOWARDS A SINGLE AND AMBITIOUS CO2 EMISSION REDUCTION TARGET OF AT LEAST 40% IN 2030

Which targets for 2030 would be most effective in driving the objectives of climate and energy policy? At what level should they apply (EU, Member States, or sectoral), and to what extent should they be legally binding?

CDC Climat Research believes that it is essential to set an ambitious target for reducing GHG emissions that is in line with the long-term goals established by the "Roadmap for moving to a low-carbon economy in 2050[3]", which was published by the European Commission in March 2011. The 2030 reduction target, as compared with 1990 for the entire European Community, should therefore be between 40 and 44%, i.e. at least double the 2020 target. Basing the 2030 target on a longer-term outlook would boost its credibility, which is crucial for setting economic players' expectations, while putting the EU on track to complying with the international 2 °C global warming target, which was adopted in Cancun in 2010.

[3] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:fr:PDF

Where the application of this target is concerned, CDC Climat Research is encouraging the EU to continue differentiating between a target for the EU ETS sectors and for the other sectors. The target that concerns the main industrial sectors covered by the EU ETS must be raised, as it has demonstrated its ability to generate emission reductions[4] at a lower cost, so that it is not marginalised by targets promoting the roll-out of renewable energy or improving energy efficiency. Due to the principle of subsidiarity, and to the differences between capabilities at the sub-national political level between Member States, setting national targets that include a free choice of the instruments to introduce in order to reach them seems more appropriate where non-EU ETS sectors are concerned.

Achieving the 2020 climate target as expected, and the steady progress of renewable energy within the EU up until now argue in favour of retaining targets that are explicitly set down in a European directive.

Lastly, setting specific sector-based targets may appear justified, in theory, in sectors where decarbonisation assumes heavy upstream investments, which will not be profitable in the short term, but will reduce the cost of the long-term transition. In reality, however, it is preferable for sector-based targets to remain the exception rather than the rule, as it is difficult to determine how to share the appropriate effort that will offset the short-term additional costs inflicted on other sectors in the economy. These sector-based targets will therefore need to be duly justified by a thorough cost-benefit analysis, which is ongoing over time and may be reincorporated into multi-sector targets if the experiment is not conclusive.

Have there been inconsistences in the current 2020 targets and if so how can the coherence of potential 2030 targets be better ensured?

The first inconsistency that we can observe in the way that the 2020 targets were set is the different treatment of the energy efficiency target. Unlike the other two targets, it was not explicitly included in a directive, even when the Energy Efficiency Directive was adopted in 2012, and did not give rise to an application on a country or sector basis, which could have enabled more effective implementation.

This target also suffered from a lack of detail when it was set. Indeed, it was determined based on a business-as-usual scenario for the EU, which implies using a forecast model in order to assess the target in terms of primary energy consumption levels in Europe. This target consumption level therefore varies according to the economic environment, which complicates both its implementation and its assessment. Therefore, among other reasons, it is likely that the energy efficiency target will not be achieved. This situation ultimately reduces the credibility of the Climate & Energy Package targets, despite the fact that such credibility is crucial for long-term targets.

In addition, there are complementary areas and inherent tensions between the three targets that have been set. As previously explained, developing renewable energy and improving energy efficiency also reduce CO_2 emissions within the scope of the EU ETS. Therefore, when the Climate & Energy Package was drawn up, the reduction effort that needed to be made for the ETS sector, except for the aviation sector, which was added in 2012, was set at 5 $GtCO_2$ over the period between 2008 and 2020. Previous estimates for the same scope and the same period increased the emissions which were reduced simply through the development of renewable energy to 2 $GtCO_2$, to which a further 0.4 $GtCO_2$ can be added due to the adoption of the Energy Efficiency Directive, i.e. only 50% of the effort to be made. If we add the importation of Kyoto credits, which was authorised in the European market over the period, i.e. 1.65 $GtCO_2$, (Bellassen *et al.*, 2011), the residual emission reduction requirement is estimated at 900 $mtCO_2$, i.e. only 18% of the effort to be made. Since then, the

[4] Ellerman, D., F. Convery and C. de Perthuis (2010) "Pricing Carbon: The European Emissions Trading Scheme" Cambridge University Press

economic downturn has changed the rules of the game. Between 2008 and 2011, emissions from the ETS sectors were around 1 $GtCO_2$ lower than analysts' estimates before the downturn[5], which caused the net emission reduction requirement within the EU ETS to disappear over a four-year period, and made this instrument obsolete in terms of reducing emissions at a lower cost (Berghmans, 2012).

