Single Electricity Market

(SEM)

Balancing Market and Capacity Market Options

Decision Paper

SEM-19-054

30 September 2019

EXECUTIVE SUMMARY

Since Go-Live of the amended SEM energy trading arrangements on 1st October 2018, the performance of the balancing market has provided some cause for concern, including whether the level of price volatility appropriately reflected efficient market outcomes. The extremely high prices on 24th January 2019, caused *inter alia* by the North-South Tie Line constraint, caused particular concern and the SEM Committee decided, at its meeting on 28th March 2019, to direct SEMO to raise an Urgent Modification to the Trading & Settlement Code to implement a specific change. This Modification, Mod_09_19, removed certain constraints, including the North-South Tie Line constraint, from the imbalance pricing process, in order to reduce the possibility of further such extreme pricing events.

Following the implementation of Mod_09_19 on 2nd May 2019, the SEM Committee in SEM-19-024 consulted on two further options for potential changes to the balancing market design and settlement process. The first option involved changes to the balancing market and would remove all constraints from the imbalance pricing process in what is referred to as Simple NIV tagging. The second option involved changes to the Capacity Market settlement rules and would remove the exposure to Difference Charges for those units which were available to deliver but could not be dispatched up to meet their reliability option obligation due to a binding Operational Constraint.

This consultation (SEM-19-024) closed on the 12th July 2019. A total of 19 responses to the consultation were received, with two of these responses marked as confidential. This decision paper summarises the consultation and comments received from respondents and sets out the SEM Committee's view on these issues and next steps.

Following a review of the consultation comments received, the SEM Committee has decided to not implement either option one or option two at this time but to keep this matter under review in light of recent and ongoing developments. These developments include recent steps taken by the SEM Committee and SEMO to help address the balancing market concern (including but not limited to Mod_09_19), ongoing work on compliance with European requirements and an examination by the SEM Committee of the recent significant increase in Imperfections charges. Also, the Repricing and Price Materiality Threshold consultation (SEM-19-042) process may impact what new information is available to inform any future decisions on the market arrangements. Taking account of these developments and out-turn prices in the balancing market over the coming Winter, the SEM Committee may review this matter again in Quarter 2 2020.

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1. INTRODUCTION

1.1 Background

Since Go-Live of the amended SEM wholesale energy trading arrangements on 1st October 2018 the Regulatory Authorities (RAs) have been reviewing market outcomes in the different timeframes.

The balancing market is a critical market in the SEM, and it was anticipated that the new market design would entail higher volatility in the balancing market than was seen in the original SEM gross mandatory ex-post pool. A certain amount of price volatility in the balancing market is to be welcomed, as long as it is caused by market fundamentals and reflects efficient outcomes as it will encourage liquidity in the ex-ante markets and encourage market participants to be balance responsible. Since the beginning of the new market however the performance of the balancing market has provided some causes for concern.

The RAs consider that a balancing market price should send two sets of signals. The first signal is to ensure that market participants generally trade into balance ahead of or by real-time operation of the electricity system. This is sent by ensuring there is a reasonable level of volatility in the electricity market price. The second signal is to influence market participant behaviour in near to real time. It is for this reason that imbalance prices are calculated and published as near to real-time as possible. This second signal is predicated on the price, and in particular price movements, being reflective of system fundamentals. The RAs are particularly concerned that this second signal is not being set effectively.

Over the first 6 months since the amended SEM energy trading arrangements went live (1st October 2018), volatility in the balancing market has been somewhat higher than expected. In particular, prices in 5-minute Imbalance Pricing Periods have gone as low as minus 1,000 €/MWh and as high as 5,636.62 €/MWh. This has fed through to 30-minute Imbalance Settlement Prices ranging from as low as minus 238 €/MWh to as high as 3,773.69 €/MWh on 24th January 2019. The RAs are not concerned with price volatility *per se*, but they are concerned when this does not reflect underlying system fundamentals and efficient market outcomes. In particular, the RAs have been concerned around some of the inputs into the price-setting process and the impact of System Operator Flags and Non-Marginal Flags on the price, and around the effect such prices have on capacity contract holders which were available but could not deliver due to binding Operational Constraints.

1.2 Steps Taken

In order to help address balancing market volatility of the type that caused concern, the SEM Committee has taken numerous steps in recent months, with SEMO making various system changes. These changes as detailed below are expected to alleviate potentially incorrect price signals. In other words, both the urgency and impact of the issue is expected to have materially diminished in recent months.

In particular, the RAs implemented “Mod_09_19” to change the Trading and Settlement Code. This modification, which went live on 2nd May 2019, removes flags around certain constraints, including the North-South Tie Line constraint and upper MW limit exports from the Cork area and Southern region, from the imbalance pricing process. This is specifically to address the issue from January 24th in which prices were set by a high-priced peaking unit in Northern Ireland due to system constraints. The removal of flags when these specific network constraints occur means that additional actions (typically, generator INCs) should be available in the BM pricing stack (rather than being flagged out), thereby preventing a BM price spike for this reason.

Furthermore, the RAs’ Market Monitoring Unit continues to have an effective role in relation to market participants bidding behaviour within the SEM to ensure compliance with the Bidding Code of Practice. In addition, as the new market arrangements have bedded-in, market participants have adjusted their bidding behaviour reflecting learnings since Go-Live.

There has also been a modification proposed to implement a change related to negative bids for priority dispatch units put forward by the market operator. This was part of the original design for the market which had not been implemented by SEMO. These units should not be able to set the price in the balancing market, as it is unequitable for priority dispatch to set very low negative prices when dispatched down. This is due to the nature of the priority dispatch hierarchy which forced the TSO to ignore the economic cost of these dispatch down actions. A decision on this modification (Mod_10_19) is expected in the coming weeks.

Furthermore, SEMO has deployed numerous release bundles to fix errors identified in the pricing system since Go-Live. These deployed release bundles have alleviated different known issues helping to further stabilise the operation of the balancing market. SEMO continue to plan for the deployment of further releases to address other known defects in the coming months.

