

# CARBON MARKET ANALYST

## 2030 EU Carbon Price Forecast: Peering through the political fog

### TO THE POINT

**We expect the MSR to start operating in 2018 with the 900 million backloaded allowances moved to the reserve.**

We foresee a continued policy debate over the exact start date within the Parliament and the Council, but think 2018 could emerge as a compromise. In addition we expect 900 million backloaded allowances to be moved to the reserve instead of returned to market.

**We increase our forecast for the average 2015-2020 price from €8.5/t to €13.4/t in real terms.**

Based on our assumptions with regards to the MSR and the ETS directive review, we believe that carbon prices will start increasing due to a shrinking market surplus. Due to lingering political uncertainty, we expect the 2015 carbon price to only partially reflect the assumed implementation of the MSR and average €8.5/t (in 2015 euros). We expect EUAs to average €24/t in real 2010 terms during the 2021-2030 period.

**The design elements of the MSR will shape the price trajectory for the next decade.**

Our scenario analysis shows that most of the MSR parameters will have a significant influence on how EUA prices will develop over the next 10 to 15 years. Starting the stability reserve in 2021 and releasing the backloaded allowances to the market in 2019 and 2020 would prevent EUA prices from moving higher than €10/t before 2022.

**Based on our latest assumptions, we believe the market's surplus already peaked in 2013.**

We estimate the surplus will decline from today's level of 2.1 Gt to 1 Gt in 2023 and around 300 million in 2030.

**We see a possibility for a supply wave sweeping the market at the beginning of phase 4.**

We estimate that 376 million allowances will not be allocated as foreseen during phase 3. Policy makers seem likely to set aside and monetise these permits to aid industrial participants, which could add more supply around the beginning of phase 4. In addition, lawmakers may decide to place on the market the allowances contained in the NER400 fund between 2021 and 2024.

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#### EUA long-term price forecast

€/t	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Nominal	8.5	13	15	17	19	20	22	24	27	30	33	35	38	40	42	44
Real ('10 euros)	8	12	13	15	16	17	18	19	21	23	24	26	27	28	29	29



# 2030 Carbon Price Forecast: Peering through the political fog

## Introduction

The Market Stability Reserve (MSR) debate is advancing quickly and has grabbed the carbon market's attention. The political majorities are forming and we expect policy makers to adopt a final decision around mid-year. After the Parliament's Industry and Energy (ITRE) committee failed to adopt an opinion on the file, all eyes are on the Environment (ENVI) committee that will vote on the file on 24 February.

We think that there will be a broad majority in the ENVI committee for a 2017 start date of the mechanism and for a transfer of backloaded allowances to the MSR. Our base case MSR scenario assumes the trilogue negotiations between the Parliament and the Council to end with a compromise featuring a 2018 start date combined with a full transfer of the 900 million backloaded allowances to the reserve. We assume the compromise to also call for the unallocated phase 3 allowances to be set aside and monetised through an innovation fund or used to tackle carbon leakage.

Other pieces of the 2030 climate policy puzzle are also falling into place. The Council conclusions from October 2014 call for the Commission to work on a revision of the ETS Directive, which will likely occur after the potential adoption of the MSR. The revision will align the ETS rules with the long-term 40 percent emission reduction target, and other elements of the Council conclusions concerning the amount of free allocation and the monetization of special-purpose funds such as the agreed "New Entrant's Reserve 400" fund. In this report, we translate all the political language from the Council conclusions into numbers and fill any gaps with our own assumptions of how the political framework will be implemented.

This price forecast also reflects our latest supply and demand forecasts, GDP growth assumptions, analysis of participants' usage of credits, and small methodological improvements to our price forecasting model.

## Policy outlook

The EU ETS framework is being reformed on two main fronts. First the MSR proposal aims to reduce the market's oversupply and make the carbon price more stable. Whether and how effectively the MSR accomplishes its purpose will depend on its design. Therefore, the outcome to emerge out of the current policy processes in the Parliament and the Council will be one of the main determinants of the future carbon price. We describe below what we see as the most likely outcome for the MSR proposal.

The second dimension of reforming the EU ETS is the revision of the ETS directive in light of the upcoming phase 4. The Commission has announced that it will soon put forward a legal proposal to revise the ETS to align it with the recent Council agreement on EU's 2030 energy and climate framework. The 24 October Council

conclusions painted a picture of the ETS rules that will apply from 2021 onwards. The agreement determined that the ETS cap will decrease by 2.2 percent per year starting in 2021. It also gave strategic guidance on how the Commission should revise the ETS with regards to free allocation, carbon leakage protection, and other elements. Many of the details will be ironed out during the forthcoming legislative process. Below, we present our base case assumptions for the post-2020 ETS framework.