Lastly, the final inconsistency results from the lack of targets in sectors that are nonetheless severely affected by the Energy & Climate Package. The forestry sector is the best example: it is neither the subject of strong policies at the Community level, nor of a binding target in terms of forest-based carbon capture (Baron *et al.*, 2013). The sector therefore bears the full brunt of the Energy & Climate Package's incentives to use wood for power, with no equivalent incentive to replenish carbon stocks. The carbon gain made in the energy sector might therefore be achieved to the detriment of the forestry sector (Bellassen and Deheza, 2012)**.** The farming sector is in a similar situation, to a lesser extent, where incentives to grow more biomass for power generation purposes are not counterbalanced by strong incentives to control emissions relating to the production of this biomass (use of additives, and tillage, etc.). Both these examples underline the importance of generalising incentive standards and tools, in order to provide consistent incentives to all the EU's economic sectors.

An ongoing assessment of whether the Climate & Energy Package targets are being achieved is available in the assessment reports provided by the European Commission and the Member States. However, greater emphasis should be placed on assessing the interaction between the various targets. For instance, the assessment of the emission reductions due to the development of renewable energy is patchy, and does not correspond to the division of targets between the EU ETS sectors and non-EU ETS sectors defined by the Climate & Energy Package. A more in-depth assessment of the interactions between policies would provide food for thought regarding the adjustments to the EU ETS required by changes in other "climate & energy" policies. An explicit ranking of the various targets in the Climate & Energy Package would also be welcome.

How can targets reflect better the economic viability and the changing degree of maturity of technologies in the 2030 framework?

The increasing difference in the competitiveness and maturity of various renewable energy technologies makes a single target harder to justify after 2020. The main economic justification for the 2020 20% renewable energy target is to help these industries (and other innovations) to overcome the barriers to their commercial competitiveness that result from the limited access to economies of scale that would enable them to reduce their costs, unlike already established technologies (IEA, 2011). The targets could therefore enable immature renewable technologies to clear various hurdles. However, once a significant production scale is achieved, as is arguably the case for wind power or, for example, or once the technologies begin to be commercially viable or close to commercially viable without specific policies, as is arguably the case for solar PV in some retail power markets, the case for the existence of targets for these technologies falls.

Once renewable technologies with a significant market potential begin to be competitive at market prices, the political approach should switch from a supply-based policy to a policy that is both demand-driven and as neutral as possible at the technology level. In other words, the supply-based policies for each technology must be abandoned in favour of demand-driven policies like carbon pricing, in order to ensure competitiveness on the market. Once the technologies are sufficiently mature, demand-based policies have the additional advantage of not "picking the winners" and of leaving it up to price and cost-based competition to determine the technologies adopted by the market.

[5] Deutsche Bank (2008) report: "It takes CO_2 to Contango"

In practice, given the significant boost which renewables support policies have already given to renewable technologies in general, and their increasing competitiveness, there is a good argument for removing broad renewables targets from the 2030 package and strengthening demand side policies – such the EU ETS's emissions reduction goals to 2030 – to ensure their longer term viability. For those technologies which are not yet close to maturity and commercial viability, more nuanced approaches than broad targets may be preferable – for example, direct funding for trial projects, R&D, etc. As the International Energy Agency has argued (IEA, 2011), the appropriate approach actually depends on the point that these technologies have reached on the cost curve.

III. THE EU ETS IS THE CENTRAL INSTRUMENT RATHER THAN THE RESIDUAL INSTRUMENT FOR REACHING THE AMBITIOUS CO2 EMISSION REDUCTION TARGET BY 2030.

How should specific measures at the EU and national level best be defined to optimise cost-efficiency of meeting climate and energy objectives?

An initial factor behind making cost-efficiency gains when achieving climate & energy targets would be to boost the EU ETS' emission reduction target, so that it is no longer a "residual policy" within the EU Climate & Energy Package. This instrument, which covers 40% of European GHG emissions, has proved its ability to reduce emissions in industrial sectors at a lower cost[6].

We also need to clarify the governance and assessment of the various policies implemented, in order to ensure that the CO_2 emission reduction target is achieved. The negative interactions resulting from the lack of coordination between these various policies call for greater adjustment and better coordination between the EU ETS cap, the goals of the complementary policies and the amount of credits used. In reaction to an unexpected and long-term reduction in industrial output, the EU ETS, which had met the emission reduction cost fundamentals and reduction targets up until 2011, has turned into an increasingly volatile mechanism, where the trend follows the political popularity of the Commission's "backloading" proposal, which has seriously dented the EU ETS' credibility as a policy instrument.

