Which design for the MSR?

The price sensitivities of key stakeholders' MSR proposals

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Key findings

The aim of this report is to shed some light on the impact of the current policy scenarios under discussion in the Parliament and the Council in the context of the Market Stability Reserve (MSR). The report analyses the key elements which will determine the functioning and the level of ambition of the MSR including the start date, treatment of back-loading volumes, thresholds and response rate as well as other design parameters.

Early start and back-loading elements – same destination but very different pathways

Overall, different policy scenarios in terms of starting date, treatment of back-loading (BL) and thresholds lead to similar carbon price levels in 2030. However, the policy scenarios result in very different carbon price pathways between 2020 and 2030. Early 2017 start and BL to reserve create a **stronger earlier price signal** compared to a scenario with 2021 start and BL coming back to market. The former would help the EU reach its long term target in a more cost-effective way by triggering higher level of long term abatement earlier in time and by setting aside more allowances in the reserve which would be available for future use.

Early start and BL to reserve provide better price stability for EU ETS companies

Beyond the discussion on absolute price levels, an MSR starting in 2017 and without back-loading volumes coming back to market provides **more price stability** which is key for EU ETS participants. Indeed, for EU industries, the higher the carbon price stability, the better is the environment for them to make long term investments in low carbon technologies. An MSR without those elements would be more volatile which could be beneficial to financial players.

The ambition of the MSR will be determined by the thresholds

While the early start and back-loading elements determine the pathways to the carbon price level (the shape of the price curve) in 2030, the thresholds are the key determinant for the absolute carbon price level along the way and in 2030. In other words, the thresholds will **determine the level of ambition** of the MSR.

Other design parameters of less importance for price development

This report furthermore analyses the impact of a reduced response time of the MSR as well as the industry support proposed by the ENVI rapporteur – the results show a **limited impact on price development** in comparison to other critical design elements discussed above.

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Introduction

In January 2014, the European Commission put forward a legislative proposal to implement a Market Stability Reserve (MSR) in 2021. The mechanism aims to tackle the EU ETS supply and demand imbalance and make the system more resilient to external shocks.

While most stakeholders agree that reform is necessary and consider the MSR to be a sound approach, the final design of the reserve is still under discussion.

"Most stakeholder consider the MSR to be a sound approach, the final design is still under discussion"

In this report, we analyse the price sensitivities of the currently discussed design parameters with a focus on the following key elements:

- Back-loading volumes in or out?
- The start date of the MSR
- The trigger thresholds and response rate of the MSR
- The time-lag of the reaction
- The use of reserve allowances for industrial support

MSR impact on carbon prices

The impact of the MSR on the carbon price signal will vary widely depending on the design of the mechanism.

Back-loading volumes in or out?

Background

In the context of the MSR, one of the key elements under discussion is the back-loading allowances. In the beginning of 2014, the legislator implemented 'back-loading' which should prevent the EU ETS to be further over-supplied in the short-term. The measure cuts auction volumes over 2014-2016 by 900m allowances and shifts those volumes to 2019-2020.

In addition to the 300m (2019) and 600m (2020) back-loading volumes, further additional supply is to be auctioned in 2020. The left-over from the free allocation in the third trading period (2013-2020), the left-over in the New Entrants Reserve (NER) as well as part of the left-over from the temporary free allocation to power producers in Eastern Europe (derogation volume) must, according to legislation, all come to market in 2020. In total we estimate the additional supply to add up to 300m in 2019 and 1,261m in 2020.

"Not only will the back-loading volumes, but also the left-over allocation, NER and derogation volumes increase the regular auction volumes in 2020"

Table 1: estimated additional supply in 2019-2020

Source	2019	2020
Back-loading	300m	600m
Left-over allocation	-	353m
Left-over NER	-	287m
Left-over derogation	-	31m
Sum	**300m**	**1,261m**

Source: Tschach Solutions

In its MSR legislative proposal, the Commission already included a provision which would smooth the additional supply and distribute it over four, instead of two years. The provision specifies that if the total volume of allowances to be auctioned in the last year of a trading period exceeds the expected average auction volume of the first two years of the following trading period by more than 30%, two-third of the surplus is deducted from the volume to be auctioned in the last year of the trading period and spread out over the first two years of the next trading period.