### HOW WILL THE MARKET STABILITY RESERVE BE DESIGNED?

In light of the policy debate on how to reform the EU ETS over the recent months, we have changed our base case assumptions regarding the parameters of the MSR.

Our new base case assumes an early start of the MSR in 2018 combined with a transfer of the full 900 million backloaded allowances to the reserve. We also assume any allowances unallocated by the end of phase 3 (resulting from an underused NER or cessations) to be set aside for an industry innovation fund or to prevent carbon leakage. We therefore do not expect any of these allowances to be auctioned in 2020. Instead we expect a political agreement to auction the allowances in equal instalments over the first three years of phase 4 (2021-2024).

The start date and the fate of the backloaded allowances set to return to the market in 2019 and 2020 are the two most prominent aspects of the political MSR debate. In Parliament, the ENVI committee is in charge of coordinating the file. It will vote on 24 February to decide the preliminary Parliament position on the MSR. The ITRE committee failed to agree a common opinion in its vote on 22 January despite narrowly agreeing on a 2021 start date in an interim vote. This means that the ENVI committee will not have to formally take into account the view of the industry-protective ITRE committee.

The most recent debate in the ENVI committee showed a broad cross-party support for a start date earlier than the year 2021 proposed by the Commission, and for a transfer of the backloaded allowances (fully or partly) to the reserve. We expect this consensus to be reflected in the ENVI vote outcome in February. However, ENVI's rapporteur Ivo Belet is in a very difficult position. On the one hand he is expected to put forward a compromise wording on what appears to be a majority view in the ENVI committee. This includes a 2017 start date of the mechanism as indicated by many shadow rapporteurs. On the other hand he is member of the EPP group that remains sceptical over an early start date. However, reaching out to his rapporteur colleague Antonio Tajani in ITRE seems out of question when drafting the ENVI compromise. Mr. Tajani proposed a 2019 start date as a compromise in ITRE but withdrew that proposal last-minute pressured by the ECR group after other political groups did not want to follow. A 2017 start date was a red line for the S&D during the ITRE vote, and we expect the S&D camp to push hard for an ambitious outcome of the ENVI vote. This situation poses a dilemma as finding a solution acceptable to

the majority of Parliamentarians in ENVI and ITRE, the important committees shaping the opinions in full Plenary, will be difficult.

Given the divergent opinions of the two committees, ENVI may want to seek a mandate for the trilogue negotiations from the Parliament's plenary, which will likely not occur until late in April. Such a plenary vote could alter ENVI's position determined by the 24 February vote, based on amendments tabled ahead of the vote by a single political group or a cross-party coalition of at least 40 MEPs. Given the strong position of the euro-sceptics in the current Parliament, an outcome will probably need to be supported by the grand-coalition of the major political groups the S&D and the EPP. To secure a deal, S&D may in the end have no other option but to support a compromise start date of 2019 to make a concession and show goodwill. This in turn could ensure support on another strong S&D position, the transfer of all the 900 million backloaded allowances to the reserve. All political groups (apart from the EFDD) supported transferring (partially or fully) the backloaded allowances into the reserve ahead of the vote in ITRE, but none of the individual options covering this issue got the sufficient number of votes to be accepted. Therefore, we expect the stronger position of a full transferral to be adopted in ENVI and the plenary.

A new design element was introduced during the Parliament process regarding the fate of the residual allowances, which will likely remain unallocated at the end of phase 3 from the New Entrants Reserve or companies' capacity reductions. The Commission proposed to dampen the supply shock created by these allowances by partly postponing these auctions until the first two years of the next phase (through Article 2 of the MSR proposal). ITRE voted in favour of setting aside these allowances to tackle carbon leakage. The idea of channelling the unused or backloaded allowances to support industry seems to resonate well in ENVI, and we assume that the Parliament's final position will favour a set-aside of the unallocated volumes in phase 3 to address industry concerns. We assume these allowances, which we currently estimate at 376 million allowances (see further explanation for this number below), to be monetised over the first three years of phase 4.

The Council is still in the process of finding common ground on the MSR. Since the MSR was politically agreed on by member states in October 2014, governments have been debating whether to strengthen the Commission proposal or not. Several influential member states such as Germany, the UK and France support an early start and a transfer of backloaded allowances into the reserve. A Poland-led opposition is working against such changes, while some countries are prone to support the transfer of backloaded allowances to the reserve but do not support an early start. A handful of countries have yet to come forward with a position.