1.3 Public Consultation

On 30th May 2019 the SEM Committee published Balancing Market and Capacity Market Options Consultation Paper (SEM-19-024) looking at these issues. This consultation closed on 12th July 2019. Based on out-turn market experience since Go-Live consultation SEM-19-024 set out SEM Committee concerns about the balancing market design.

As referred to above in section 1.2 (Steps Taken) the SEM Committee decided, at its meeting on 28th March 2019, to direct SEMO to raise an Urgent Modification (Mod_09_19) to the Trading & Settlement Code to implement a specific change in order to reduce the possibility of further extreme pricing events, while further approaches are investigated and developed (including this consultation process). Consultation paper SEM-19-024 consulted upon two options.

- The first option involves changes to the balancing market and is called "Simple NIV tagging". Simple NIV tagging removes all System Operator Flags and Non-Marginal Flags from the imbalance pricing algorithm so that the most expensive actions are NIV-tagged from the top (or bottom) of the stack of actions until the stack of actions left for pricing is equal in volume and direction to the NIV.

- The second option involves changes to the Capacity Market and would remove the exposure to Difference Charges for those units which were available to deliver but could not be dispatched up to meet their reliability option obligation due to a binding Operational Constraint.

The rest of this decision paper provides a summary of these two options as set out in the consultation and provides a summary of respondent's views to the questions provided on each option and gives the SEM Committees response to these.

1.4 Responses Received

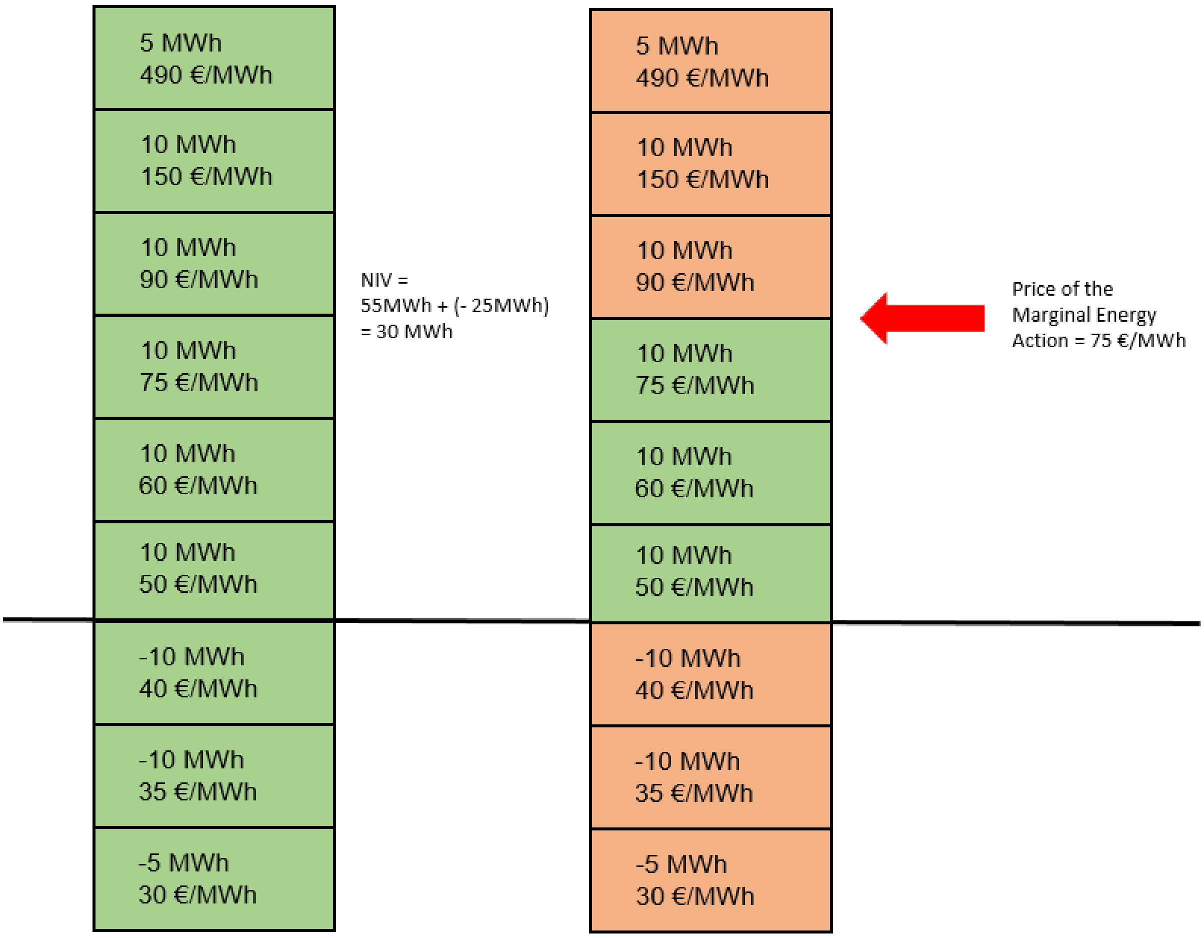
A total of 19 responses to the consultation (SEM-19-024) were received. Two of these responses were marked as confidential. The non-confidential respondents are listed below and are published alongside this paper.

- Bord na Mona
- Bord Gais Energy
- Budget Energy
- Captured Carbon Limited
- EAI
- Enerco
- Energia
- Electric Ireland
- EirGrid SONI
- ElectroRoute
- ESB GT
- IWEA
- Moyle
- PrePayPower
- Power NI
- Power NI Energy PPB
- Tynagh

2. OPTION ONE: SIMPLE NIV TAGGING IN THE BALANCING MARKET AND SEM COMMITTEE RESPONSE

2.1 Summary of Consultation

The consultation SEM-19-024 set out Simple NIV tagging option, describing how this option would amend the Flagging and Tagging Approach being used in the balancing market by removing the System Operator Flags and Non-Marginal Flags from the imbalance pricing algorithm. It was described how the effect Simple NIV tagging is to use price and the NIV itself as the system to identify energy and non-energy actions. Any actions with a price which is more expensive than the “price of the marginal energy action”, and any actions in the opposite direction to the NIV, are identified as non-energy actions. Implementing this option would render the changes in Mod_09_19 obsolete with all System Operator Flags removed from the pricing algorithm.



