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# Aligning Europe's Policies for Carbon, Efficiency, and Renewables: Creating a "Virtuous Cycle" of Performance and Emissions Reduction

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## 1. Introduction

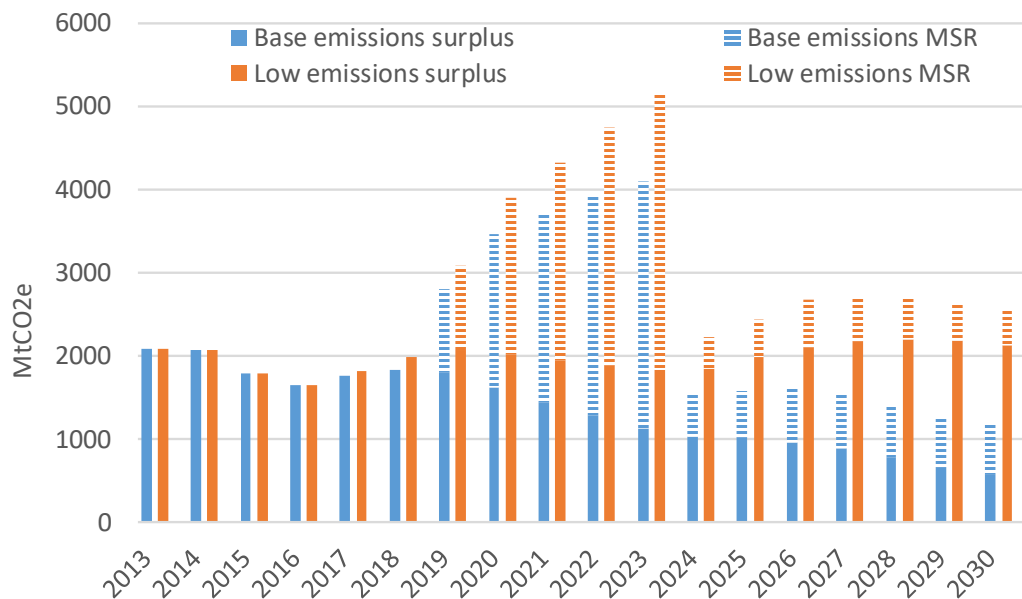
Since the earliest days of environmental policy there has been an ongoing and robust debate over the roles of pollution pricing on the one hand, and direct regulatory and governmental programs on the other hand, as tools to reduce pollution levels equitably and efficiently. Today, as European decision-makers simultaneously negotiate the rules for the 4th Phase of the EU ETS, alongside the broad elements of the Clean Energy for All Europeans-package, we have a unique opportunity to revisit the relationship between market-based and direct regulatory measures in Europe.

Indeed, recent proposals for reforming the EU ETS discussed in the Council of the European Union show increasing political appetite to find a balanced and lasting relationship between the EU emissions trading system and other dedicated policies that also contribute to reducing carbon emissions such as those on energy efficiency or renewable energies. It is against this background that we offer a proposal to create a "virtuous cycle" among these policies. We believe that the EU ETS and the policies in the Clean Energy for All European package can work in a mutually reinforcing way, through a mechanism that would link the number of allowances auctioned in a given year, and the number of allowances kept in the Market Stability Reserve, to the number of allowances actually used in a recent, representative multi-year period. This would be a dynamic starkly different from the one we have been witnessing so far.

## The over-allocation of allowances is driving a “vicious cycle” between the ETS and the EU’s parallel energy policies

Since its inception, the EU Emissions Trading System (EU ETS) has been oversupplied with allowances and the surplus is growing further year by year. By current accounting, there are more than 3 billion allowances overhanging the carbon market, and current allowance allocations are still about 200 million tonnes per year above current emission levels. The total allowance<sup>1</sup> surplus is projected to grow to nearly 4 billion tonnes, including almost 2 billion in the Market Stability Reserve, by 2020 (see Chart 1).

Chart 1. EU ETS surplus in circulation and MSR under Council proposal<sup>2</sup>



This huge surplus presents two large problems: First, it permits greenhouse gas emissions at levels significantly higher than necessary, which means for installations covered by the Emissions Trading System, the EU pursues a lower level of climate ambition than would be economically efficient.<sup>3</sup> Second, the structural over-allocation of emissions allowances leads to a persistently low carbon price, which undermines the power of the ETS to drive clean energy

<sup>1</sup> Once issued, EU Allowances (EUAs) are bankable and unless surrendered for compliance, will become part of allowances in circulation. However, with the operation of the MSR, the number of EUAs in circulation above the MSR threshold of 833Mt will eventually be reduced through a reduction of auctioning volumes.