"The Commission aims to reduce the impact of the high 2020 auction volumes with a smoothening mechanism for these volumes"

However, several stakeholders, including MEPs and member states have been asking for the back-loading volumes to be directly transferred to the reserve or even completely cancelled. Some stakeholders have even been calling not only for the back-loading volumes to be transferred to the reserve, but also the other additional supply volumes mentioned above.

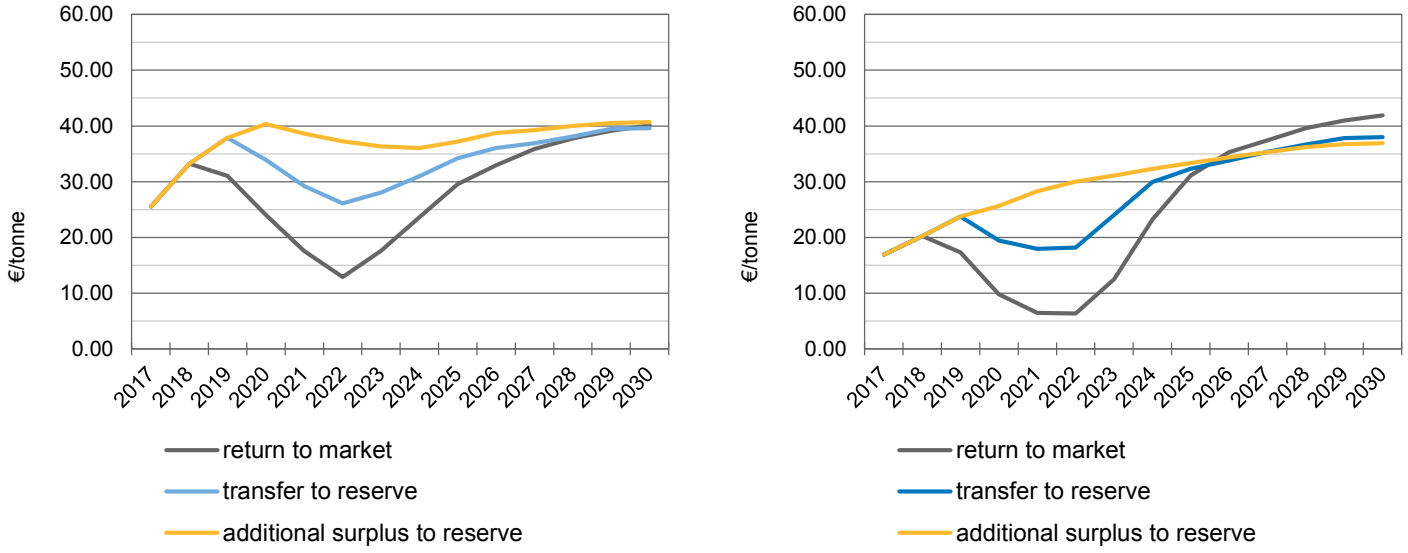
"Several stakeholders call for the direct transfer of the back-loading volumes to the reserve"

Scenario analysis explanation

In this section, we assess how different treatments of back-loading and other supply volumes affect carbon prices. To do so, we analyse three supply scenarios – back-loading return to market, back-loading in reserve, back-loading + additional supply in reserve – for different trigger thresholds and response rates put forward by key stakeholders (Commission, EPP, S&D, Greens, France – please see Table 3 for thresholds details) and display the average price outcome in Figure 1 below showing results for both a start of the MSR in 2017 (left graph) and 2021 (right graph). For instance, in the left graph below, the blue line shows the average price impact of an MSR with back-loading transferred directly to the reserve and starting in 2017.

