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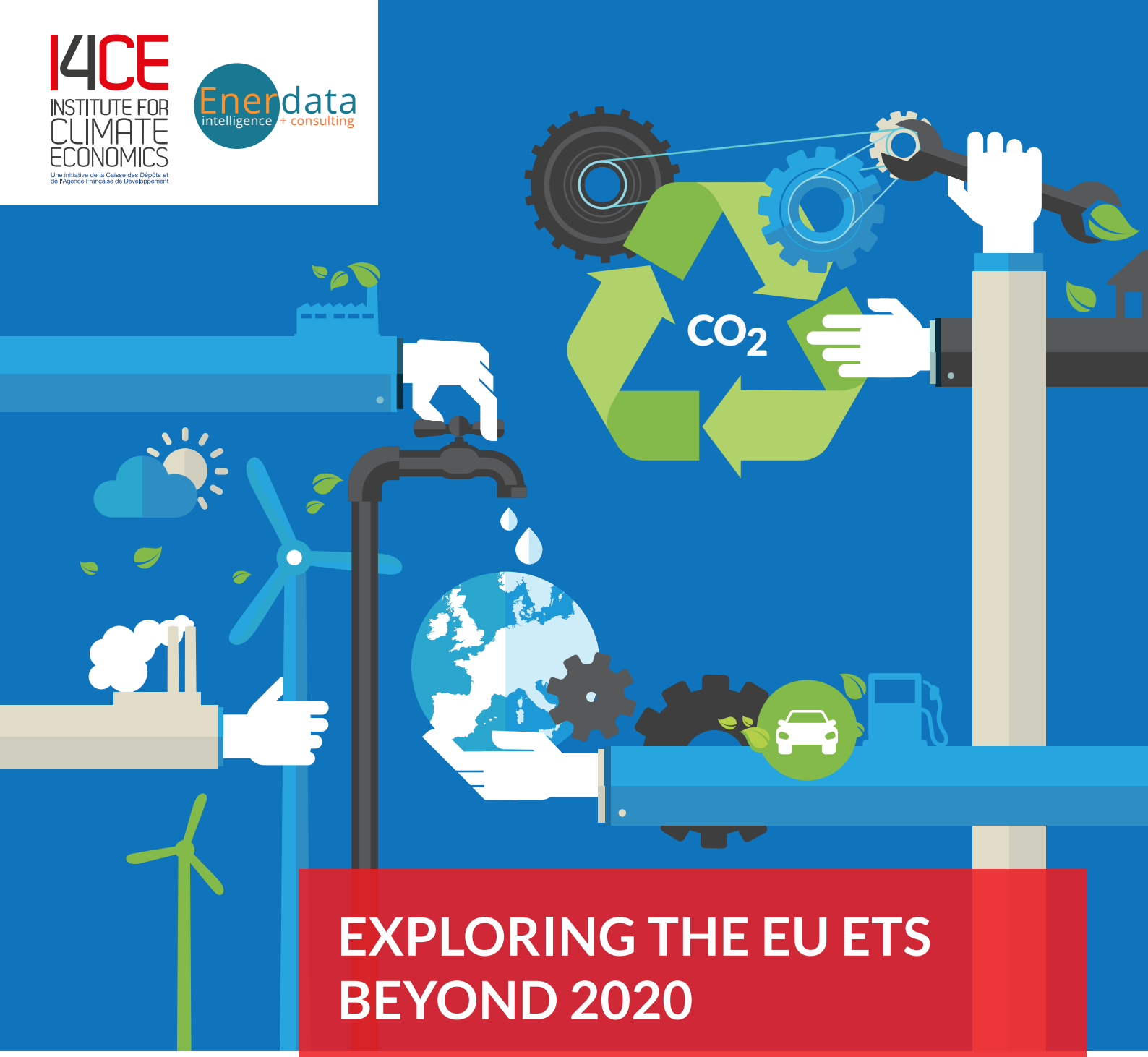

EXPLORING THE EU ETS BEYOND 2020

A first assessment of the EU Commission's proposal for Phase IV of the EU ETS (2021-2030)

COPEC Research Program: the COordination of EU Policies on Energy and CO_2 with the EU ETS by 2030

November 2015

in collaboration with IFP Energies nouvelles

This report was produced jointly by I4CE – Institute for Climate Economics and Enerdata, in collaboration with IFPen for Chapter 4. Emilie ALBEROLA conceptualized the research program.