The Latvian Presidency leading the talks seems determined to quickly advance the issue, and to facilitate a solution supported by a qualified majority of votes. Votes in the Council are distributed to each country depending on its population size. Although there is currently no qualified majority in favour of strengthening the MSR in the Council, the Presidency is working towards a compromise which involves the transfer of the backloaded allowances into the reserve and is pushing for a decision on the controversial issue of the start date. We expect the debate to result in the adoption of a 2017 start date as pushed for by all influential member states,

with the exception of Poland. Trilogue negotiations will lead to a convergence of the positions in the Parliament and Council, resulting in a final text acceptable to both institutions. All in all, the current discussions in the Parliament point towards a start date of 2019, which we believe will be pulled towards 2018 in the trilogue negotiations with the Council.

A consensus has emerged around the idea to shorten the time lag that it takes the MSR to react to changes in the market surplus. Originally set at two years in the Commission's proposal, the time lag will, in our opinion, be cut to one year. We therefore assume that the MSR will function in the following way – the Commission will publish an official estimate of the market's surplus for year X-1 in the spring of year X; any adjustment to be carried out by the MSR will take place in the second half of the same year X. We assume that the MSR adjustment will be reflected in the auctions scheduled from July of year X to June year X+1, perhaps the most practical option.

## CONTINUED FREE ALLOCATION TO THE POWER SECTOR

An important victory for Poland and other eastern European member states in the October European Council was an agreement to prolong the free allocation for utilities until 2030. The member states that can apply are those with a GDP per capita below 60 percent of the EU average. With a few exceptions, these are the same countries that have had the option in phase 3. The allowances to be given away in each member state will be taken from the country's share of auctioning. Member states with higher shares of auctioning will give away more allowances, and vice versa. We estimate that this option will result in the allocation of 666 Mt to utilities up to 2030.

## NON-TRADED SECTOR FLEXIBILITY: CANCELLATION OF EUAS

The European Council conclusions introduced a new mechanism that allows the cancellation of ETS allowances to help non-ETS sectors meet emission reduction targets. The mechanism will be available to member states where emission reductions in non-ETS sectors will be costly. This will likely include Germany, the UK, France and Denmark. The option can also be applied by member states that did not have free allocation for industrial installations in 2013, which applies only to Malta. Member states will have to decide prior to 2020 whether and to what extent to make use of this option. The cancellation will affect the amount of allowances to be auctioned.

The details of the mechanism will be determined in the upcoming legislative process and it will be up to the Commission to make the first proposal on how to design such mechanism in the upcoming ETS review proposal. There is currently little in the way of details as the Commission has not provided its interpretation of the European Council agreement. What we know is that the mechanism will comprise a "limited, one-off reduction of ETS allowances" as the Council conclusion's text described it.

The Commission will likely make suggestions for an upper limit of allowances that could be cancelled according to what it interprets as "limited". It will also likely supply a formula for how to divide the maximum allowed volume between the eligible member states. We

also expect the Commission to suggest that any cancelled volume be gradually withdrawn from multiple annual auctioning budgets, rather than from a single year, to minimise the impact on the carbon market. A main uncertainty is to what extent member states will engage in a cancellation of EUAs. The option can alleviate the burden placed on non-traded sectors, but will at the same time result in a loss of auctioning revenue.

Fundamentally the option will reduce the market's oversupply, providing support to the carbon price. However, we expect the effect on the price to be limited. The exact impact will depend on the number of allowances cancelled and the timing for such cancellation. Given the uncertainty regarding the magnitude of this number we chose not to make an assumption here, but to highlight that this provision poses a small bullish risk to our price forecast.

### NER400

The European Council conclusions decided to renew and reinforce the current NER300 programme. The NER300 fund comprised 300 million allowances set aside from the phase 3 New Entrant's Reserve and was monetised by the European Investment Bank for supporting CCS and renewables projects. After 2020, a similar fund will be capitalised with 400 million EUAs. Its scope will be extended to low carbon innovation in industrial sectors. The details will be determined in the upcoming EU ETS review process.

The monetisation will likely take place in the beginning of phase 4 to allow enough time for tendering eligible projects. We expect that the Commission would want to prevent the NER400 volume from counteracting the effect of the MSR, thus seeking to spread the NER auctions over several years. We assume that allowances from the NER400 fund will be sold on the market in four 100 Mt tranches from 2021 to 2024.

### POST-2020 CARBON LEAKAGE PROVISIONS

The European Council concluded that free allocation will not expire and that "existing measures will continue after 2020 to prevent the risk of carbon leakage". The Commission will propose changes to the current rules in the upcoming revision of the ETS directive. The new carbon leakage provisions, it currently seems, will extend the current rules and introduce several new elements.