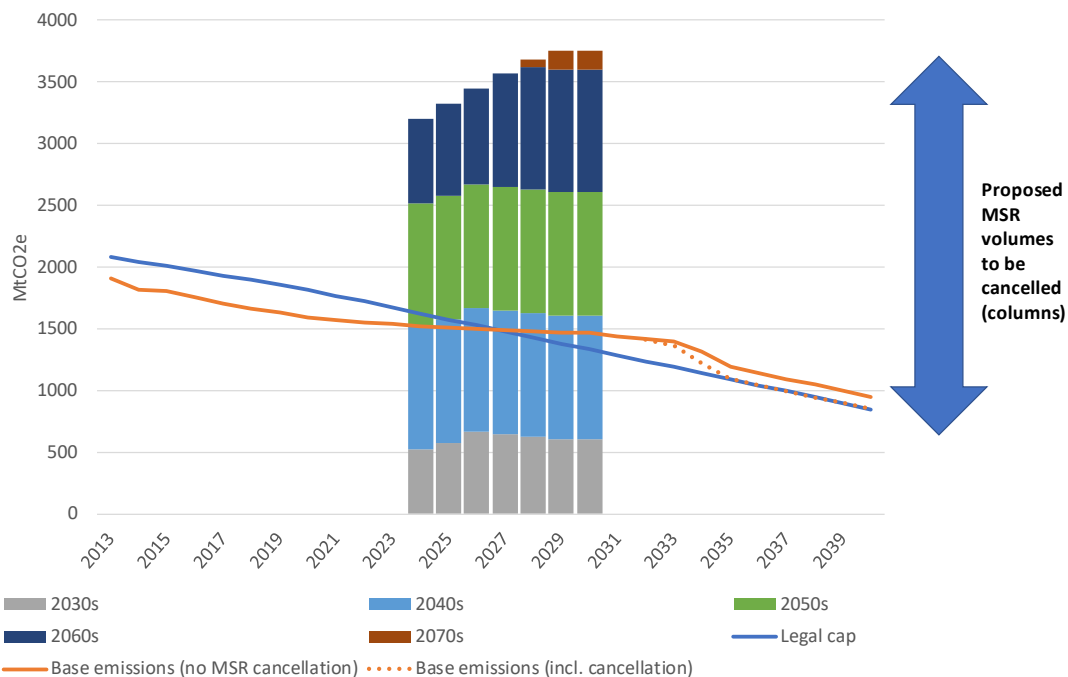
<sup>2</sup> This chart is based on the General Approach proposal adopted by the EU Council on 28 February, 2017. Base and low emissions scenarios from Sandbag assume different levels of uptake of renewable generation. The surplus before the start of operation of the MSR in 2019 does not include backloaded and unallocated allowances that will go into the MSR. The proposed cancellation of allowances in the MSR from 2024 up to the previous year’s auctioning volumes is shown taking effect in 2024.

<sup>3</sup> It is quite possible to argue that not using cost-effective emission reduction opportunities that are visible and readily available contradicts the spirit if not the letter of the Paris Agreement on climate change. The Preamble to the Agreement recognizes “the need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge,” and expresses concern for “equitable access to sustainable development and eradication of poverty.” Climate policies that ignore the widely-available evidence on low-cost emission reduction opportunities, especially cost-effective efficiency options, are inconsistent with both of these principles.

investments and technological change, and thus reinforces the case for parallel EU-level and national policies to accelerate investments in renewable energy and energy efficiency directly. These policies, in turn, are often characterized as further weakening an already underperforming emissions trading system. This means that current EU climate policies are locked inside a vicious cycle, instead of interacting positively to unlock the low-carbon transition at a level consistent with a cost-effective rationale.