The authors take sole responsibility for findings or ideas presented in this report as well as any errors or omissions. **This report does not reflect the opinion of the French Government.**

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In collaboration with the expertise of IFPen on transport issues

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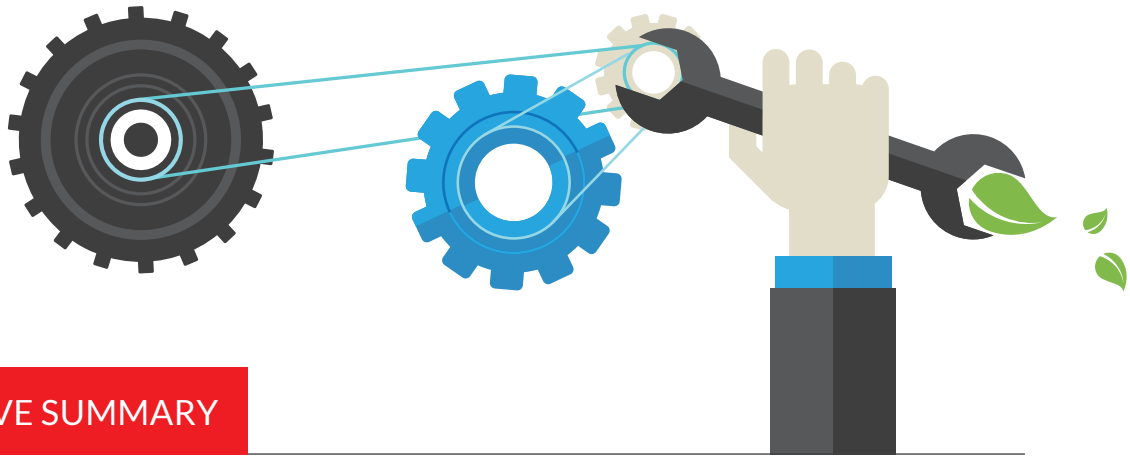

EXECUTIVE SUMMARY

With the release of the European Commission's Communication on a 2030 policy framework for climate and energy in January 2014 and the proposal for a revised European Union Emissions Trading Scheme (EU ETS) directive in July 2015, the European Commission has provided a new roadmap for the decarbonisation of European energy and industrial sectors beyond 2020. Entitled "*Exploring the EU ETS beyond 2020: a first assessment of the EU Commission's proposal for Phase IV of the EU ETS (2021-2030).* The report aims to prepare economic policy-makers for the debate surrounding the design of the 2030 framework for Climate and Energy policies and the revision of the EU ETS directive.

The new 2030 EU ETS target is in line with the 2050 roadmap towards a low-carbon economy.

The EU Commission's proposal provides an EU ETS GHG emissions reduction target of 43% by 2030, compared to 2005 levels, and a linear reduction factor for the cap which will be reduced by 2.2% from 2021 onwards. This new level of EU ETS ambition is rooted in the extended energy and climate policies package which sets three main targets to be achieved by 2030. The first is a binding EU target of at least 40% GHG reduction compared to 1990 levels, in line with the 2050 Roadmap towards a low-carbon economy, in addition to a binding EU-wide target of 27% renewable energy sources (RES) in final energy consumption and an indicative EU target for at least 27% improvement in energy efficiency (EE) compared to a 2007 baseline – with no binding obligation for individual Member States.

Based on these proposed targets, this report demonstrates that **a unique GHG emissions reduction target would help achieve the decarbonisation objectives at lower cost.** Indeed, a combination of different energy and climate targets will have some impact on the cost of the transition to a low-carbon economy. Adding RES and EE targets would decrease the ETS carbon price significantly, at around $€_{2010}10/tCO_2$ in 2030, but the costs of the necessary energy efficiency policies would be affected drastically, increased fourfold in comparison to a unique GHG target scenario.

Calibrating the EU ETS requires considering interactions with complementary climate and energy policies by 2030.