In SEM-19-024 the SEM Committee assessed the Simple NIV tagging option against the High-Level Design; the Detailed Design; the Detailed Rules and Implementation Stage; Market Power mitigation decision and considered this option to be in line with these.

SEM-19-024 described how the SEM Committee considered that there was a failure to implement the policy decision that decremental prices submitted by units with priority dispatch would be used for settlement purposes only (not be price setting in the balancing market). It was described how while Simple NIV tagging by itself would not explicitly implement this policy decision it would significantly reduce instances of this occurring.

Analysis was presented in SEM-19-024 on both the actual imbalance prices which occurred in the five months subsequent to I-SEM Go-Live on 1st October 2018, and the theoretical imbalance prices which would have pertained if Simple NIV tagging had been in place. This analysis provided descriptive statistics, correlations, presented scatter plots and regression analysis looking at projected outturn prices from the Simple NIV tagging option against the actual imbalance prices. Imbalance prices over the course of the day were compared with the DAM prices and the NIV. It was described how generally, when the NIV is positive the imbalance price would be expected to be higher than the DAM price, and conversely when the NIV is negative the imbalance price would be expected to be lower than the DAM price. 10 individual days were examined in more detail.

This analysis in SEM-19-024 showed that Simple NIV tagging removed most of the extremely high imbalance prices; and removed a significant number of the negative imbalance prices. It also showed that the average imbalance price produced by Simple NIV tagging was actually higher than the average original imbalance price and is higher than the average DAM price (while the average original imbalance price is lower than the average DAM price). SEM-19-024 described how imbalance prices produced by Simple NIV tagging (as opposed to current approach) were explained to a significantly greater degree (i.e. approximately twice as much) by the NIV, System Demand and Wind Generation.

2.2 Summary of Respondent's Comments and SEM Committee Response-Option 1: Simple NIV Tagging

Q 2.1) Do you support this Simple NIV tagging option and its implementation in the SEM?

Summary of respondents' comments

The clear majority of respondents do not support the implementation of Simple NIV tagging in the SEM. Reasons include issues such as it would be hasty with a lack of adequate market experience, would be based on analysis using incorrect market prices, would increase locational market power, and due to the reduction in volatility it would cause in the balancing market.

A small minority of respondents supported the implementation of Simple NIV tagging in the SEM, citing reasons such as it allows greater transparency, would reduce locational market power and would reduce balancing market price volatility.

SEM Committee Response

The SEM Committee notes that the majority of respondents do not support the implementation of Simple NIV tagging. Further information on the SEM Committee view is found in Section 4.

Q 2.2) Do you have any concerns regarding moving to Simple NIV tagging in the Balancing Market, including the risk of unintended consequences? If so, please explain these concerns.

Summary of respondents' comments

Respondents raised numerous concerns regarding moving to Simple NIV tagging in the balancing market. These were varied and some were quite complex. The main concerns of participants are detailed below.

A number of respondents had concerns about making this change at this time, while the market is still in its infancy and parties are bedding in new systems and processes. Respondents stated that the analysis was not based on a long enough time horizon, with analysis only covering one Winter period and not reflecting the mod (Mod_09_19) introduced since May. Some respondents suggested extending the analysis to a more recent date, which would also capture SEMO's re-pricing and the implementation of balancing market fixes. One respondent was concerned that implementing a change at this time would have unintended consequences that will be difficult to undo.

A number of respondents raised concerns that Simple NIV tagging price seems to steeply decrease the volatility of imbalance prices with a greater convergence towards Day-ahead Market prices. It was argued that this may have unintended consequences, such as transferring liquidity from the Day-ahead Market to the balancing market, and possibly accentuate the unintuitive price differential between the markets. One respondent was concerned with the potential for this to feed back into the CRM.

One respondent described how analysis showed Simple NIV tagging may cause a significant increase in the overall average balancing market price which would be disproportionately adverse to variable units when compared to predictable units due to imbalances associated with forecasting error. Another respondent stated that Simple NIV tagging may impact the REFIT contracts for wind generators, as the skewness of the balancing market price would result in less protection under the Deemed Market Reference Price.

Concerns were raised by respondents about the re-definition of energy and non-energy actions by implementing Simple NIV tagging. It was described how removing flagging and tagging means that there is no distinction between units accepted in the balancing market for energy reasons and system reasons, leading to a reduction in the transparency of the balancing market price. One respondent raised how the lack of a Non-Marginal flag means that, for example, a unit at its lower operating limit could influence the PMEA and hence directly impact the Imbalance Price at any output level, unlike the current setup where they have no direct influence on the imbalance price. It was stated that there has been no analysis of the impact of removing the Non-Marginal flag, and it was described how it currently might be considered an incentive to build fast-ramping units. Concerns were raised that in addition to these effects on the balancing market, it will feed back and cause distortions in the ex-ante markets also, removing some of the incentive to be balance responsible.

A number of respondents raised concerns about the potential unintended impacts this change would have on Dispatch Balancing Costs, the impact on the imperfections charge, and its follow-on impact on consumers.

A concern was raised that there is not clarity as to what this change is correcting, stating there is a difference between the NIV direction, DAM price and BM price, yet there is no clarity as to what is causing these correlations. One respondent made the point that the revenue forecasts of generators who were successful in the capacity market and are located in constrained areas would be incorrect if this change is made.