Furthermore, the implications of the growing surplus are problematic from a short and a long term perspective. In the short term, an oversupplied market will not drive decarbonisation efforts to where it is cheapest, and in the long term the Market Stability Reserve risks spilling back allowances far into the second half of the century, as illustrated in Chart 2 below:

Chart 2. Annual MSR volumes according to their expected date of return to the market



## Efficiency and renewables policies lower emissions without lowering allowance allocations

In parallel to the ETS, and for good reason, both the EU as a whole and individual Member States have enacted a number of complementary policies to accelerate investments in renewable energy and energy efficiency.

In particular, **energy efficiency is a cornerstone resource**, reducing Europe's energy bills, delivering emissions reductions in the effort-sharing sectors, and providing the equivalent of a "carbon scrubber" for the electric power sector.<sup>4</sup> Recent Commission analysis found that raising the ambition level for energy savings from 27% to 30% by 2030 would alone avoid the need for 10,000 MW of electric generating capacity. This by itself could reduce annual EU ETS

<sup>4</sup> For greater detail on the relationship among energy efficiency programs, the ETS, and carbon and power pricing, see Cowart, Bayer, et al, "Carbon Caps and Efficiency Resources: Launching a "Virtuous Circle" for Europe" (RAP 2015) available at [www.raonline.org](http://www.raonline.org).

emissions by close to 100 million tonnes, depending on the type of generation that will be avoided. Recent studies have shown that even deeper savings rates are feasible and would be cost-effective.<sup>5</sup> Furthermore, **robust renewable energy frameworks** that include clear targets and technology specific pathways are a reliable and **cost-effective way of reducing investor uncertainty** and bringing down the cost of renewable energy, particularly where the price of ETS allowances is far below price levels required to drive investments into renewables at the scale or pace actually needed to meet the EU's 2050 decarbonisation goals<sup>6</sup>.

The successes of efficiency and renewables policies are demonstrating the need to increase the pace of reductions under the ETS if the ETS is still to deliver what has been agreed as being its fair share of the overall package. Currently the Linear Reduction Factor (LRF) only reduces the cap by less than 50 million tonnes per annum and if complementary policies deliver more than that amount across the term of Phase IV, then the LRF would need to be much stronger, even doubled, to bring the cap down as quickly as emissions would actually be falling.

While ambitious targets for efficiency and renewable generation are necessary, desirable and economically achievable, there are potential conflicts between the ETS and these leading complementary policies. On the one hand, efficiency and renewables initiatives that reduce emissions directly add to the allowance surplus and soften the carbon price. On the other side, an ETS cap that does not change when real-world emissions are lowered weakens the case for efficiency and renewables policies, since doing them well doesn't necessarily yield more progress towards the lower cap that is also needed to meet Europe's 2050 targets and Paris commitments. This indicates the clear need for a re-think of how the interaction can be designed to function as an accelerator towards decarbonization, and not as an element causing further delays.

***Today, as European decision-makers simultaneously negotiate the rules for Phase 4 of the ETS, alongside the broad elements of the Clean Energy package, we have a unique opportunity to move beyond the 'overlapping policies' problem towards a balanced relationship that would create a 'virtuous cycle' among Europe's principal climate policies.***

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<sup>5</sup> See, e.g., Fraunhofer, ISI, Analysis of a European Reference Target System for 2030 (October 2013).

<sup>6</sup> An ETS price of approximately 30 Euros per tonne of CO<sub>2</sub> is required for a reliable fuel-switch from more carbon intensive coal to less carbon intensive natural gas. A price of at least 60 Euros per tonne of CO<sub>2</sub> is often associated with renewables investments that are purely market-driven.

## 2. The window of opportunity: A progressive Council position for final negotiations on the ETS reform

The opportunity to make a real and lasting improvement in the operation of the ETS and its interaction with complementary policies arises out of current negotiations over the Market Stability Reserve (MSR) among the European Parliament, the Council and the European Commission.