Due to existing market and behavioural failures that hinder the ability to exploit low-cost abatement potential, complementary instruments are necessary. However, the impact of the whole climate policy mix on the EU carbon price should be carefully assessed and justified in a transparent and comprehensive manner. The EU ETS emissions cap should account for complementary energy and climate policies in the same way that the 2020 Energy & Climate Package took into consideration renewable energy policies (which account for significant emissions reductions but have not impacted the EUA surplus). It appears that energy efficiency policies and offsets that were not factored into the cap have led to an increase of 1.5 $GtCO_2e$ in the surplus between 2008 and 2014. Comparatively, demand-side uncertainties (overachievement of RES policies, downturn) have contributed only 1.2 $GtCO_2e$ to the surplus.

The surplus of CO_2 allowances is estimated to reach 2.6 billion in 2020 and will grow, without any changes in rule, to more than 3 billion during Phase IV. The growing surplus has undermined the EUA price incentive which until now seems to have played a weak role besides creating a strong incentive for the reduction of 1.2 billion tons of CO_2 emissions outside the EU ETS through Kyoto credits (CDM-JI). As such, **some flexibility is necessary in the supply of free allowances to improve the resilience of the EU ETS to external shocks.** The correct balance must be found between improving long-term predictability so as to increase investor confidence, and increasing short-term flexibility for greater stabilization.

Complementary instruments should be more geared towards technology developments in system-friendly RES, storage and demand response measures. Together with more market-based renewable support and targeted power market-design, the ability of the EU ETS to drive emissions reductions in the power sector cost-effectively could be enhanced.

Introducing the Market Stability Reserve is necessary to support the ambition of the EU ETS.

Since the beginning of Phase II, the growing surplus of allowances has undermined the overall effectiveness of the EU ETS. Market participant myopia and a general lack of confidence in the scheme have encouraged them to focus on the short-term surplus instead of taking into consideration the expected long-term scarcity. Disclosed in January 2014, after an intensive debate among Member States, the MSR (Market Stability Reserve) legislative proposal was adopted by the EU Council in September 2015 and will enter into force in 2019. The legislation also stipulates the reintroduction of 900 million backloaded allowances and unallocated allowances in Phase III directly into the MSR, provisions for monitoring the MSR including two reviews in Phase IV, and increasing the responsiveness of the mechanism. The MSR reserve aims to provide flexibility in the supply of allowances in order to achieve cost-effective transition to a low-carbon economy.

The analysis developed in the COPEC report confirms that **the MSR will likely help restore the short-term scarcity** needed during Phase IV of the EU ETS, enabling market participants to take into consideration the long-term stringency of climate policies. Ultimately, the MSR could limit the surplus to 2 billion tons of CO_2 in 2020 and gradually decrease it until it reaches 500 $MtCO_2$ in 2030 compared to 3 billion tons of CO_2 without MSR. In addition, the analysis demonstrates that **the MSR will also help increase resilience to external shocks, such as the overachievement of complementary policies.** According to POLES modelling results, introducing the MSR from 2019 will lead to an increase in the CO_2 price of roughly €$_{2010}$15/tCO_2 by 2030 (compared to the reference scenario). This would help to achieve long-term targets at a lower cost by bringing the current price trajectory into alignment with a more efficient pathway.

Guaranteeing MSR effectiveness calls for a governing framework to be established before 2030.

The major drawback of the mechanism lies in its inability to discriminate between surplus stemming from abatement efforts and surplus stemming from exogenous shocks. This "robot-like" withdrawal of surplus is likely to spur volatility if not adjusted to hedging needs and can have detrimental consequences on the low-carbon investment framework. Given the likely and unforeseeable evolution of business models and hedging needs in the power sector, some degree of "human intervention" could be essential to recalibrate the MSR in a timely fashion and to safeguard dynamic efficiency. Some stakeholders have called for a committee of experts to assess the state of the EU ETS before formulating recommendations to adapt the design of the MSR accordingly.

The free allocation mechanism for Phase IV requires more flexible and targeted allocation to sectors most exposed to carbon leakage risk in order to effectively drive the decarbonisation of European industry.