The Commission has indicated that it intends to continue the system of benchmarks and a carbon leakage list. For this purpose, the Commission will review the current benchmarks used for calculating the amount of free allocation. This revision will take into account the direct and indirect costs being borne by the industry. There may also be more radical changes to the current system. The Council conclusions declared that future allocation will have to ensure better alignment with changing production levels in different sectors. The Commission has yet to propose how this guidance will translate into legislation. We will await more details from the Commission's proposal to incorporate such provisions into our model.

While we do not rule out changes to the carbon leakage list we assume that companies accounting for most of the emissions will remain on it. As the MSR process has demonstrated, carbon leakage protection is an issue that garners support from Parliamentarians of all camps. The only significant change to

free allocation assumed in our model is an increase in the cross-sectional correction factor which will increase the rate at which free allocation decreases annually to align it with the new cap reduction factor. As a result we project that free allocation will represent 44% of the overall 2021-2030 cap.

## Use of the credit limit

As shown by Table 1, we estimate the credit limit for EU ETS operators to be 1,571 Mt for phases 2 and 3. So far 1,059 million credits have been used for compliance in phase 2 and an additional 133 million were exchanged for EUAs by April 2014. This leaves an untapped credit limit of 379 million that can be used until 2020. Of this volume, around 60 million is based on the verified emissions in phase 3 and will not be used until the next compliance deadline, limiting the number of credits that can be exchanged for 2014 compliance to 319 million. Of these, 25 million were exchanged between May 2014 and 4 November 2014. Therefore, between 5 November 2014 and 30 April 2015 a maximum of 294 million credits could be exchanged for EUAs. An important consideration is that 31 March 2015 marks an important deadline, after which credits based on pre-2013 emission reductions will not be allowed anymore within the EU ETS registry.

How many credits will be exchanged for the 2014 compliance year? We can only make assumptions based on the possible exchange strategies of market participants. We expect operators to optimise the exchange based on the EUA-CER price ratio.

The main argument for using the entire remaining credit limit of 319 million (294 Mt + 25 Mt) available for 2014 compliance is the opportunity to take advantage of the currently high EUA-sCER spread. EUAs are traded around the €7/t level at the moment while the March-15 CERs are close to €0/t. This is a risk-free transaction that lowers the number of EUAs needed for compliance. In comparison, the spread between the EUA price and sCER contracts

**Table 1: Use of the credit limit**

Credit limit used during phase 2	1,059 Mt
Exchanged credits by April 2014	133 Mt
Total used credit limit in May 2014	1,192 Mt
<b>Remaining credit limit until 2020</b>	<b>379 Mt</b>
Of which is based on verified emissions	60 Mt
Leaves open for 2014 compliance	319 Mt
Of which has been exchanged for EUAs between 1 May and 4 Nov 2014	25 Mt
<b>Leaves open for exchanges between 4 Nov and 30 April 2015</b>	<b>294 Mt</b>

for delivery after the compliance deadline (Dec-15 sCER) is €0.5/t smaller. This could mean that operators may sacrifice the flexibility to hedge against future EUA price spikes by realising the full CER-EUA swap ahead of the 2015 deadline.

The other strategy is to keep a certain credit limit open for later use. This option allows operators the flexibility to hedge against EUA price spikes in the future. Should the EUA-CER spread widen, the margin for compliance operators could be larger. This scenario, however, largely depends on the implementation of the MSR. We expect the market to have relatively little clarity on the MSR by the 2014 compliance deadline. Speculating on a widening spread may therefore imply a significant risk. Should the spread narrow, operators who kept onto credit limits will be forced to exchange at a less favourable EUA-CER spread.

Weighing the pros and cons, we think that most operators will minimise risk and exchange most credits before March 2015. Including the 25 million credits that have been swapped for EUAs between May and November 2014 already, we expect a total credit exchange volume between 200 and 250 million for 2014 compliance.

## Price model changes

In addition to revised policy assumptions, our updated forecast reflects several changes to our price forecasting model. Since our last price forecast, we have taken into account developments in the behavior of industrial market participants, our latest expectations for the use of the New Entrant's Reserve, refined GDP data assumptions, and several small methodological improvements.

The recent progress on the MSR, we believe, is changing market participants' expectations for the future of the EU ETS. Growing expectations for market reform will likely cause industrial manufacturers to become more forward-looking in their carbon trading strategies than previously assumed. Our previous model version assumed that industrial companies base their trading decisions on their net carbon balance estimated up to two years into the future. We now assume that this time-horizon will increase to three years in 2015 and five years in 2016 and onwards.