On 28/02/2017 the Council proposed to conditionally limit from 2024 the quantity of allowances kept in the Market Stability Reserve in future years to the total number of allowances auctioned during the previous year. If adopted, this straightforward idea would permanently and automatically manage both the historic consequences of over-allocation and the ongoing effects of complementary policies that reduce greenhouse gas emissions, and thereby address one of the main deficiencies of the EU ETS.<sup>7</sup>

However, the impact of the Council proposal would not be immediate and would be rather indirect. It would not be immediate, because the Council proposes to implement this reform only in 2024 at the regular revision of the Market Stability Reserve. It would be rather indirect, since allowances not needed in the market would first be auctioned, then eventually moved to the reserve, and only once in the reserve possibly be removed from the system (“invalidated”). As a result the alignment between actual current emission levels, the ETS cap and complementary policies would be delayed by over a decade, which is to say – *across the entire period of application of the Clean Energy for All Europeans-package*.<sup>8</sup>

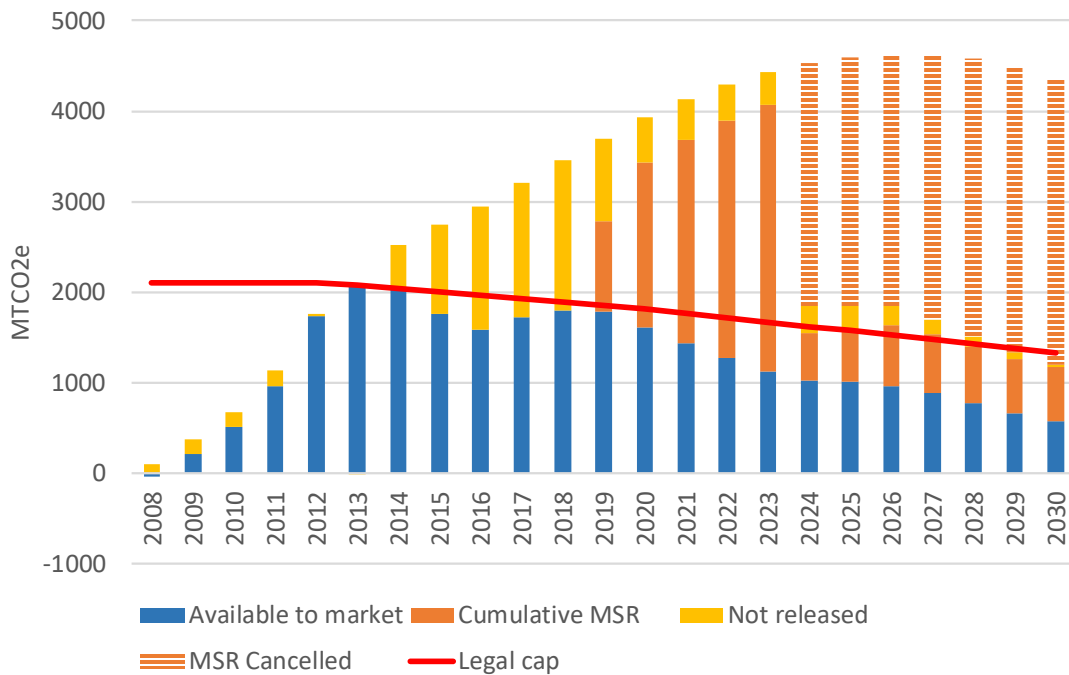
### The Market Stability Reserve

The MSR was introduced with the intent of tackling the effect of policy overlap on the EU ETS, by moving a percentage of the market surplus off the market into a reserve. The MSR will start operating from 2019 with the aim of providing flexibility to supply in the market by either withdrawing or releasing a certain volume of allowances, depending on the size of the market surplus. The reserve will only operate if surplus volumes on the market are above or below the specified thresholds. It will therefore reduce auctioning volumes in a given year by a fixed percentage of the accumulated surplus from the previous year if the surplus is above 833 million tonnes. Conversely, it will release a fixed amount of 100Mt/annum, provided there are enough allowances stored in it, when the surplus falls below 400 million tonnes.

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<sup>7</sup> A range of EU and Member State policies affect the ETS surplus. For example, an increasing number of Member States have put in place (e.g., UK) or are discussing (e.g., NL, DE), national measures for phasing out of coal, thus reducing emissions from coal-fired generators more quickly than demanded under the EU ETS. An adjustment mechanism should welcome rather than call into question Member States and market participants' use of rapid technological progress, such as drastically falling costs for renewables, scaling-up renewables, or delivering efficiency savings more quickly than previously planned.

<sup>8</sup> On the positive side, introducing this policy would set the stage for the alignment to happen in the post-2030 period, enforcing the signal for long-term investments, despite the lack of an appropriate price signal in the intermediate-term.