Therefore CDC Climat Research suggests looking at introducing a clear, transparent and predictable governance system, which is capable of authorising an adjustment to emission allowances depending on the economic environment, and specifically in the event of exceptional circumstances, while guaranteeing the credibility of the EU's commitment to reduce its emissions over the long term. In short, the aim would be to introduce foreseeable flexibility. Therefore, a permanent mechanism could be set up in order to introduce a certain amount of elasticity in supply. For instance, the European Commission or an independent body could be requested to review the fine-tuning between the benchmark scenario, the market emission cap, the impact of overlapping policies and the availability of carbon credits every five years, in order to suggest an adjustment to the linear factor, if required. In the forthcoming Australian CO_2 market, the Government will set the annual emission ceilings five years in advance, on the recommendation of an independent body, the Climate Change Authority[7]. However, such a level of flexibility would need to be governed by a strict framework and submitted to political approval in order to maintain the long-term credibility of the emission cap, which must remain the condition precedent for any short-term flexibility.

A second factor would involve ensuring a better assessment process for the economic maturity of low-carbon technologies. Therefore, it would be useful to establish or to provide indications regarding a timetable or the conditions required for gradually abandoning policies to support

[6] D. Ellerman, F. Convery, and C. de Perthuis (2010) "Pricing Carbon: The European Emissions Trading Scheme" Cambridge University Press

[7] http://www.cdcclimat.com/IMG//pdf/12-05_point_climat_no15_-_ets_australien.pdf

renewable energy, in order to limit their costs and to enable competition between decarbonisation technologies, as support policies usually differ depending on the industry.

Lastly, a third factor aimed at achieving cost-efficiency gains would be the development of "offsets" in Europe through

- broadening the compliance options, for instance by extending the option to use European credits for installations that are subject to the EU ETS. In this regard, we would note that the EU is the only region in the world that does not dedicate part of its demand for credits to domestic projects. All the other carbon pricing frameworks (California, RGGI, Australia, New Zealand, China, and South Korea, etc.) do this, and some even completely exclude international credits;
- and by guaranteeing the sustainability of supply, by following JI that is limited to European projects, or by putting Article 24a of the EU ETS into operation.

This kind of mechanism enables the carbon price to be extended to other sectors of the economy and to allow new emission reduction reserves to emerge. It has proved that it was cost-effective for government finances, since it operates on the basis of private funding, via the demand emanating from the EU ETS, and for the economy, since projects for mitigation drivers that were not foreseen by the public powers emerge on a bottom-up manner, and in a way that is profitable for the private sector (Shishlov *et al*., 2012)**.** The only area that requires particular attention in order to optimise the cost-efficiency ratio is the identified cost of reducing emissions for each kind of project: where projects show that it is possible to monitor emissions in a sector at a low cost (see N_2O emissions in the fertiliser industry), it is appropriate for the sector to be governed by the EU ETS (Shishlov *et al.*, 2012).

IV. INDUSTRIAL COMPETITIVENESS: FOR A STABLE, PREDICTABLE AND FLEXIBLE CO_2 REGULATION THAT LIMITS CARBON LEAKAGE AND SUPPORTS INNOVATION

Which elements of the framework for climate and energy policies could be strengthened to better promote job creation, growth and competitiveness?

First, the best way to ensure that energy and climate policies do not affect the macroeconomic environment is to ensure that the measures taken are the most effective means of achieving policy targets. Therefore, the importance of mechanisms like the EU ETS, which are designed in order to minimise the cost of mitigation, is crucial for limiting the overall economic cost of policies. Conversely, policies that aim to encourage specific technologies tend to increase the overall costs, if they are not properly calibrated. Therefore, it is important to try to limit the scope of these policies, and use them only in cases where there is a clear justification in terms of energy or climate policy. For instance, the main economic justification for the 2020 20% renewable energy target is to help these industries overcome any obstacles to their commercial competitiveness that result from the limited access to economies of scale that would enable them to reduce their costs, unlike already established technologies (IEA, 2011).