The question of how many allowances will be allocated for free up to 2020 is one of the main uncertainties for future market supply. There are currently 411 million allowances in the NER pool that are to be allocated to new market entrants during phase 3. We do not expect there to be enough entrants for all of these allowances to be allocated. Based on a bottom-up analysis of the pipeline of new heating installations expected to come online and on conservative estimates for new capacity in manufacturing sectors, we estimate that 195.5 Mt will be left unallocated in the NER by 2020. In addition we expect that some of the free allowances budgeted for incumbent installations will not be given out as a result of partial cessations in the industry sector. We assume that, by 2020, 180.7 Mt of allowances will not be allocated, and auctioned instead. All in all, we expect that 376 Mt will be added to the auctioning volume in 2020.

We have also updated our long-term GDP growth assumptions. We previously sourced our long-term GDP growth assumptions from an OECD forecast and used in-house extrapolations for non-OECD

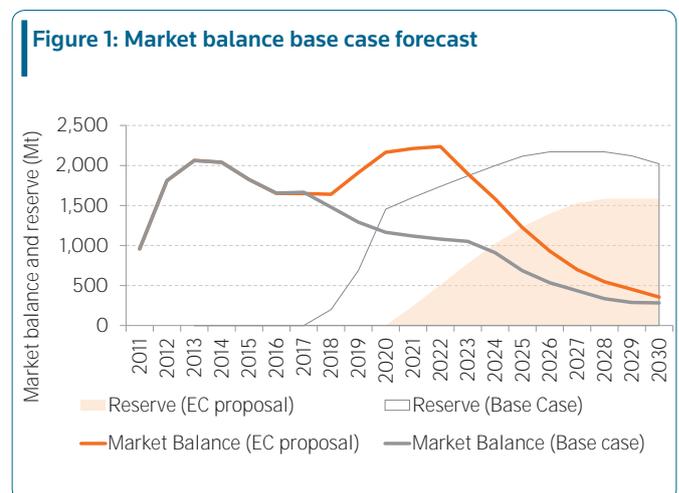
European countries. Our new model uses GDP growth forecasts provided by Oxford Economics. Oxford Economics forecast EU GDP growth to be 1.7 percent in 2015, to reach 1.8 percent by 2020 and decline thereafter to 1.3 percent in 2030. As a result, our assumed average EU growth rate for 2021-2030 is now 1.6 percent, 0.3 percent less than what we assumed before.

Finally, we have made improvements to the way in which our model estimates the impact of auctioning on the carbon price. Previously, our model assumed that the carbon price in a given year does not reflect the amount of auctioning supply further out in time. We have now adjusted our model so that the price in any one year is dependent on the amount of auctioning three years ahead. This is consistent with our assumption that power sector participants hedge the vast majority of their carbon exposure for three years into the future. Since our previous price forecast, we have also calibrated our model to the latest power forward hedging data.

## Market balance forecast

Based on our latest assumptions, we believe the market's surplus has already peaked. Figure 1 illustrates our latest forecast of the market supply-demand balance given our base case assumptions (grey line). The assumed transfer of the backloaded allowances to the reserve, in combination with a 2018 start of the MSR, will erode the market oversupply over time. In our base case, we project it will take the MSR eight years to reduce the oversupply, which will fall below the 833 Mt threshold as late as 2025. It will take a relatively long time for the oversupply to dissolve because of a large pool of allowances that we expect will flow to the market at the start of phase 4. As explained above, we expect that the 376 Mt to be left unallocated at the end of phase 3 will be monetised to fund industry innovation during 2021 and 2023. In addition, 400 million allowances seem likely to be injected into the market in 2021-2024 from the NER400 fund.

Our assumptions for an MSR agreement greatly influence this outlook. As illustrated in Figure 1, the market balance under the Commission's MSR proposal will likely balloon to 2.2 Gt in 2022 and begin declining as late as 2023. This is largely the result of the supply shock expected to jolt the market around 2020 as a result of the backloaded allowances, unallocated phase 3 allowances, and front-loaded NER400 volumes.



# Carbon price forecast

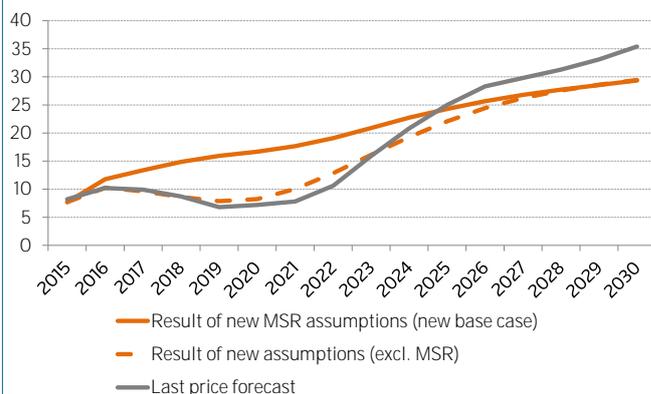
We forecast an upward price trend as a result of our new base case assumptions (Figure 2). As illustrated in the figure, our new price forecast reflects two main changes from our previous outlook.