Chart 3. EU ETS legal cap and surplus dynamics<sup>9</sup> under the Council’s General Approach

### 3. The proposal: A “virtuous cycle” of emissions reductions and allowance retirements

The Council’s current MSR proposal is a welcome suggestion, and would deliver long-needed improvements to the ETS. But it could be better. It is against this background that we propose to move further and create a sustainable virtuous cycle that begins earlier and **relates the quantity of allowances issued each year to the average number of allowances actually used over a recent multi-year period**. This would add to the Market Stability Reserve proposal now on the table a further mechanism to ratchet down the number of allowances issued altogether in the long run. Such a long-run reduction is necessary, not only to ensure the effectiveness of European policies to 2030, but to bring the EU into alignment with the commitments made in Paris.

How would this work? Further below, we put forth two concrete options. Both include three essential elements:

- Administrators would establish a baseline period to calculate a realistic target for the number of allowances that ought to be available in a well-functioning market with adequate flexibility to respond to changing macro-economic and technological conditions. To meet those conditions without undue volatility, we suggest creating a baseline average over the

<sup>9</sup> Scenario using Sandbag’s base emissions forecast and General Approach adopted by EU Council. Allowances not released in to the market and not in the MSR are primarily backloaded allowances before 2020 and New Entrant Reserve volumes in the period thereafter.

most recent economically-representative five-year period.

- Each year the issuing authority would conduct an assessment of the relationship between the average number of allowances actually needed in the economy (i.e., the baseline number) and the number of banked allowances in the system, both within and outside of an appropriate MSR. To the extent that the surplus: need ratio exceeds a predetermined ratio, new allowances would not be issued.
- Finally, it will be important to link the discipline of carbon caps and prices with the leverage that can be achieved through strategically investing carbon auction revenues. Carbon revenues invested directly in end-use energy efficiency, for example, can lower emissions from both the ETS and non-ETS sectors, accelerating emissions progress while lowering Europe’s energy burdens and consumer costs.<sup>10</sup>

Based on the above elements, we offer two concrete options for creating a virtuous cycle between the ETS and Europe’s parallel emissions reduction policies.<sup>11</sup>

## Option A: Five-year baselines, tuned in to the Paris process and in line with the Governance Regulation

Introducing a direct link between real emission levels and complementary policies, to enable the virtuous cycle to operate, could be achieved through the introduction of a 5 year baseline adjustment. This would mean that every 5 years, the balance of supply and demand on the market would be adjusted to reflect the level of emission reductions reached through complementary policies.

This option can further create the link to the Paris Agreement process, which also operates on 5 year cycles. As such, in 2020 the baseline could be adjusted to reflect the level of 2018 when the Paris facilitative dialogue will take place and in 2025 it could be adjusted to 2023 and the updated information we will have resulting from the Global stock take. This option is illustrated in Chart 4 on the following page.

Benefits of this option include:

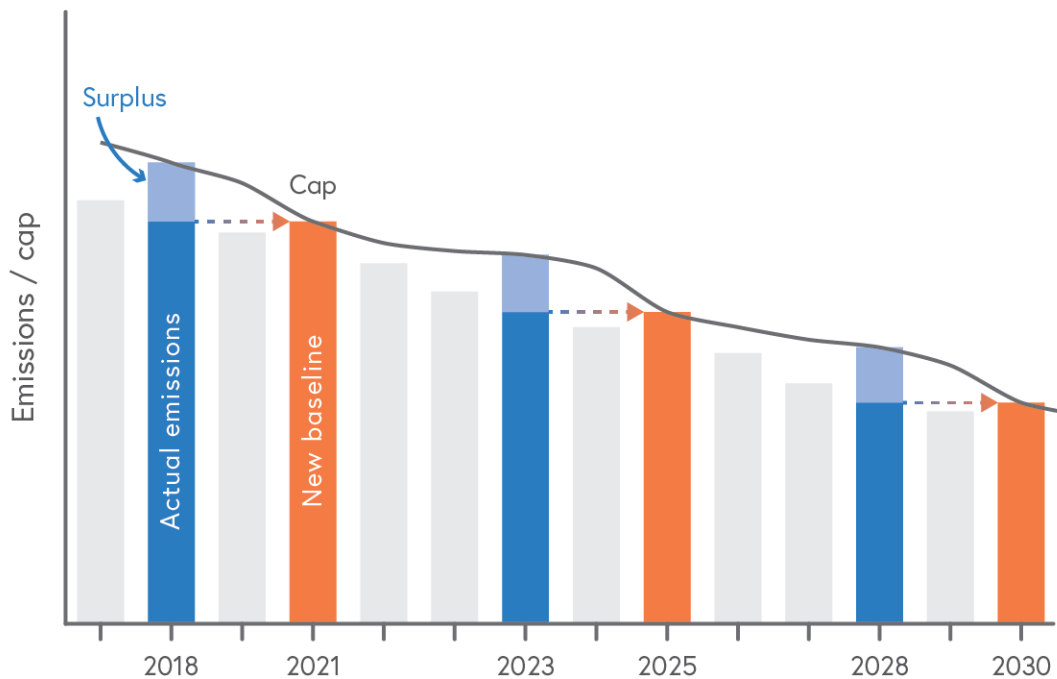
- **Enhanced environmental integrity of the scheme:** previous emission reductions would be recognized in setting the baseline, reducing the risk that savings due to successful efficiency and renewables policies would just lead to increased emissions elsewhere;
- **A functioning market:** The price of EUAs would be commensurate with real market demands, unlike the case in today’s structurally oversupplied market;
- **Policy coherence:** This option would ensure better alignment with the provision recently proposed for the Governance Regulation, which refers to 5-year carbon budgets, improving the link between energy and climate planning and assessment, and operation of the ETS.