In addition, the Climate & Energy Package should only focus on the climate and energy arena, and so leave employment, growth and competitiveness targets aside. It is important for the 2030 Climate & Energy Package not to infringe on industrial policy. There are good reasons for keeping macroeconomic and climate & energy policies separate. First of all, the empirical data and the models show that up until now, the macroeconomic impact of ambitious energy or climate policies is likely to have been negligible (for instance, Ellerman *et al*., 2010; Sartor and Leguet, 2013[8]). This

[8] O. Sartor, and B. Leguet (2013) "The French Energy Transition and Economic Competitiveness: Be productive!", Climate Brief No. 28.

is partly due to the fact that energy costs account for a much lower proportion of the economy than in the past (Sartor and Leguet, 2013) Furthermore, although some sectors will see their share diminish, other sectors will expand. The shrinking of sectors that are traditionally highly carbon-intensive should be offset by the growth of new business sectors. To provide an example that is unrelated to energy, the manufacturing sector has been contracting since the 1970s in most developed countries, while the weighting of the services sector has increased in terms of economic growth, international trade, and employment. Therefore, turning energy and climate policies into the means of expanding specific "strategic" sectors is likely to be counterproductive over the long term.

Second, by pursuing macroeconomic policy targets through energy and climate policies, there is a risk of focusing excessively on specific technologies, which may be considered as representing the desirable industries of the future, without assessing their real value in terms of energy and climate targets. As mentioned earlier, this tends to increase the overall economic costs of a climate and energy policy, and therefore to be a self-defeating economic policy.

What evidence is there for carbon leakage under the current framework and can this be quantified? How could this problem be addressed in the 2030 framework?

As mentioned in the answer to the question on the 2020 Climate & Energy Package, there is no evidence of carbon leakage after eight years of the EU ETS being in operation. Ellerman *et al.* (2010) have shown that, from the introduction of the EU ETS in 2005 and until 2009, when carbon prices were at a record high, net European imports of steel, cement and aluminium products had not increased due to the introduction of carbon pricing, once other relevant factors had been taken into account. Other studies seem to confirm these results. For instance, the IEA (2008)[9] and Sartor (2011)[10] have observed that there was no sign of carbon leakage in the aluminium industry during Phases 1 and 2 of the EU ETS. Meanwhile, Quirion (2011)[11] did not observe any signs of carbon leakage in the cement, steel, aluminium and paper sectors in his econometric research. Overall, these studies show that, although certain sectors have seen instances of relocation occur within the EU ETS timeframe, due to changes in global production and in the organisation of trade, the carbon price does not appear to be a major explanatory factor.

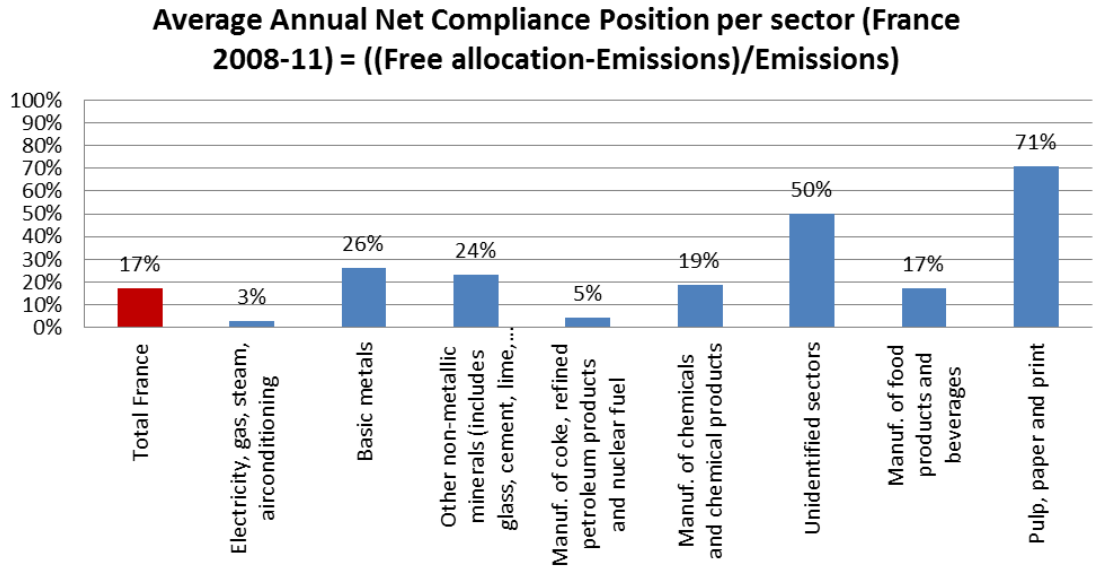
These results are logical from an economic standpoint. Most companies that take part in the EU ETS have received over 100% of the emission allowances required to offset the increase in costs resulting from the EU ETS free of charge (Figure 2). As a result, the net costs of the EU ETS for industry have been almost nil up until now.