Note: Both graphs below show very bullish price developments compared to present prices with EUA currently oscillating around €7.00. On the back of the back-loading legislation and sustained carbon demand from power utilities, we expect EUAs to reach double digits by mid-2015 and reach around €15 by end of 2016.

Figure 1: average price developments of different trigger thresholds and response rates with a 2017 start (left) and 2021 start (right)



Source: ICIS Tschach Solutions

Scenario analysis results

For both start dates the above price graphs (Figure 1) show the lowest year-on-year volatility if back-loading allowances + additional surplus is transferred to the reserve (golden line). The highest year-on-year volatility is observable for the full return of back-loading allowances to the market in 2019-2020 (grey line). In between lies the scenario where only the back-loading volumes are transferred directly to the reserve while the other addition surplus is auctioned in 2020 (blue line).

While all three additional supply scenarios start at the same price levels in 2018 (€33.00) and end at the same level in 2030 (€40.00) the price paths to 2030 differ significantly in the early and the late start scenarios.

Overall, the price curve flattens the more allowances are directly transferred to the reserve. However, it must be noted that we did not research the possible price developments when more than 1,561m allowances enter the reserve directly.

"The price curve flattens the more allowances are directly transferred to the reserve"

We see in the two graphs in Figure 1 that the market does not fully crash in 2019-2022 if the back-loading allowances are auctioned. However, the displayed prices reflect only the base emissions forecast taking into account our base case scenario for GDP growth and renewable energy intake. In lower emission regimes prices could potentially fall below €10.00 and test the €5.00 mark if the back-loading volumes are re-introduced.

Table 2: price, abatement and reserve development according to different additional supply handling and start dates

Source	Back-loading re-introduced to market	Back-loading directly in reserve	Back-loading + additional supply in reserve
2017 start			
Price in 2030	€ 40.00	€ 38.00	€ 37.00
Cumulative abatement	3,300m	3,800m	4,100m
Allowances in reserve	3,000m	3,400m	3,500m
2021 start			
Price in 2030	€ 42.00	€ 40.00	€ 41.00
Cumulative abatement	2,300m	2,800m	3,800m
Allowances in reserve	2,100m	2,500m	3,000m

Source: ICIS Tschach Solutions

Another key point is that if more allowances enter the reserve directly, more abatement is necessary in the period 2017-2030 but more allowances cumulate in the reserve for future usage. Thus, more allowances can be used in the post-2030 period as the long-term target is not altered with the implementation of the MSR.

The start date of the MSR

Background

The second key discussion point at the moment is the starting date of the MSR, with several stakeholders (including MEPs and member states) calling for an earlier start of the MSR.

Scenario analysis explanation

In this section, we assess how different starting dates affect carbon prices under the three policy scenarios discussed in the previous section. A critical element in the graphs in Figure 2 is the clear display of price ranges highlighting the range of ambition between the different stakeholders´ proposals regarding thresholds and response rates.

Scenario analysis results

Figure 2 illustrates the different price developments for various design parameters. In every graph the same handling of the additional supply (incl. back-loading) is assumed. In the respective graphs, the golden line and area assume a 2017 start of the MSR, while the blue area and line represent a start in 2021. The coloured areas depict the possible price range caused by different trigger thresholds and response rates.

When comparing the price averages as well as the ranges against each other in the respective graphs it becomes clear that – independent from the handling of the additional supply in 2019-2020 – the early start of the MSR reduces the year-on-year volatility significantly in the period 2017-2024.

"An early start of the MSR reduces the year-on-year volatility significantly in the period 2017-2024"