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<sup>10</sup> Jurisdictions that have implemented “Carbon Revenue Recycling” have found that investments in end-use efficiency can accelerate decarbonisation at low, or even negative, costs to the economy, while delivering energy savings to households and businesses. The German Energy and Climate Fund, the Czech Republic’s Green Saving Program, and the Regional Greenhouse Gas Initiative (RGGI) in the US demonstrate how effective this practice can be. A commitment to use this approach is an appropriate element in any carbon auction regime, particularly one that sets a minimum price floor. See [www.raonline.org](http://www.raonline.org) for additional resources on this topic.

<sup>11</sup> Of course, many other constructions are possible. The key is to create a mechanism to automatically reduce new allowance allocations to reflect recent market conditions, thus encouraging Europe’s parallel clean energy policies without undercutting the effectiveness of the ETS and its carbon price signals.

Chart 4: Option A



Benefits of this option include:

- **Enhanced environmental integrity of the scheme:** previous emission reductions would be recognized in setting the baseline, reducing the risk that savings due to successful efficiency and renewables policies would just lead to increased emissions elsewhere;
- **A functioning market:** The price of EUAs would be commensurate with real market demands, unlike the case in today's structurally oversupplied market;
- **Policy coherence:** This option would ensure better alignment with the provision recently proposed for the Governance Regulation, which refers to 5-year carbon budgets, improving the link between energy and climate planning and assessment, and operation of the ETS.

## Option B: Basing the adjustment each year on a five-year rolling average across recent years

This option builds to some extent on option A, with the core difference that it would take the average of each period of 5 consecutive years, and roll it forward on a yearly basis, adjusting in annual steps to changes in emission levels. This option would produce a smoother pace of adjustments, rather than a set of 5-year stair-steps as in Option A. Furthermore, this option cushions the system against the risks of basing a five-year compliance period on market conditions in a single base year, enhancing investor certainty that each adjustment would be relatively moderate and predictable.<sup>12</sup> This option maintains the connection with the UNFCCC process as agreed to in the Paris Agreement, with the only difference from option A being that within the 5 year baseline period, we would have a gradual and balanced readjustment taking

<sup>12</sup> This option could be expressed in the following formula: Allowances released for Year X = Ave of Real Emission Levels [(Year X-5) + (Year X-4) + (Year X-3) + (Year X-2) + (Year X-1)]