[9] J. Reinaud, IEA (2008) "Climate policy and carbon leakage: Impact of the European Emissions Trading Scheme on Aluminium", IEA Information Papers

[10] O. Sartor (2011) "Carbon Leakage in the Primary Aluminium Sector: What evidence after 6 ½ years of the EU ETS?" CDC Climat Working Paper

[11] Quirion, P. (2011) "*Les quotas échangeables d'émission de gaz à effet de serre*: *éléments d'analyse économique* (Tradeable greenhouse gas emission allowances: economic analysis factors) HAL tel-00604374, Version 1 - 28 June 2011.

Figure 2- The excess emission allowances for highly energy intensive French industry covered by the EU ETS during Phase 2



Source: CDC Climat Research, CITL data

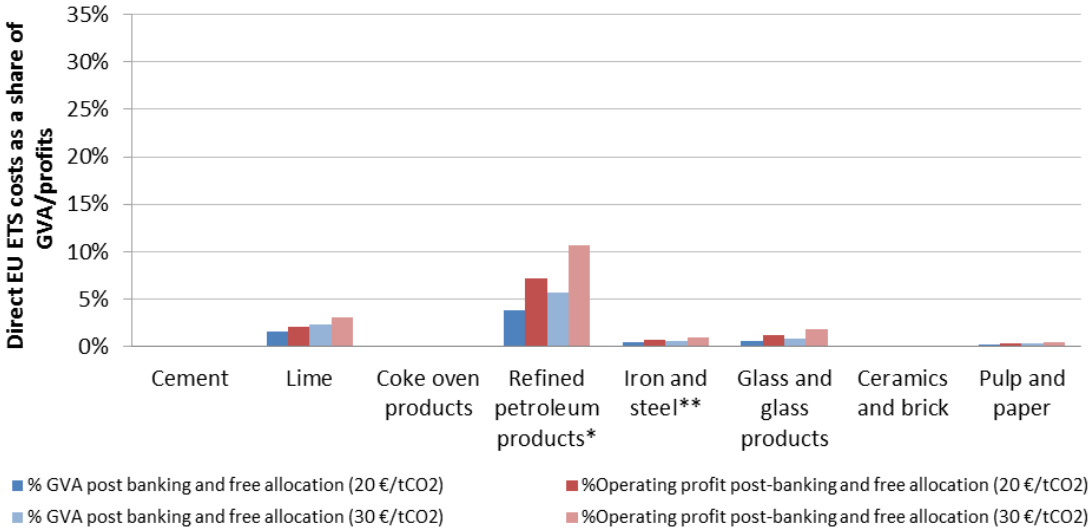
The current Climate & Energy Package continues to allocate a substantial proportion of the future emissions planned for sectors considered exposed to risk of carbon leakage up until 2020 (see Lecourt *et al.* 2013[12]). If the free allocation levels were to continue to apply, the risk of carbon leakage would remain extremely low (Figure 3) (Sartor and Spencer, 2013).

Moreover, the distorting effect of free allocations on incentives to reduce emissions has been demonstrated (Abrell *et al.*, 2011). This same effect could inhibit competition between technologies. For instance, the incentive for choosing between various construction materials depending on their induced CO_2 cost that the Climate & Energy Package provides to the construction sector is mostly offset by the free allocation for carbon-intensive materials (Bellassen and Deheza, 2012).

In theory, the difference between the price of carbon in Europe and in other regions of the world would be dealt with more appropriately by adjusting borders, thereby avoiding the negative effect of free allocations. However, due to technical feasibility issues, only a sub-group of high carbon intensity products would need to be handled by adjustments to the border. The political feasibility of this option is questionable, although it remains technically possible if specific precautions are taken so as not to breach the WTO rules (Cosbey *et al.*, 2012). One alternative would be to pursue a requirement for monitoring, notification and verification of emissions by product quantity for materials manufacturers, and to pass the economic constraint on to users of these materials (e.g. the construction and automotive sectors, etc.). Here again, the technical and political feasibility of this change still needs to be assessed. Until such a system is introduced, the free allocation by technological benchmark based on the best technologies available (i.e. the new system used for Phase 3 of the EU ETS) is the best approach.