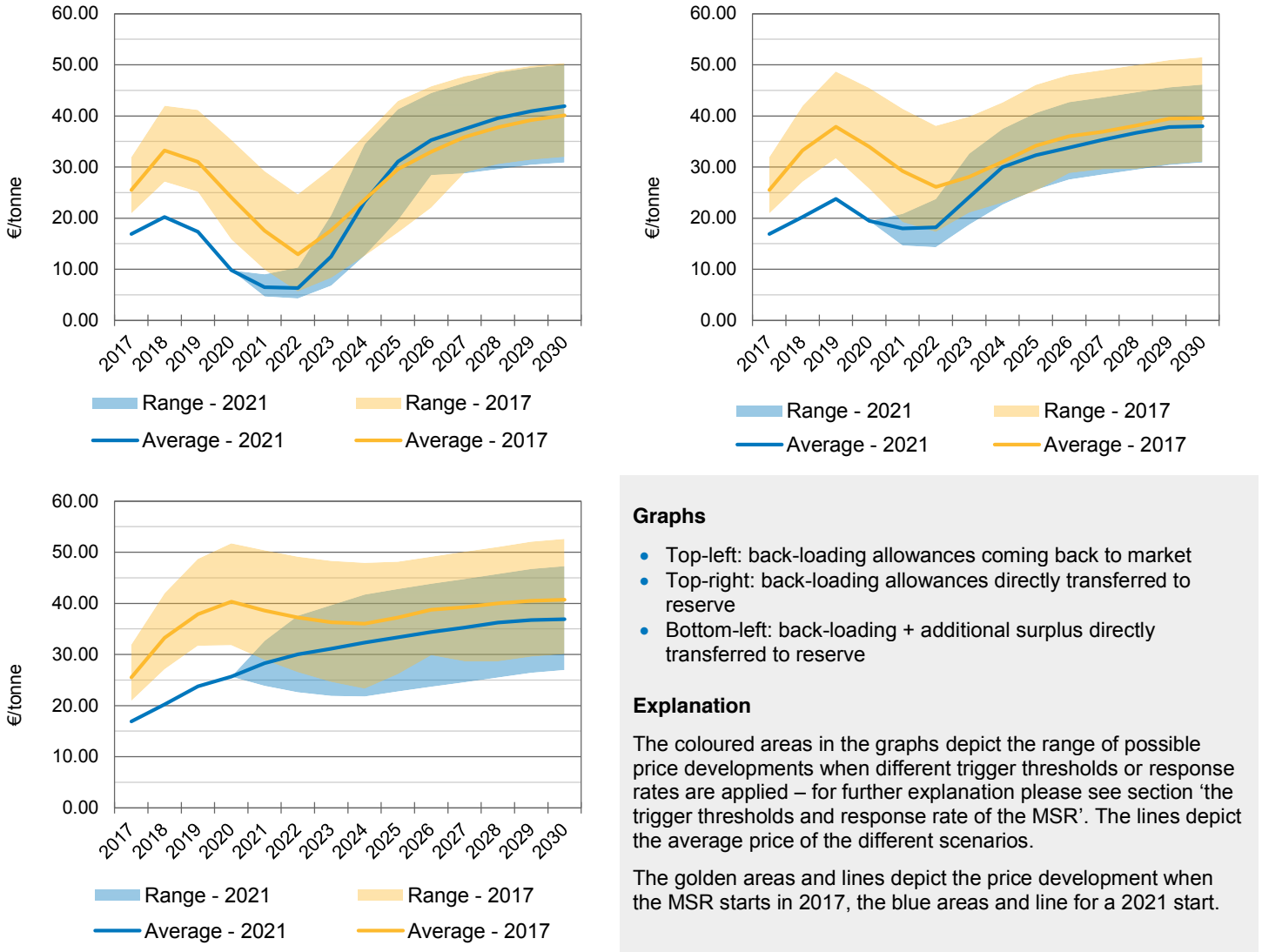
If the back-loading allowances re-enter the market, the price drop is approximately the same in 2019-2022 for the different start dates. However, as prices are on a higher level, the increase thereafter is significantly smaller. In the case of the back-loading allowances entering the reserve directly, the price increases from 2020-2030 are very humble (2017 start) which leads to a lower volatility and a higher predictability of carbon prices compared to the 2021 start. In the scenario of back-loading allowances + additional supply entering the reserve directly, the 2017 start scenario shows a steep increase of prices until 2020 with a very flat

price development until 2030 while for the 2021 start we foresee a very steady price increase from 2017 until 2030.