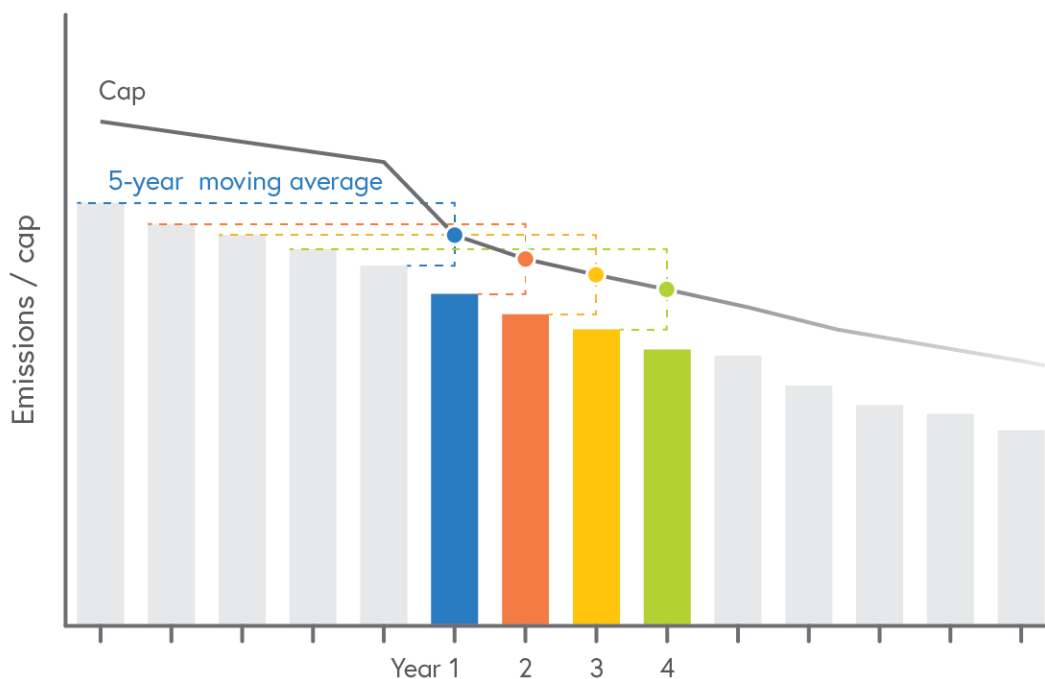


place on a yearly basis. It would still make it possible for the yearly readjustment to contain the emission levels reported in a UNFCCC year in the average.

Benefits of this option, in addition to all those mentioned in Option A:

- **Investor friendly** – this structure provides investors with both predictability, as it is relatively easy to project the adjustment level into the near-term future, thanks to the 4 years average and relation to it, while at the same time maintaining a high investment rationale by keeping the price of allowances at a relevant level across all years;
- **Live map** to decarbonization, ensuring real time response in the scheme to changes incurred in each year. This will become increasingly relevant in the post 2030 period, when the countdown to 2050 starts – the ETS would become in this way the live map guiding the other policies towards delivering decarbonization of 95%;
- **Compatibility with economic cycles** – One advantage of a rolling average adjustment is that it permits adjustments that reflect economic cycles in either an “up” or “down” direction. If the need for allowances is growing in a period of economic recovery, the evidence for increased allowance releases will be delivered in an actual market with actual prices having been paid. Since there would already be a cushion in the quantity of allowances either banked privately or in the MSR, there would be sufficient flexibility to deal with broad macro-economic changes, but could avoid a long-term period of locked-in “hot air” tons during periods of slower economic activity.

Chart 5: Option B



## 4. Concluding remarks

By managing the total cumulative quantity of allowances in the MSR, and by basing each year's auction quantities on average market conditions in the recent past, ETS managers can solve two important problems at once:

First, they can moderate both low prices and volatile prices in the ETS system, and provide predictable market conditions for buyers and sellers in the European carbon market.

Second, they can eliminate the perception that the ETS and other clean energy policies are incompatible – e.g., that efficiency and renewables won't actually lower allowed emissions; or that success with efficiency and renewables policies is actually harmful since it would feed the allowance surplus.

On the positive side, the linkage between energy efficiency and the carbon pathway proposed here is quite direct, and helps to meet equitable and political concerns about tighter carbon caps. Yes, greater efficiency would lead to emission reductions and a tighter cap, but would also lead to energy price reductions and bill savings, moderating the financial impacts of tighter caps on businesses, families, and vulnerable customers.

It would also help politicians, businesses, and civil society organizations that put their weight behind higher ambition on climate change in individual Member States to know that their efforts are leading to emission reductions in the overall ETS system, instead of merely releasing more allowances for use at lower prices in other Member States.

Finally, this reform, by capturing the reductions caused by both positive carbon prices and by complementary policies, will increase the likelihood that the European Union and Member States will be able to meet the global commitments for 2050 made in Paris last year.



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