A number of respondents suggested that the Simple NIV tagging analysis presented does not take account of participants adjusting their bidding behaviour, meaning that the analysis may understate or overstate the benefits of the approach. One respondent doubted that Simple NIV tagging would solve identified issues, given the role that system actions play in setting the price.

A number of respondents stated that the approach of Simple NIV tagging is not in line with EU Regulations, which specify that non-energy actions should be excluded from the process of price setting, and require imbalance prices to reflect the real-time value of energy with no direct or indirect limits on maximum or minimum prices, and not some "smoothed" version of balancing prices which fail to give real price signals.

Overall, amongst participants there was a fear of unforeseen unintended consequences aside from the concerns listed above.

SEM Committee Response

The SEM Committee's responses to the above concerns are outlined below.

<u>Timing of decision</u>

The SEM Committee recognises the point raised by some respondents that the analysis carried out in SEM-19-024 covers only the initial months under the new market arrangements with some system issues identified feeding into these prices. A number of system errors have been identified in both the pricing and settlement systems of SEMO, and although SEMO have deployed numerous release bundles to fix errors identified in the pricing system since Go-Live, these errors may be reflected in historic imbalance prices (before different release bundles were deployed). This would support delaying any decision until additional and more reliable market data is available.

The SEM Committee accepts the view put forward by market participants that the new market arrangements require some time to "bed down" and achieve a level of stability, allowing market participants to learn and adjust their bidding behaviour accordingly. This suggests it would be sensible to delay making any decision until further time has been allowed to pass. As raised by respondents the SEM Committee in making any decision is cognisant of the fact that at the time of analysis carried out in SEM-19-024 only a single Winter had passed with very specific conditions relating to large amounts of unavailable capacity. In the SEM Committee's view, it is more prudent to allow time to gain more market experience to inform any decision. Another point raised was that modification Mod_09_19 (See Section 1) had not yet taken effect during the timeframe covered in the analysis, with the impact on market prices not captured. The SEM Committee sees a benefit in capturing this information in any analysis.

In relation to repricing, the SEM Committee published a consultation paper (SEM-19-042) on 30th August looking at this issue. This paper put forward a number of options with the consultation closing in late September. The SEM Committee favours allowing more time to let this process be advanced and decision made, with this impacting what new information is available to inform any future decisions on the imbalance market arrangements. The SEM Committee sees a benefit in allowing more time for additional data to inform any decision in helping to reduce the likelihood of any unintended and unforeseen consequences, as raised as a concern by certain respondents.

Volatility

Another key issue raised was the modelled effect of Simple NIV tagging on the volatility of the imbalance price. The SEM Committee as set out in consultation SEM-19-024 is not concerned around the level of volatility per se, but rather around some of the inputs into the price-setting process and the impact of System Operator Flags and Non-Marginal Flags on the price. The SEM Committee is of the view that a certain amount of volatility in the balancing market is to be welcomed, as long as it is caused by market fundamentals, as it will encourage liquidity in the ex-ante markets and encourage market participants to be balance responsible. The analysis in consultation SEM-19-024 described concerns the SEM Committee has regarding the non-marginal flagging element of the imbalance pricing process creating undue and unintuitive volatility in pricing outcomes.

The analysis presented in SEM-19-024 showed that the imbalance prices produced by Simple NIV tagging are less volatile than the original imbalance prices, while still retaining significant volatility. The SEM Committee does not share the concerns raised by certain respondents as to the rate of reduction in the level of volatility. The analysis described in SEM-19-024 showed that Simple NIV prices have a significantly lower standard deviation and coefficient of variation than the original imbalance prices; however, they are significantly higher than that of the DAM price. The analysis showed that the kurtosis of the Simple NIV prices are significantly lower than that of the original prices but are still higher than that of the DAM prices. This analysis showed that the imbalance price with Simple NIV tagging should still allow for sufficient price volatility. The SEM Committee notes concerns raised by respondents that this level of reduced volatility may move liquidity from the DAM to the balancing market timeframe. The SEM Committee does not accept this view, given that the analysis in SEM-19-024 shows that under Simple NIV tagging the balancing timeframe would still retain greater volatility than the DAM timeframe. The SEM Committee also notes that in the event volatility was not deemed sufficient with the implementation of Simple NIV tagging other parameters such as PAR could be adjusted to increase volatility.

Market fundamentals

The SEM Committee notes concerns raised by respondents with moving to Simple NIV tagging, such as how energy and non-energy actions are identified, and the removal of non-marginal flagging. In carrying out this consultation process the SEM Committee highlighted concerns it had with the imbalance price and how reflective it is of system fundamentals. These concerns around volatile unintuitive imbalance prices seen since Go-Live centred on how these were impacted by the input of System Operator Flags and Non-Marginal Flags into the price-setting process. The analysis in SEM-19-024 looked at the alternative approach of Simple NIV tagging and assessed its performance against the current approach using different analysis to determine if this approach produced results which are more reflective of system fundamentals. As described in SEM-19-024 the Simple NIV tagging approach removes all System Operator Flags and Non-Marginal Flags from the imbalance pricing algorithm, in effect using price and the NIV itself as the system to identify energy and non-energy actions. The SEM Committee considers this approach to be in line with previous detailed design policy decisions, consistent with the criteria set out in the detailed design (markets) decision paper which guided the Detailed Rules and Implementation stage in determining how to identify energy and non-energy actions. The SEM Committee previously in the Amended Trading and Settlement Code decision paper highlighted the ability to turn off the System Operator flagging and Non-Marginal flagging steps of the Flagging and Tagging process if required.