Furthermore, in all three additional supply scenarios much more abatement (approx. 1,000m on average) is triggered when the reserve starts in 2017 compared with 2021. Also, more allowances enter the reserve in the early start scenario (500m-900m), which leads to lower abatement costs post-2030 – see Table 2 for details.

It must also be noted that an early start of the MSR would make the direct transfer of the back-loading allowances much easier to implement as the MSR would already be operational when the back-loading allowance re-enter the market in 2019-2020.

Figure 2: price development of different trigger thresholds and response rates for different additional supply scenarios



Graphs

- Top-left: back-loading allowances coming back to market
- Top-right: back-loading allowances directly transferred to reserve
- Bottom-left: back-loading + additional surplus directly transferred to reserve

Explanation

The coloured areas in the graphs depict the range of possible price developments when different trigger thresholds or response rates are applied – for further explanation please see section 'the trigger thresholds and response rate of the MSR'. The lines depict the average price of the different scenarios.

The golden areas and lines depict the price development when the MSR starts in 2017, the blue areas and line for a 2021 start.

Source: ICIS Tschach Solutions

The trigger thresholds and response rate of the MSR

Background

The core aspect of the MSR is its impact on the current Cumulative Fundamental Balance (CFB), in other words the market surplus. In current discussions, it is undisputed that the system needs a certain excess of allowances to allow companies to hedge against price risks.

However, the debate revolves around the actual volume of oversupply needed, as well as the response rate once the actual surplus deviates from this "needed" volume.

The required volume

In the context of the MSR, assessing the required volume of surplus needed for a functioning market is challenging as it mainly depends on the hedge appetite of companies, which will also evolve over time. Hedging demand is driven by

- The willingness to hedge at all → driven by risk appetite, credit ratings and feeling of uncertainty
- The volume of the position that needs to be hedged → driven by economic growth, free allocation

As the key drivers can change over time, it is likely that the required volume will change over time as well. A regular review of the mechanism could, therefore, help aligning the required surplus with market reality.

"A regular review of the mechanism could help align the required volume with market reality"

The Commission proposal and the proposed amendments largely embrace this uncertainty by allowing a range of required volume – Table 3 lists popular proposals.

Generally, the lower the required surplus volume is estimated, the higher is the likelihood that the estimation is too low, which triggers a bigger transfer to the reserve. This implies higher carbon prices than in a scenario where the required volume is estimated too low.

"A lower required volume implies higher risk for higher prices"

The response rate

If the surplus deviates from the required volume, some EUAs shall be added or released from the reserve – we call this the response rate.

Most proposed rates imply that if the surplus is higher than the range of required volume, a certain percentage of the surplus is transferred to the reserve. If the surplus is lower than the range of required volume, either a share of the gap or an absolute number of EUAs is re-inserted into the market.

Table 3: popular MSR design proposals

	Trigger thresholds		Response rate	
	Lower	Upper	Into reserve	From reserve
Commission	400m	833m	12%	100m
EPP	500m	1,000m	10%	100m
S&D	300m	833m	20%	100m
Greens	300m	600m	25%	100m
France	800m	1300m	33%*	33%*

Source: amendments to the MSR by political groups (ENVI & ITRE); non paper – French position on the Commission's proposal to establish a market stability reserve

** 33% of the difference between the surplus and the lower threshold*
*** 33% of the difference between the higher threshold and the surplus*

Considerations on the design of the MSR

Allowing a range of required surplus caters for the uncertainty around the required volume. However, the debate shows that the range of proposed required volumes is large – between 300m and 1,300m.

Let's look at a scenario where the surplus is at the edge of the upper limit of the required volume range: if emissions are slightly above the limit, a significant volume will be transferred into the reserve as the response rate jumps from 0 to 100m at the upper threshold. The current proposals suggest that if the surplus is above the upper threshold 12% of the surplus is transferred to the reserve. If the surplus is just a little lower, and thus below the upper threshold, no volume is transferred to the reserve. This heavy reaction on small changes in emissions can create additional volatility – if the market is unsure on whether there is a significant adjustment or not, this can trigger speculation.