Based on POLES modeling results, the EU ETS carbon price required to meet the 2030 GHG emissions reduction objective will increase the intensity of energy expenditure in Europe and would reduce the competitive advantage of European industry by approximately three percentage points between 2020 and 2030. **In order to support the low-carbon transition of European industry, the new proposal for a revised EU ETS Directive provides for an updated "free allocation package" based on the European Council's agreement to pursue free allocation after 2020.**

The annual linear reduction factor is to be reduced by 2.2% annually from 2021 onwards. Aside from the 400 million allowances set aside for the Innovation Fund, 40.4% of the cap will be dedicated to industry freely, which will equal 6.3 billion over the 2021-2030 period. Allocation will be defined for five years periods, based on benchmarks and activity levels updated in 2021 and 2026. Intra-period adjustments from the New Entrant Reserve (NER) will be provided in case of output fluctuations. Benchmark values shall be reduced by 1% per year compared to the value set, based on 2007-08 data, entailing a 15% reduction in 2021 and 20% in 2026. New thresholds in the carbon leakage list should classify 50 sectors to be at risk of carbon leakage for the period 2021-30 with the proposed criteria, covering 93% of industrial emissions in 2013.

The COPEC analysis shows that the free allocation mechanism for Phase IV of the EU ETS requires further improvements to effectively prevent carbon leakage and to maintain abatement incentives. The proposed mechanism could entail the application of an ex post cross-sectoral factor of 20% to all sectors in 2030 in order to remain below the allocation budget, in addition to a uniform decrease of benchmarks by 20%. This would increase carbon costs for some highly exposed sectors, while moderately exposed sectors would still enjoy large allocation volumes. In order to remedy this, **focusing allocation to the most exposed sectors, and providing tiered allocation could improve the efficiency of the protection in the long-term.**

Since 2013, allocation has been based on sectoral benchmarks and historical production levels. While this was an important step toward building and maintaining the economic incentive to reduce emissions, the method is highly inflexible. **More flexible allocation based on recent production data would provide adequate incentive to reduce emissions** per unit of output, rather than inciting reduced domestic production. With closer threshold values (every 5% for example), the NER could enhance flexibility of supply, providing better protection to efficient installations and preventing gaming of the rules. **Given the green growth potential, public financial support for low-carbon innovation, should be enhanced.** Additionally, **steering demand for low-carbon materials is of utmost importance.** Producers exposed to international trade and receiving free allocation are not supposed to pass-through carbon costs, meaning that the market for products with a smaller carbon footprint may fail to emerge.

Including road transport in the EU ETS would not be the most cost-effective means to achieve the 2030 GHG emissions reduction target.

Extending the EU ETS scope has been a long-standing discussion which began in 2006 and was brought back into the spotlight in 2012 when the EU Commission released its communication on the state of the EU ETS. The transport sector is currently responsible for 24.3% of EU GHG emissions, of which, 71.2% emanates from road transport specifically, making it an ideal candidate for potential inclusion within the EU ETS. **According to POLES modelling results, extending the EU ETS scope to include 100% of GHG emissions from road transport would not be the most cost-effective means to achieve the 2030 GHG emissions reduction target.** The results show that inclusion would lead to a new EU ETS effort-sharing dynamic between sectors which would largely be supported by the power sector. In addition, including the road transport sector would increase the carbon price for all ETS sectors. However, this increase would not be sufficient to drive significant CO_2e emission abatements in the road transport sector due to high abatement costs.

The EU ETS would need to be considered as a complementary instrument within the road transport policy mix.

Before considering whether or not to include the road transport sector, a deep cost-benefit analysis is required to justify the climate policy mix. The first challenge for the EU Commission would be to define what role the EU ETS will play in the sectoral climate policy-mix to reduce CO_2e emissions. COPEC analysis shows that the EU ETS would be more effective at reducing emissions from the road transport sector if it was considered as a complementary tool rather than central to the road transport policy mix. As a complementary tool, the EU ETS emissions cap would have to take into account the emission reduction efforts achieved by the other complementary climate policies and the optimisation of mobility in road transport. The second challenge would be to examine the design of this inclusion. For example, by selecting the point of regulation and **compliance** (fuel supplier); **defining clear EU sustainability criteria** to evaluate carbon emissions associated with the biomass component of biofuels; and finally, offering some compliance flexibility to the road transport sector, in the form of purchasing **domestic or**

international offset credits. Lastly, an increase in carbon price may not automatically impact end-user behaviour and consequently, demand for road transport. Resultantly, the third challenge would be establishing a carbon price signal that will impact end-user behaviour in the long-term.