Regression analysis in SEM-19-024 examining the current approach versus Simple NIV tagging, showed how the NIV, the system demand and wind generation can all explain some of the variation in the imbalance price. This analysis showed that twice as much variation in the Simple NIV price, compared to the original imbalance price, is explained by these three independent variables. Regression analysis was also carried out on the difference between the imbalance price and the DAM price against the NIV. This showed that the NIV explains more than twice as much of the variation in the difference between the Simple NIV price and the DAM price, than the variation in the difference between the original imbalance price and the DAM price. Analysis in SEM-19-024 also looked at 10 individual days in detail; this analysis highlighted instances where the current imbalance price approach produced counter-intuitive results in certain instances, with modelled Simple NIV tagging appearing to produce more sensible results. Overall in the SEM Committees' view the analysis in SEM-19-024 showed that Simple NIV tagging compared to the current approach produced imbalance prices which are more reflective of the underlying market fundamentals.

One respondent raised a concern that variable units may be more adversely impacted on by an average higher balancing market price (from Simple NIV tagging approach) due to forecasting error. The modelled out-turn average Simple NIV price was higher than the average DAM price, while the average original imbalance price was lower than the DAM price. The SEM Committee consider this a more intuitive outcome, as this is more in line with expectations with the average NIV over the period being positive at 62.59 MW. The SEM Committee in carrying out this analysis is interested in how reflective the imbalance price is of system fundamentals.

The SEM Committee notes that a number of respondents raised concerns about the impact changing to Simple NIV tagging would have on Dispatch Balancing Costs, with the effect on the Imperfections charges, and its impact on consumers. It is difficult to assess the overall effect of the different pricing outcomes produced by Simple NIV tagging (versus the current approach) on Dispatch Balancing Costs, with imbalance price differences between the approaches increasing but also reducing Dispatch Balancing Costs in different time periods. The SEM Committee is of the view it is not fully clear what effect (positive or negative) a move to Simple NIV tagging would have on Dispatch Balancing Costs compared to its current level.

Compliance with European requirements

The SEM Committee notes that a number of respondents stated that the approach of Simple NIV tagging is not in line with EU Regulations, citing specific requirements which in their view Simple NIV tagging would not be compliant with. The SEM Committee is committed to ensuring compliance of the balancing market arrangements in the SEM with European requirements such as the Balancing Guidelines (EBGL). Any possible changes which the SEM Committee propose to the balancing market are developed with the requirement to ensure compliance with EBGL.

Work is ongoing by the TSOs and RAs on the development of proposals that will ensure access to the pan-EU balancing market platforms can be facilitated for SEM market participants and the TSOs. The central dispatch nature of the SEM and the fact that detailed procedures will be required to convert Integrated Scheduling Process bids into standard balancing products means that this work is complex. Information will be shared with industry on the initial concepts developed and the issues that may require further consultation.

The SEM Committee will continue to keep the current market arrangements under review and will also scrutinise any possible changes of approach to the balancing market to ensure compliance with the EBGL.

Q 2.3) Do you agree or disagree that Simple NIV tagging meets the I-SEM High Level Design, the I-SEM Detailed Design and the I-SEM market power mitigation decision? If you disagree, please explain why.

Summary of respondents' comments

Agree

The majority of respondents were satisfied that Simple NIV tagging is aligned with the I-SEM High Level Design (HLD) principles. One respondent agreed that simple NIV tagging is in line with HLD and detailed design as the cost of the additional MWh of electricity in either direction should be reflected within the incremental and decremental price stacks. Another respondent which agreed made the point that it does not mean the solution will be effective or appropriate. One respondent described how the Simple NIV tagging approach was considered in the I-SEM Detailed Design but was not considered the optimum approach against the HLD. One respondent stated that that Simple NIV tagging already exists within the ISEM design in that the tagging and flagging process defaults to Simple NIV tagging where there is not an energy action to form the price. Some of these respondents who felt it was in line with the HLD did not think it was aligned with the I-SEM detailed design.

A number of respondents stated that they agree that the simple NIV tagging is in line with the requirements under the I-SEM market power mitigation decision. One respondent described how they have a concern with respect to local market power under current approach and stated that simple NIV tagging would effectively mitigate local market power. Another respondent stated that the current design is not mitigating local market power in all scenarios as intended and suggested that market power effects under Simple NIV tagging would be reduced. One respondent stated that they did not believe that Simple NIV tagging on its own would meet the Market power mitigation decision without additional bid/offer price control measures.

Disagree

A number of respondents did not agree that Simple NIV Tagging could be interpreted as meeting the HLD. One of these respondents stated that this approach would require a change in the definition of certain items away from what is stated in these designs, including the definition of what is considered the marginal unit/action, and what is considered a non-energy action. One respondent stated that Simple NIV tagging cannot be considered consistent with the intent of the HLD or detailed design. One respondent described how the detailed design process determined that the 'flagging and tagging' approach should be adopted and while it acknowledged that the simple approach could be retained as a backup the disjoin from actual balancing actions and lack of true cost reflectivity were cited as reasons for not adopting that approach from the outset. The respondent then suggested therefore that the change proposed represents a material/significant change in the ISEM design decision.

One respondent was of the view that balancing market prices should not be influenced by system actions and this was the clear intent through all the I-SEM `design phases and suggested that Simple NIV tagging removes the distinction between "energy" and "system" actions, which means that the balancing market price would be influenced by "system" actions. One respondent stated that Simple NIV tagging does not ensure that the marginal price will be the incremental bid of the next most expensive resource used to meet demand and so does not meet the HLD. This respondent also described how it reduces the importance of balance responsibility (with prices less spikey), which was described in the HLD decision as one of the tenets of the philosophy of I-SEM.

Many respondents who did not agree that Simple NIV Tagging could be interpreted as meeting the HLD and detailed design described the development process involving all key stakeholders and subject matter experts through the Market Rules Working Group process and the consultation that followed. It was stated that there is not sufficient detail in the high-level design, detailed design or market power mitigation decisions to stipulate explicitly that flagging and tagging would account for operational constraints or non-marginal flagging and noted that the implementation phase which followed on from these were made in line with the preference stated in the SEM Committee decisions.