[12] S. Lecourt, C. Pallière, and O. Sartor (2013) "The impact of emissions-performance benchmarking on free allocations in EU ETS Phase 3" CDC Climat Working Paper, http://hal.archives-ouvertes.fr/hal-00809096/

Figure 3 – Estimated direct carbon costs within the EU ETS framework in Poland during Phase 3, following the allocation of free allowances for each benchmark



Source: Sartor and Spencer (2013- forthcoming[13]).

**The refined petroleum product sector is a specific case in this context, due to the different treatment of auto-generated electricity. These costs are offset by other means that are not shown in this chart.*

Lastly, the Climate & Energy Package includes a harmonised European system for allocating compensation in order to offset "direct" CO_2 costs, and a decentralised system for allocating Government subsidies aimed at offsetting "indirect" CO_2 costs (namely the CO_2 costs borne by industry via the electricity price). This decentralised system raises the risk of competition distortion in the internal market. The potential for distortion results from the fact that Member States are responsible for the decision on the level of assistance for national industries. Member States with limited financial resources may find it harder to offset their industries than wealthier member States. The sense of injustice comes from Member States where electricity generation is based largely on the use of highly carbon intensive coal, as these States consider that they are being made to bear a higher portion of the cost in order to protect their industry from the increase in the price of electricity due to the CO_2 price. One potential improvement in the 2030 Climate & Energy Package could therefore be to make the offset system more centralised, with specific sources of funding (for instance, the auction proceeds), which have specifically been identified in order to help Member States to compensate their electricity-intensive industries.

How should uncertainty about efforts and the level of commitments that other developed countries and economically important developing nations will make in the on-going international negotiations be taken into account?

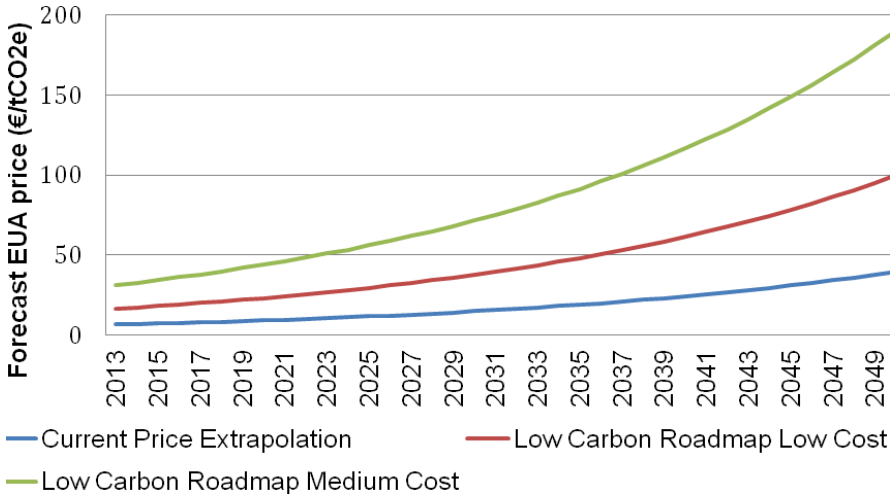
One of the main challenges that the EU is facing in terms of achieving its climate and energy targets at a lower cost is knowing how to issue long-term policy signals that are credible to investors in low carbon energy. These investments are often built to last and to generate profits over a period of 20 to 30 years. Therefore, if the EU ties its own long-term targets to the level and speed of progress in international negotiations, it will create uncertainty and doubt regarding the credibility of the targets announced in its own policy, especially if they are ambitious. This may reduce the effectiveness of national policies aimed at encouraging long-term structural changes in the energy sector and in other carbon-intensive industries. For instance, the current low European carbon price is solid proof that market players do not take the post-2020 targets currently included in the EU ETS Directive seriously (Figure 4). This is likely to increase the economic cost of changing energy source and

[13] O. Sartor and T. Spencer (2013-forthcoming) "Assessing Carbon Leakage Risks in Poland", IDDRI Policy Paper

other infrastructure in future, due to the highly carbon-intensive nature of the capital and of the lock-in on rolling out technologies ("lock-in" effect).

It would therefore be preferable for the EU to separate its targets from any dependency on the actions taken by other countries. This would not necessarily weaken its negotiating position, as there would always be an option to negotiate on many other drivers (e.g. climate financing, and the transfer of technology, etc.). This could contribute towards boosting the credibility and effectiveness of its own policy measures, and to reducing their cost. Moreover, given the EU's comparative disadvantage in terms of fossil fuel resources, the strategy of exemplarity goes hand in hand with the long-term competitiveness of sectors in the EU economy that are currently carbon-intensive.