First, our model updates and our assumptions regarding the post-2020 ETS rules resulted in slightly higher EUA prices before 2022 (dotted orange line). This is mainly because we assume industrials will begin planning for the longer term, as explained above. Our new model version also resulted in lower prices after 2022, mainly because we revised down our GDP assumptions for the next decade as explained above.

Second, our new MSR assumptions have lifted our base case forecast in the years prior to 2025 (solid orange line). Based on our price forecasting model, we project that the carbon price in the near term will receive increasing support from the assumed implementation of the MSR in 2018, as market participants price in the reduction in the market’s oversupply. Once the mechanism begins to operate, the MSR will become fully reflected in the carbon price and likely result in a sustained price rise. We forecast the price will reach €17/t in 2020, resulting in a 57 percent increase in our forecast for the average 2015-2020 price to €13.4/t. We forecast an average 2021-2030 price of €24/t (in real 2010 euro terms).

The price development under the Commission’s MSR proposal is illustrated by the dotted orange line in Figure 2. Towards 2020, the price will likely be pulled lower by the return of the backloaded allowances. Traders’ anticipation of the MSR will limit how low the price will go, but the price is nevertheless likely to fall to €8/t in 2020. The impact of the MSR will likely become fully reflected in

**Figure 2: New price forecast and changes since last update**  
Prices in real 2010 euros



the price only once the mechanism begins operating, which in this scenario occurs in 2021. The price will then gradually increase over time, breaking the €20/t level in 2025 and reaching €29/t in 2030.

## PRICE SENSITIVITY ANALYSIS

In Table 3 we apply changes to three policy parameters that stand out in the policy debate as the main battlegrounds: the start date of the mechanism, the handling of the 900 million backloaded allowances and the treatment of the unallocated allowances at the end of phase 3.

Varying the start date between the realistic options somewhere between 2017 and 2021, leads to a price span of €1.8/t (€18.8/t to €20.6/t).

**Table 2: EUA long-term price forecast**

€/t	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Nominal	8.5	13	15	17	19	20	22	24	27	30	33	35	38	40	42	44
Real ('10 euros)	8	12	13	15	16	17	18	19	21	23	24	26	27	28	29	29

**Table 3: Sensitivity analysis of MSR scenarios**

All scenarios feature a 1-year delay of the MSR

2015-2030 EUA average price in real 2010 euros per ton and (abatement in 2015-2030)	2017	2018	2019	2020	2021
Transfer 900 Mt to reserve, monetise unallocated EUAs in 2021-2023	20.6 (2,114 Mt)	<b>Base case: 20.2 (2,062 Mt)</b>	19.6 (1,988 Mt)	19.2 (1,958 Mt)	18.8 (1,893 Mt)
Transfer 900 Mt and all unallocated allowances to reserve	21.0 (2,170 Mt)	20.8 (2,142 Mt)	20.1 (2,084 Mt)	19.8 (2,061 Mt)	19.5 (2,027 Mt)
Transfer 900 Mt to reserve and auction unallocated allowances	20.5 (2,095 Mt)	20.2 (2,072 Mt)	19.6 (2,006 Mt)	19.2 (1,949 Mt)	18.7 (1,907 Mt)
No transfer of backloaded allowances, unallocated allowances auctioned ( <b>Commission proposal</b> )	18.6 (1,873 Mt)	18.1 (1,801 Mt)	17.6 (1,780 Mt)	17.1 (1,733 Mt)	16.6 (1,699 Mt)

Alternatively, changing assumptions on backloading and unallocated allowances, while keeping the start date at 2018 as in our base case, produces a span of €2.7/t (€18.1/t to €20.8/t). From these results we infer that handling the supply wave due to come towards the end of phase 3 makes a greater difference for the long-term average carbon price than the actual start date, which mainly influences EUA prices over phase 3.

The Commission proposal provides the lowest average price of all sensitivities with €16.6/t over the 2015 to 2030 timeframe – a fact that is currently reflected in the policy debate. We find any scenarios featuring an MSR weaker than the one proposed by the Commission as unlikely.