A number of respondents did not agree that simple NIV tagging is in line with the requirements under the I-SEM market power mitigation decision. One respondent stated that they believe that this option might enhance the market power and revenue of some large thermal generators, at the expense of renewable generation, which is obligated to take part in the balancing market. Another respondent stated that it does not adhere to the decision on market power and will enhance the market power of some players. One respondent stated that they believe it would be worse than the existing post Mod 09_19 implementation process. They suggested that if Simple NIV tagging was introduced it would undo the good work done by Mod 09_19 and reintroduce the issues seen prior to its implementation.

One respondent stated that the question of whether simple NIV tagging is consistent with existing SEMC Decisions is somewhat academic given that these do not set binding legal parameters for the SEMC and stated that the Electricity Regulation and the Balancing Regulation do, and suggested that Simple NIV tagging is demonstrably incompatible with the obligations on the Regulatory Authorities under this legislation.

SEM Committee Response

The SEM Committee notes that the majority of participants, regardless of their opinion in relation to the implementation of Simple NIV tagging, felt that it met the high-level, detailed design and market power mitigation decisions made by the SEM Committee previously.

As set out in consultation SEM-19-024 the SEM Committee is of the view that Simple NIV tagging is in line with the HLD and detailed design policy decisions. The SEM Committee does not agree with the argument made by some respondents that the change suggested in the design of certain items in the design such as the marginal unit, and how an energy/non-energy action is determined would mean Simple NIV tagging is not compliant. The SEM Committee views Simple NIV tagging as being in line with the detailed design policy decision adopting the approach of Flagging and Tagging. In the SEM Committees' view Simple NIV tagging would also set the price on the most expensive action taken by the TSOs, that is not tagged as non-energy, to meet the net imbalance volume (NIV) and maintain alignment with the intention of the HLD.

The detailed design (markets) decision paper left the identification of energy and non-energy actions to the Detailed Rules and Implementation stage but set out that:

- the price calculation should be transparent;
- the approach should not be overly influenced by any TSO subjectivity;
- prices should be based on actions taken; and
- should be capable of delivering prices shortly after the trading period.

The SEM Committee is of the view that Simple NIV tagging is consistent with these criteria set out in the detailed design (markets) decision paper(SEM-15-026). This is consistent with what the Market Rules Working Group process adhered to in developing the current approach.

The SEM Committee does not agree with the argument made that Simple NIV tagging removes the distinction between energy and non-energy actions, which means that the balancing market price would be influenced by non-energy actions. As described in SEM-19-024 the Simple NIV tagging approach removes all System Operator Flags and Non-Marginal Flags from the imbalance pricing algorithm, in effect using price and the NIV itself as the system to identify energy and non-energy actions. Simple NIV tagging would still set the imbalance price on the most expensive action taken by the TSOs, that is not tagged as non-energy, to meet the net imbalance volume (NIV). In the SEM Committees view this approach is in line with the HLD and detailed design.

Market Power mitigation

The SEM Committee notes that a number of respondents agreed that simple NIV tagging is in line with the requirements under the I-SEM market power mitigation decision, while other respondents disagreed arguing that implementing Simple NIV tagging would in fact enhance the market power of certain participants. A number of respondents linked the move to Simple NIV tagging and the removal of the change made by Mod_09_19 (with all SO flags falling away) as increasing local market power. It is not clear to the SEM Committee why this would be the case. The implementation of Simple NIV tagging would remove all System Operator Flags and Non-Marginal Flags, so the change implemented by Mod_09_19 would not be relevant any longer. Simple NIV tagging would continue to identify energy and non-energy actions using the price and the NIV itself.

Those in favour of Simple NIV tagging being in line with the market power decision outlined concerns with respect to local market power under the current approach, suggesting that implementing Simple NIV tagging would help alleviate these concerns (though not entirely). The SEM Committee takes any suggestion of the exercise of market power in the SEM seriously and continues to review the operation of the current market arrangements and market power provisions closely.

Q 2.4) Do you agree or disagree with SEM Committee's assessment that the pricing outcomes under Simple NIV tagging are preferable, given market fundamentals? If you disagree, please explain why.

Summary of respondents' comments

The majority of respondents did not agree that the pricing outcomes under Simple NIV tagging were preferable. A number of respondents cited the steep decrease of volatility in imbalance prices compared to the original price set, and the consequences of this in incentivising appropriate trading behaviour. One respondent stated that it was not clear that the extreme volatility that arose was because of a fundamental flaw in the market design as opposed to some outlier events reflective of a market 'learning by doing'. One respondent stated that Simple NIV tagging would change bidding behaviour in the DAM and ID markets, another respondent advised caution and a robust impact assessment due to these concerns. One respondent stated that the current market is providing the correct signals to generators, especially in cases such as Amber alerts with volatile prices encouraging balance responsibility and liquidity in ex-ante markets.

One respondent stated that participants behaviour may alter with Simple NIV tagging, and thus the correlations may not hold in reality, and suggested that if the aim was to reduce volatility, then increasing the PAR would be more useful. One respondent stated that this analysis does not represent real outcomes and is missing important components on feedback and knock-on effects, such as how prices in following periods respond with changed behaviour to prices in earlier periods.

A number of respondents raised the issue that this analysis does not take in more recent pricing data in its analysis and does not take in the period after Mod 09_19 was implemented on 2nd May 2019. One respondent noted that the repricing exercise covering pretty much every day of the market since go-live is imminent and it is too early to drive conclusions from this analysis without access to the final set of prices.

A number of respondents raised the issue on how well market fundamentals are being reflected. One respondent stated that they accepted Simple NIV tagging would provide a better correlation between the imbalance price and the NIV, however they did not agree that this would provide a better view of the market fundamentals as the current approach flagging and tagging. This respondent described how it was not of the view that the imbalance price being more easily forecasted or better correlated with the day-ahead market price was reflective of the market fundamentals. One respondent stated that the introduction of Simple

NIV Tagging would re-introduce the possibility of units setting extremely high prices in constrained areas, and so prices would be less reflective of fundamentals in the market, reintroducing a major risk which was already removed by Mod 09_19. This respondent stated that there was no clear answer, as the data used in the analysis does not look at the underlying fundamentals of pricing. One respondent described the outcomes of this analysis as not preferable as these prices are less reflective of the real-time energy value.