"The current reaction rates can increase volatility if emissions are close to a threshold"

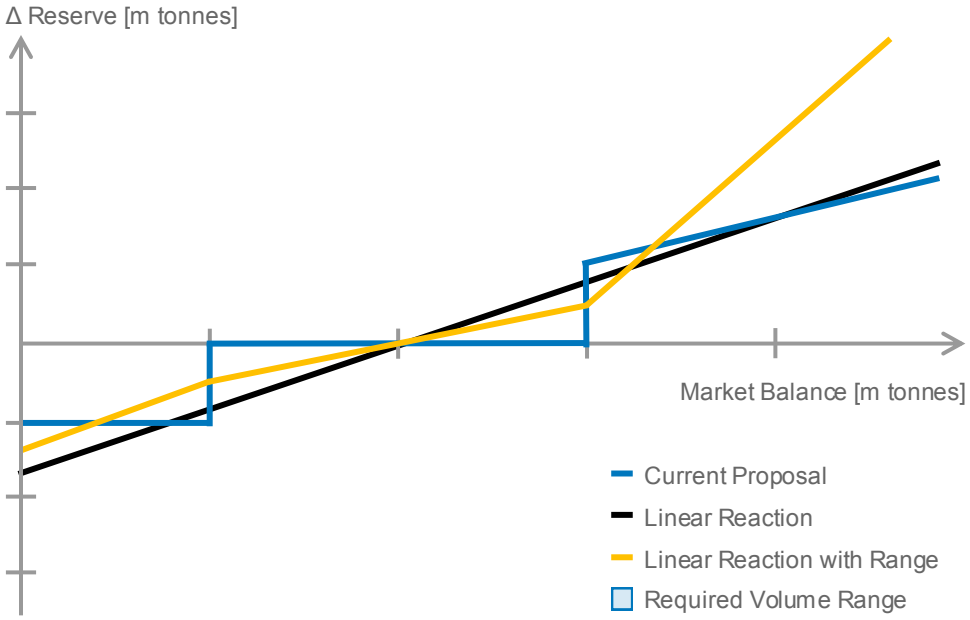
If small changes in emissions can have a big impact on future supply, uncertainty is generally increased. As an example: In May 2014, the Commission published emissions data for 2013. Due to data and reporting issues, this number was corrected to the upside several times throughout summer 2014. As this can happen anytime again in the future, the market would be in limbo for several months on supply in the future, which again would spur volatility.

An obvious alternative to the proposed "jump" function is a straight line as response rate. This would translate in the following reserve behaviour: if the surplus is higher than the required volume, a certain share of the difference between the surplus and the required volume it transferred (if difference is positive) to the reserve or release from the reserve (if difference in negative). This would minimize the effect of a slightly changed surplus on the MSR reaction and uncertainty as described above would be minimized.

"A combination of a linear reaction and a required volume range reduces the risk of volatility and mitigates the risk of a wrong assessment of the required volume"

However, as argued before, it is almost impossible to estimate one single value as a required volume. Thus, a hybrid of the proposed approach and the straight line can be an alternative. This would result in the following MSR behaviour: in the range of the estimated required volume, the reserve reacts only slightly on a difference between surplus and mid-point of the required volume range, as this volume range is defined as healthy for the market. However, if the gap between surplus and required volume widens beyond the estimated required surplus range, the reaction is stronger. In such mechanism, the risk of a wrong estimate of the required volume is mitigated, while there is no extreme reaction of the MSR if the surplus is hovering at the edge of the range of required volume. Figure 3 illustrates the different designs, and Table 4 shows the reaction of the MSR if the surplus is at the edge of the estimated range of the required volume.