The most bullish sensitivity we describe in table 3 accounts for a start date in 2017 with a transfer of 900 million backloaded allowances and 376 million unallocated allowances to the reserve. We project this will lead to an average annual price of € 21.0/t between 2015 and 2030. Therefore, the most bearish (Commission proposal) and most bullish scenarios described here differ by €4.4/t.

This matrix describes only a very narrow selection of potential MSR designs. A different handling of the unallocated allowances such as restricting the number of unused EUAs to be monetised for supporting industrial participants (as proposed by the S&D-led group in the ITRE committee) or a partial transfer of backloaded allowances (as proposed by EPP and ECR in ITRE) would lead to significant changes in the annual average price.

## EMISSION REDUCTIONS

We estimate that the prices we project in our base case will encourage companies to reduce 2,062 Mt from 2015 to 2020, on the basis of our estimated marginal abatement costs. The level of abatement can vary greatly depending on the design of the MSR as shown in Table 3. If policy makers were to start the reserve in 2017, we estimate this will result in an additional reduction of 52

Mt, compared to our base case. If policy makers decide to transfer the unallocated phase 3 allowances into the reserve, this will likely encourage 80 million tons of additional CO<sub>2</sub> reductions compared to our base case.

## Conclusion

The fact that policy makers show a high level of ambition with regards to reforming the ETS and making it future-proof has resulted in a steady increase in EUA prices since their all-time low in April 2013. We think this upward trend will continue. However, one of the main conclusions of this report is that the market is still very much driven by political processes in Brussels. As the MSR debate currently stands, there is still a large number of possible scenarios for the final design of the mechanism. The political decisions taken will shape the market for decades. Other areas of political uncertainty are equally important for the market, even if they may not be the main price drivers. Still to be decided is the revision of the ETS, which will determine the regulatory framework post-2020.

Our sensitivity analysis shows that most of the MSR parameters will have a significant influence on how EUA prices will develop over the next 10 to 15 years. Starting the stability reserve in 2021 and releasing backloaded allowances to the market in 2019 and 2020 would prevent EUA prices from moving higher than €10/t before 2022. We expect plenty of horse trading between the two main political groups in Parliament - S&D and EPP - as well as between the two law-making institutions, the Parliament and the Council.

The assumptions made in this price forecast concern policy developments that are as far-reaching as they are far-off. When it comes to foreseeing the future policy set-up, this price forecast comes with a significant degree of uncertainty. Not until the political institutions have decided on the final design of the MSR will we have a clear picture of how quickly the market's oversupply will dissolve – one of the most important questions for a carbon market oversupplied with a year's worth of allowances.

### Annex 1: The Commission's Market Stability Reserve proposal explained

The Market Stability Reserve functions as an automatic adjustment of the annual auctioning volumes. The basis for the annual adjustments is the **market surplus** (also referred to as "allowances in circulation") defined as: the allowances allocated since 2008 + international credits used for compliance since 2008 – verified emissions since 2008.

On 15 May of each year beginning in 2017, the Commission will publish an official estimate for the market surplus for the previous year.

In the Commission's proposal, the MSR begins operating in 2021. In 2021, 12 percent of the surplus recorded for 2019 (two years back) is withdrawn from the annual auctioning schedule and placed into the market stability reserve. In 2022, 12 percent of the surplus recorded for 2020 will be withdrawn and placed into the market stability reserve. This will be repeated every year until the surplus falls below **the upper trigger** of 833 Mt. The proposal also defines a **lower trigger** equal to 400 Mt. If the market surplus is below this number, allowances are returned to the market from the reserve in annual installments of 100 Mt.

**Article 2** of the proposal foresees an additional adjustment in auctioning volumes to take place in 2020. This adjustment is equal to two-thirds of the difference between the auctioning volumes in 2020 and the average auctioning volumes in 2021 and 2022. This volume, will be withdrawn from the auctioning schedule in 2020 and released back in equal halves in 2021 and 2022.

**Annex 2: The Point Carbon price forecasting model**

Our price forecasting model consists of three modules (see flowchart below).

The first module is an econometric price forecasting model. This model relates historical EUA prices with the historical “perceived” EU ETS supply and demand balance to simulate how future changes to the market’s supply and demand will influence the carbon price. The perceived market balance is calculated as ‘Actual Demand’ minus ‘Perceived Supply’.