One respondent stated that Simple NIV tagging prices would be affected by system actions and suggested that the over-reliance on the NIV as a mechanism to identify the marginal energy action would, according to this respondent's analysis, lead to inefficient pricing outcomes. One respondent described how a large increase in balancing market prices may feed back into the DAM, as the markets should equalise in the long term, this would eventually impact end-consumers in the form of higher retail prices. This respondent suggested that prices should not "cross the stack", suggesting that an index price should be used in cases where there is no marginal action on the "correct" side of the market. One respondent queried what the main objective of this analysis is, and suggested it appears to be to align the DAM/BM price and the NIV direction. This respondent stated that the Simple NIV tagging approach is a significant step away from the familiar approach wherein the marginal unit is one that is not bound by ramping or generation level constraints.

A number of respondents agreed that the pricing outcomes under Simple NIV tagging approach were preferable. One of these respondents stated that these Simple NIV tagging prices as following market fundamentals better. One respondent stated a preference to achieve price outcomes that have reasonable level of volatility and reflect the direction of the NIV. This respondent raised a concern with the fact that this approach does not capture all constraints which could mean these are reflected in DBCs and increased imperfections. One respondent agreed that price outcomes with Simple NIV tagging would be slightly better than present, however this respondent believed that prices will still be inefficient if the current level of uneconomic offers and bids are allowed to be submitted and accepted.

SEM Committee Response

The SEM Committee notes that the majority of respondents are of the view that pricing outcomes under Simple NIV tagging are not preferable. These respondents cited reasons such as the decrease in imbalance price volatility, the timing of implementing a decision as a result of the consultation(given Mod_09_19 introduction not reflected in analysis andpossible repricing) and if market fundamentals are being reflected.

As set out in response to comments to question 2.2, in carrying out this consultation process the SEM Committee highlighted concerns it had with the imbalance price and how reflective it is of system fundamentals. In the SEM Committees' view the analysis in SEM-19-024 showed that Simple NIV tagging compared to the current approach produced imbalance prices which are more reflective of the underlying market fundamentals.

Moreover, as set out in response to comments to question 2.2, the SEM Committee questions the view that the reduced level of imbalance price volatility could move liquidity from the DAM to the balancing market timeframe, suggesting that the analysis in SEM-19-024 shows that under Simple NIV tagging the balancing timeframe would still retain greater volatility than the DAM timeframe. The issue of the timing of making any decision due to the change from Mod_09_19 introduction not being reflected in analysis and possible future repricing (consultation SEM-19-042 looking at this issue) is also dealt with in above SEM Committee responses to comments to question 2.2, with the SEM Committee seeing merit in allowing more time for additional data to inform this decision.

The SEM Committee notes that a number of respondents agreed that the pricing outcomes under Simple NIV tagging approach were preferable describing how these prices were more reflective of market fundamentals and still had a reasonable degree of volatility. As the concern raised by one respondent that Simple NIV tagging does not capture all constraints which could mean these are reflected in DBCs and increased Imperfections costs. As set out in responses to comments to question 2.2 the SEM Committee are of the view it is not fully clear what effect (positive or negative) a move to Simple NIV tagging would have on Dispatch Balancing Costs compared to its current level.

3. OPTION TWO: REMOVAL OF DIFFERENCE CHARGES WHERE OPERATIONAL CONSTRAINTS ARE BINDING

3.1 Summary of Consultation

Consultation SEM-19-024 set out the option to remove the exposure to Difference Charges of Generator Units whose scheduled output cannot be increased due to an Operational Constraints. It was described how since Go-Live circumstances arose whereby certain Generator Units could not be dispatched up by the System Operators due to the presence of an Operational Constraint on the system. In these instances, the Generator Units may have been subject to Difference Charges where the imbalance price is higher than the strike price.

It was described in SEM-19-024 how this option was proposed by SEMO at TSC Modifications Working Group discussions on Modification proposal 32_18 as an alternative approach. The aim of the change was to of remove the exposure to Difference Charges of Generator Units whose scheduled output cannot be increased due to an Operational Constraint. SEM-19-024 looked at the policy background of the Capacity Remuneration Mechanism (CRM) design setting out the rationale for different decisions and around this proposed option.

SEM-19-024 described how this modification proposal would remove the exposure to Difference Charges of Generator Units whose scheduled output cannot be increased due to an Operational Constraint. This would cover all Operating and Replacement Reserves (except Negative Reserves) that limit an increase in a unit's output, these are:

- All Operating and Replacement Reserves (except Negative Reserves) – currently Replacement Reserve only;
- S_MWR_ROI, and S_MWR_NI – when transfers from Ireland to Northern Ireland and vice versa are at a maximum;
- S_SNSP_TOT – when the System Non-Synchronous Penetration (SNSP) level is equal to the SNSP limit;
- S_RoCoF – ensures Ireland and NI power systems do not exceed Rate of Change of Frequency (RoCoF) limits;
- S_MWMAX_NI_GT, S_REP_NI, S_REP_ROI, and S_MWMAX_ROI_GT – combined MW output of OCGTs must be less than set MW number in Ireland and NI. This is required for replacement reserve in NI and Ireland;
- S_MWMAX_CRK_MW , and S_MWMAX_STH_MW – generation restriction in the Cork area and Southern Region; and
- other constraints that may be added from time to time.

This option seeks to broaden the circumstances under which the System Services Flag would be set to zero. This approach would not change the imbalance pricing, but impacts on the settlement process for those units available to deliver and bound by a constraint listed above.