Figure 3: different reaction function designs



Source: ICIS Tschach Solutions

Table 4: reaction of MSR if surplus grows by 1m beyond required volume

Reaction rate	Δ of reserve
Current Proposal	100m
Linear Function with 10% transfer rate	10m
Linear Function with 5% rate in range, and 15% outside of range	15m

The time-lag of the reaction

In its proposed MSR legislative proposal, the European Commission suggested a two year time lag between the year taken into account for the calculation of the surplus and the amendment of the auction volumes. In both the ITRE and ENVI Committees, a number of MEPs have tabled amendments to shorten the time lag from two to one year in order to improve the MSR response time.

In the context of market efficiency, the shortening of the time-lag to one year makes sense as the supply (auction) adjustment would reflect the most recent and therefore actual supply and demand imbalance.

According to our analysis, a one year time lag has no negative impact on the market but must be implemented correctly – to avoid a market squeeze, the one year time lag must be implemented alongside a change to the auctioning schedule from July to June instead of the current January to December as highlighted by the example below.

"According to our analysis, a one year time lag has no negative impact on the market but must be implemented correctly"

Example: Commission proposal amended with one year time lag

- Assuming the EU ETS has a 2bn surplus in 2020 (year x) as reported on 15 May 2021
- On 30 June 2021, 12% of the surplus, or 240m, should be transferred to the reserve
- With the one year time lag – resulting in an adjustment in year (x+1) – only half of the year 2021 – namely July to December 2021 – is available to cut auctions, not the full year
- Assuming 1.3bn auction in 2021, then is applied the 240m auction amendment to 600m supply only – August has half auction volumes, that is why the second half of the year has lower volumes than the first half of a year
- The supply for six months (July-December) is consequently cut drastically by over one-third. Considering the demand for carbon allowances is more or less split equally over the year, this would in our view induce unnecessary volatility in a way that auction supply is high in H1 every year (low prices) and low in H2 (high prices) while demand is constant.

So to conclude – to ensure a smooth and efficient functioning of the MSR, a one year time lag must be accompanied by the spreading out of auction changes to 12 month, and therefore spreading the adjustments made to the auction calendar from July to June instead of January to December.

"A one year time lag must be accompanied by the spreading out of auction changes to 12 month"

The use of reserve allowances for industrial support

In Ivo Belet´s draft MSR report, amendment 8 suggests the inclusion of a 30m allowances set aside when the reserve is above 400m. The set aside would be made available to "support breakthrough innovation in low-carbon industrial technologies and processes".

According to our analysis, and in the context of the Commission MSR proposal, such set aside provision would have only a marginal impact on the market. When comparing our base case scenario with and without the set aside provision, carbon prices start diverging slightly as of 2024. Between 2024 and 2030, assuming the 30m allowances set aside come back to market every year up to 2030 after the threshold is reached in 2023, the set aside scenario displays prices on average €4.00 lower than the scenario without the set aside.

Exploring alternative set aside levels - lowering the set aside to 10m would only bring the (downward) average price difference between 2024 and 2030 of €2.20. At the opposite end of the spectrum, however, increasing the set aside to 100m would approximately double to downward price difference for the set aside scenario (by around €8.20 on average between 2024 and 2030) with the latter resulting in a €31.00 carbon price in 2030 compared to €41.00 in a scenario without an industrial set aside.

"An industrial set aside of limited size is not expected to affect negatively the market"

So to conclude, an industrial set aside of limited size like the one proposed by Ivo Belet is not expected to affect the market negatively. However, the volume of the set aside is critical. The higher the volume, the higher the downward pressure on the carbon price signal.

Table 5: overview of industrial fund scenarios

Fund	Average of different designs		
	2030 price	2030 cumulative abatement	2030 reserve stack
No fund	€ 41.00	2,000m	1,700m
10m	€ 36.00	1,900m	1,500m
30m	€ 34.00	1,750m	1,430m
100m	€ 31.00	1,600m	1,050m

Source: ICIS Tschach Solutions

Update of the EU ETS White Paper

Due to new data published by the European Commission on 22 Jan 2015 on the New Entrants Reserve as well as the most recent update of the EUTL on regular free allocation, we updated the White Paper to include most recent available data.

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EU ETS White Paper

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