Figure 4 – Market Implied Current EUA price pathway to 2050 vs. Abatement Cost Forecasts of Low Carbon Roadmap



Source: CDC Climat Research

Notes: this Figure shows an extrapolation of the average Jan-2013 EUA day-ahead futures prices as quoted on ICE, out to 2050, based on an assumed real risk-free discount rate of 5% p.a (the blue line) compared with two similarly discounted 2050 EUA prices forecasts as reported in the European Commission's Low Carbon roadmap impact assesstment.

How to increase regulatory certainty for business while building in flexibility to adapt to changing circumstances (e.g. progress in international climate negotiations and changes in energy markets)?

Regulatory stability, predictability and flexibility may appear to be contradictory goals, but this is not always the case. For example, a decision to re-calibrate the EU ETS in order to bring the CO_2 price back up to the levels that were expected when the scheme was set up does not necessarily conflict with the ensuring policy predictability. This move will seek to bring prices back to their previously "expected" levels. However, the existence of such flexibility may harm regulatory predictability. There are two ways of resolving this problem.

The first part of the solution consists in improving the calibration of the parameters for the existing policies, so that policy instruments are less vulnerable to unexpected shocks. For instance, research performed by CDC Climat Research has shown that the European CO_2 price would not have fallen as much during Phase 2 if other policies had not already done most of the abatement which the EU ETS was supposed to generate (Berghmans *et al.*, 2013).

The second part of the solution consists in introducing explicit flexibility mechanisms into the actual instruments, for instance by introducing a permanent supply-adjustment mechanism into the EU ETS. However, such adjustment mechanisms must be designed with care, in order to avoid affecting the necessary credibility of the long-term policy. Where a choice between long-term predictability and short-term flexibility is identified, long-term predictability must be prioritised.

From a practical standpoint, the intervention criteria will need to be explicitly restricted, perhaps via a limited list of situations that could clearly be defined as "abnormal operating conditions in the carbon market", i.e. material changes in the economic environment, technology shocks, and force majeure events, etc., as a "low" or "high" carbon price is not a sufficient criterion to justify adjustments to supply. The timetable for potential adjustments would also need to be widely known, so that the market could anticipate it well in advance. For instance, the Commission could be required to review the spread between the emission benchmark level, the market cap, the impact of overlapping policies and the availability of carbon credits every five years. It could then make proposals to the European Parliament and Council, in order to adjust the linear reduction factor. We therefore recommend that these adjustments remain subject to political approval, so as to help maintain the credibility and predictability of the long-term emission cap. To preserve regulatory predictability, it would not be desirable to link adjustment to the EU ETS supply to the progress of international negotiations.

How can the EU increase the innovation capacity of manufacturing industry? Is there a role for the revenues from the auctioning of allowances?

Technology and innovation are two crucial issues in terms of meeting the challenges that the European Union has set itself for 2020, as well as for 2030 and 2050. The EU must give even more encouragement to the introduction of new, sustainable, low-cost, high-performance and low-carbon technologies to the market, by offering a long-term strategic perspective on investments. The EU is still able to boost its research and innovation strategy by improving public funding and simultaneously eliminating the obstacles that hinder private investments.

Two decisions characterise the intention to use the income from allowance auctions for financing innovative technologies.

(1) The Consolidated Directive recommends that Member States[14] allocate a minimum percentage of 50% of the proceeds earned from auctioning allowances to measures relating to combating climate change and promoting innovation, especially reducing emissions, adaptation, energy efficiency, avoiding deforestation, research and development, and low-carbon transport.

(2) The auction of 300 million allowances withheld from the Phase 3 (2013-2020)[15] New Entrants Reserve (NER) by the European Investment Bank (EIB) will provide funding for demonstration projects based on the geological capture and storage of CO_2 and on innovative renewable energy technologies.