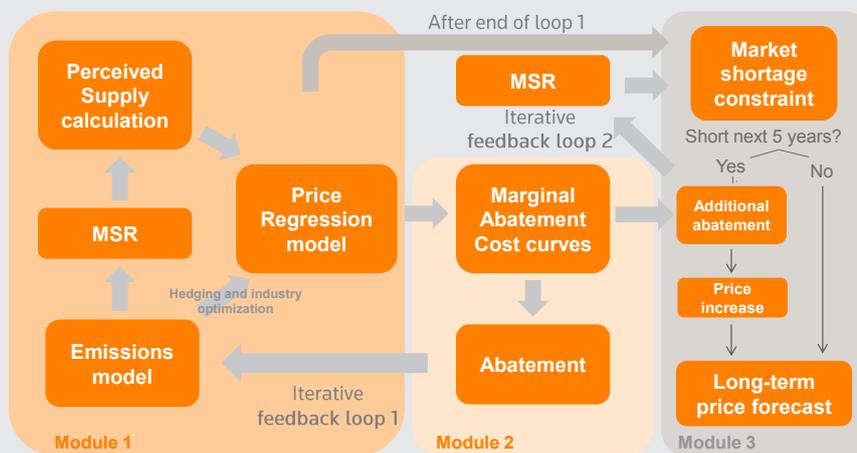
We calculate ‘Actual Demand’ on the basis of historical verified emissions as well as our forecast for future emissions. Emissions in the power sector have been adjusted for forward hedging needs to reflect the actual demand of utilities in any given year. Forward hedging is done up to three years ahead and is calculated on the basis of public financial reporting by the major utilities. In the industrial sectors, demand is based on the sector’s balance between emissions and free allocation accumulated for the length of companies’ planning horizons. The planning horizon is assumed to increase from two years in 2014 to three years in 2015 and five years from 2016 onwards.

‘Perceived Supply’ represents the future EU ETS cap as well as market participants’ expectations about any potential changes to the cap. We expect market participants to evaluate different scenarios regarding the potential future cap changes and weigh them based on probabilities, representing their expectations for the chance of each scenario. We construct the future ‘Perceived Supply’ based on current legislation as well as in-house policy analysis regarding any potential legislative changes. The future ‘Perceived Supply’ is based on a 40 percent greenhouse gas target, a 27 percent renewable energy target and a 27 percent energy efficiency target for 2030. Our base case forecast also reflects our latest base case assumptions on the MSR described in this report.

The second module of our price forecasting model simulates the interaction between the future EUA price expected by the market and the amount of abatement in the EU ETS. We use a feedback loop to estimate the impact of abatement on the carbon price and to forecast the future carbon prices and abatement levels. Our model uses marginal abatement cost curves for the power and industry sectors. Fuel switching abatement in the power sector is calculated by a power dispatch model, while abatement in the industry sector is based on currently available abatement options and takes into account inter-temporal effects of investment decisions.

The third module provides a constraint, which specifies that market participants cannot be short of EUAs for their annual compliance needs. The module simulates the market’s reaction to a potential future shortage by calculating companies’ abatement assuming they aim to minimise costs. We assume that market participants would begin to cover shortages by beginning to abate emissions five years in advance. The higher abatement needs caused by any impending shortages has a bullish effect on the price on the basis of our marginal abatement cost curves.

**EUA price model illustration**



**EDITORIAL ENQUIRIES**

Emil Dimantchev  
Emil.dimantchev@thomsonreuters.com  
Tel +47 23 31 65 08

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Thomson Reuters Point Carbon, Norway  
(Head Office of TRPC)  
Dronning Eufemias gate 16  
0191, Oslo  
Norway  
Tel +47 22 40 53 40  
[tr\\_pca\\_carbonmarkettrader@thomsonreuters.com](mailto:tr_pca_carbonmarkettrader@thomsonreuters.com)

**WEBSITE**

[www.thomsonreuters.com](http://www.thomsonreuters.com)

**OFFICES**

**London**

Thomson Reuters (Head office of the TR group)  
The Thomson Reuters Building  
30 South Colonnade, Canary Wharf  
London E14 5EP  
United Kingdom  
Phone: +44 (0)20 7250 1122  
Fax: +44 (0)20 7253 7856

**Washington D.C.**

Thomson Reuters Point Carbon North America  
1100 13th Street NW, Suite 200  
Washington, DC 20005  
[carbonresearch@thomsonreuters.com](mailto:carbonresearch@thomsonreuters.com)  
Sales enquiries  
[Americasnewbusiness@thomsonreuters.com](mailto:Americasnewbusiness@thomsonreuters.com)  
Tel +1.877.365.1455

**Kiev**

Thomson Reuters Point Carbon Kiev  
3 Sportyvna Ploscha  
Entrance IV, 4th floor  
Olymp Business Center  
01601 Kiev  
Ukraine  
Tel: +38 044 583 55 48  
Fax: +38 044 583 55 49



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