Considering the large scale of future ETS auction revenues, the use of ETS proceeds by Member States becomes increasingly relevant to funding decarbonisation.

Financing is a key issue for the transition to a low-carbon economy. To help fund the decarbonisation of the EU economy, the proposed EU ETS revision has confirmed the creation of two new funds that are based on a carbon price. These funds are the Innovation Fund and Modernisation Fund, which will be funded with the sale of 450 million and 310 million EUAs respectively. The aim of these funds is to support innovative clean technology development and modernise the energy sector (whilst supporting solidarity and growth in certain Member States). The auction revenues accrued by Member States are also used (in part) to finance GHG reductions and other climate actions.

In Phase III (2013-2020), the EU ETS generated auction revenues worth €74.2 billion. **Assuming a gradually increasing carbon price, auctioning revenues from 2015 to 2030 could total between €230-320 billion. The large scale of future ETS auction revenues makes it important to understand the role of ETS proceeds as a financing mechanism.** Today, Article 10 of the EU ETS directive encourages Member States to use at least 50% of their auction revenue towards climate action. However, the choice to channel **auction revenues towards climate action is dependent on the sovereign choices of Member States.** Analysis of 2013 ETS auctioning revenues and spending reveals that the majority of countries allocated auction revenues primarily towards domestic mitigation. For countries that directly spent revenues towards climate action, 38.2% was spent on renewables support and 24.8% on energy efficiency, predominantly on households while some cost compensation is offered to electricity producers for including renewables in the energy mix. **In addition to domestic climate action, the revised EU ETS proposal also specifically encourages using these revenues towards international support and indirect cost compensation to certain installations.**

In order to fund the low-carbon transition using auctioning revenues, the risks of revenue variability should be managed.

To ensure that EU ETS auction revenues continue to effectively finance low-carbon actions, some improvements can be recommended. The first key challenge to be addressed before 2030 will be to **manage or reduce the risk of variability in auctioning revenues** which can impede planning and implementation actions of beneficiaries, particularly for long-term projects. The second challenge will be to **improve the transparency in communications and reporting to** adequately justify, to the public, the rationale behind the States' decision-making. Finally, public sources of revenue such as ETS proceeds could be recognised as an **opportunity to leverage private capital from public funds** for low-risk climate investments. Analysing North American ETS revenue spending plans (California, RGGI, Québec) reveals an alternative approach in allocating revenues that focuses largely on funding large-scale, low-carbon infrastructure. These other ETS also provide insight into tackling the issues of variability, reporting and communication as well as leveraging potential private finance. For instance, California and Québec use multiannual investment planning as a measure to estimate and reserve revenues for various projects. Furthermore, as a measure to protect long-term and large-scale projects against variability of carbon revenues, California allocates the first 60% of revenues towards such projects. On the issue of reporting, RGGI uses basic metrics like 'kWh reduced', 'tons of GHGs avoided' to compare emissions reduction efforts across different States.

PRESENTATION OF THE RESEARCH PROGRAM

Exploring the EU ETS beyond 2020: A first assessment of the EU commission's proposal for Phase IV of the EU ETS (2021-2030).

Launched in September 2014 by I4CE – Institute for Climate Economics and Enerdata, in collaboration with IFPen, the COPEC research program aims to provide an overview of academic and modeling results to an audience of decision makers on the functioning of the European Union Emissions Trading Scheme by 2030. I4CE – Institute for Climate Economics contributed to this report with new economic and institutional analysis on Phase IV of the EU ETS, based on its expertise and results from academic research. Enerdata developed the POLES model examining different scenarios for the implementation of the EU ETS in 2030. IFPen has provided its expertise on the analysis of climate and energy policies for the road transport sector.

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