The vast majority of Member States has not yet officially approved the use of the income from the Phase 3 auctions. As from January 2013, Member States are subject to an obligation to account to the European Commission on this issue, under the terms of Article 10(3) of Directive 2009/29/EC[16]. To date, Member States' initial announcements on the use of the auction income display a wide disparity. Although Germany is planning to allocate this income directly to a climate & energy fund (EKF) responsible for financing climate policies, and primarily schemes for promoting energy efficiency, the United Kingdom, in contrast, has stated its intention of allocating this income to the

[14] Paragraph 3 of Article 10 of the Consolidated Directive http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2003L0087:20090625:FR:HTML

[15] The NER (New Entrants Reserve 300) is an instrument established by Article 10a (8) of Directive EU ETS 2003/87/EC, which was amended at the time of the 2009 Climate & Energy Package and was developed via a decision of the European Commission (2010/670/EU). http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:290:0039:0048:en:PDF

[16] See Article 10(3) of Directive 2009/29/EC: "Member States shall inform the Commission of the use of the proceeds and of the measures taken pursuant to this paragraph in the reports that they forward in accordance with Decision No. 280/2004/EC".

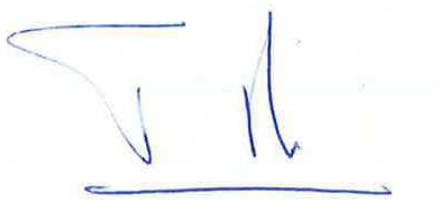
national budget for legal reasons. France has chosen a middle way: in the 2013 Finance Act, the country is planning to allocate the income from allowance auctions to the National Housing Agency "up to a limit of €590 million per year", primarily in order to finance the renovation of buildings' insulation (Chevaleyre *et al.*). However, Member States will have to learn to handle the very significant fluctuations in this financial resource. In fact, the volatility of the carbon price and institutional doubts at the European level are likely to make it hard to set up projects where the funding is based on this mechanism in isolation (Chevaleyre *et al.*).

An NER 300 for industry? Although energy-intensive industries will benefit from receiving a very large portion of their allocation in the form of free allowances during Phase 3 (2013-2020), most of them are not in favour of policies aimed at increasing the price of carbon in Europe (backloading[17] and structural options) as they fear that this price increase will have a material impact on their competitiveness at the international level. To make these players reconsider their position, and in order to ensure better traceability of the auction income, the European Commission should plan on using a portion of the proceeds generated by the auction of allowances to help industries meet their emission reduction targets, including by promoting the roll-out of innovative technologies in highly energy-intensive industries, as is the case for the existing NER 300 tool aimed at financing innovative CCS and RE technology.

V. EFFORT SHARING: THE PROMOTION OF DOMESTIC CO2 PROJECT IN NON-ETS SECTORS

What mechanisms can be envisaged to promote cooperation and a fair effort sharing between Member States whilst seeking the most cost-effective delivery of new climate and energy objectives?

Domestic offset projects, i.e. projects that are carried out within Europe, are an irreplaceable tool for reconciling a fair distribution of the effort and the cost-efficiency ratio. In fact, they enable emission reductions in the Member States that have the best implementation capabilities, i.e. where emission reductions are least costly, to be financed by the Member States which must make the greatest effort. These projects enable the involvement of sectors that cannot currently be included in the EU ETS for complex monitoring reasons. Examples include JI projects that are based on households 'energy efficiency, urban heating and agriculture.



PIERRE DUCRET

Chairman and CEO
CDC CLIMAT

[17] Commission proposal aimed at withdrawing 900 mt from auction allowances over the period between 2013 and 2015 in order to reintroduce them in 2019.

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ACRONYMS

	French		English
CAREV	Contrat d'Achat de Réductions d'Emissions Vérifiées	**ERPA**	Emission Reduction Purchase Agreement
CCNUCC	Convention-cadre des Nations Unies sur les Changements Climatiques	**UNFCCC**	United Nations Framework Convention on Climate Change
AND	Autorité Nationale Désignée	**DNA**	Designated National Authority
AOD	Autorité Opérationelle Désignée	**DOE**	Designated Operational Entity
EUA	Quota européen de CO_2	**EUA**	European Union Allowance
GES	Gaz à effet de serre	**GHG**	Greenhouse gas(es)
MDP	Mécanisme pour un Développement Propre	**CDM**	Clean Development Mechanism
tCO2éq	tonne d'équivalent CO2		
MOC	Mise en Oeuvre Conjointe	**JI**	Joint Implementation
UQA	Unité de Quantité Attribuée	**AAU**	Assigned Amount Unit
URCE	Unité de Réduction Certifiée des Emissions	**CER**	Certified Emission Reduction
URE	Unité de Réduction des Emissions	**ERU**	Emission Reduction Unit
UTCF	Utilisation des terres, leur changement et foresterie	**LULUCF**	Land Use, Land Use Change and Forestry
SCEQE	Système communautaire d'échange de quotas européen,	**EU ETS**	European Union Emission Trading Scheme