Consultation SEM-19-024 described the analysis carried out by SEMO (presented at Working Group 2 falling out of Mod_32_18) on the effect of making this change for two specific dates of interest (9th October 2018 and 24th January 2019). The analysis carried out by SEMO covered specific days of interest but did not show the overall effect of this proposed change over a large number of days due to the fact that occurrence of these events has been rare. This analysis showed that this proposed change would prevent any repeat of an event like that which occurred on January 24th 2019. It was acknowledged that with the implementation of Mod_09_19 (effective from 3 May 2019), it was considered that the likelihood of such an event with extreme prices is now reduced.

Consultation SEM-19-024 highlighted an issue that making any change to the exposure to Difference Charges may affect the balance of Reliability Option (RO) Difference Charges and Difference Payments meaning that the socialisation fund could be impacted. The possible reduced exposure for generators from this proposed change may mean that Difference Charges received may not cover the amount required for the suppliers' as part of the Reliability Option hedge.

A concern described in SEM-19-024 was that the implementation of this proposal may change the short-term performance incentives for RO holders, with generators covered by certain Operational Constraints possibly facing reduced exposure for non-performance. In weighing the broader upsides and downsides of the option to remove exposure to the Difference Charges for generators behind an export constraint, a key upside would be that units that cannot be dispatched for network reasons, but are otherwise fully available to the limit of their control, would not be penalised when the balancing price exceeds the Strike Price. Consultation SEM-19-024 described how in contrast on the downside, this option could present a risk of introducing a locational element to the Capacity Market auction in that the reduced risk of exposure to RO Difference Charges would, all else being equal, incrementally incentivise new plant to locate behind an export constraint instead of inside the constrained area. Further, existing units could observe a change in the competitive dynamic within the CRM, whereby units behind an export constraint would enjoy the disapplication of difference charges during these albeit rare periods, while those inside the constrained areas would not.

2.2 Summary of Respondent's Comments and SEM Committee Response-Option 2: Removal of Difference Charges

Q 3.1) Do you support this Capacity Market option and its implementation in the SEM?

Summary of respondents' comments

Of those respondents who offered an opinion on this issue, the vast majority of respondents were in favour of this change. They believed that the change would lead to an appropriate level of risk allocation for generators by removing a risk over which they had no control.

A number of respondents were not in favour of making this change. Another respondent was strongly against the change, as, in its opinion, it could undermine the foundations of the capacity market. It instead favoured the implementation of a more extensive approach to Simple NIV tagging to address market power concerns. One respondent felt that more analysis was necessary before the change could be implemented.

SEM Committee Response

The SEM Committee notes that this option was supported by the vast majority of respondents who responded to this question, though some did not support it. The SEM Committee decision on this matter is outlined in Section 4.

Q 3.2) Do you have any concerns regarding the removal of Difference Charges where Operational Constraints are binding, including the risk of unintended consequences? If so, please explain these concerns.

Summary of respondents' comments

A number of respondents did not foresee any unintended consequences as a result of this change. One of these respondents did not foresee any risks, but preferred that Simple NIV tagging be implemented instead, thus removing the need for a change to the Difference Charges. Three respondents wanted the change to go further, suggesting this change did not go far enough. Two of these respondents wanted to exclude generators due to longer start-up times to being liable for difference charges. One of these respondents specified this exclusion if the unit's bids are below the RO strike price from difference charges. One respondent stated it should be extended to all scenarios where generators are unable to meet their RO obligations for system reasons.

Some respondents did express concerns about the impact on the Socialisation Fund describing the potential impact this change would have on the balance between Difference Charges and Difference Payments. However, a number of these respondents suggested it was difficult to fully assess this risk with available data. One respondent argued against this idea that Option 2 could create or widen the "hole in the hedge" and stated that the current arrangements are biased towards creating a surplus in the Socialisation Fund. This respondent also stated that this risk (created by the RO exposure) was not adequately addressed by Mod_09_19.

Two respondents were of the opinion that the risk of new capacity deliberately locating behind an export constraint to minimise its RO risk was low, suggesting that in the overall considerations of an investment case, this signal is not significant enough to determine an investment case and suggested that other locational elements such as locational TLAFs were more of concern. One respondent suggested there is already a locational element stating that currently generators located within constrained areas are currently less exposed to the risk than those located behind an export constraint, because they are less likely to be constrained for network reasons.

A number of respondents felt that this possibility of introducing a locational signal could be a risk into the future. One respondent raised concerns about the implementation of Option 2, in terms of cost and difficulty. They also stated that generation, built behind an export constraint may begin to displace other, unconstrained generation from the capacity market with lower bids. They also noted that this change may set an unwelcome precedent for market changes in response to very rare events.

One respondent suggested that further analysis is needed after the resettlement of the market, to eliminate the possibility of unforeseen consequences.

SEM Committee Response

The SEM Committee notes the potential impact of this change on the Socialisation Fund with the analysis in SEM-19-024 showing a potential shortfall between Difference Charges and Difference Payments on certain days. The SEM Committee sees merit with the view from some respondents that it is difficult to fully assess this risk with the data currently available. In the SEM Committees view it may be more prudent to allow time to gain more market experience to inform any decision on this option. The SEM Committee notes concerns raised by respondents on the potential for this change to create unintended consequences in the Capacity Market and consider allowing more time to gain additional operational experience of the new market arrangements as a sensible approach to help offset against these.

The SEM Committee understands points raised by respondents in relation to the possible locational effects of this change, with most respondents who responded to this question not seeing this as a concern while others saw this as a possible risk. As set out in SEM-19-024 the SEM Committee see both potential upsides and downsides to remove exposure to the Difference Charges for generators behind an export constraint. Consultation SEM-19-024 described the upside that units that cannot be dispatched for network reasons but are otherwise fully available to the limit of their control, would not be penalised when the balancing price exceeds the Strike Price. It also described the possible downside of introducing a locational element to the Capacity Market by distorting the CRM auction in that the reduced risk of exposure to RO Difference Charges would, all else being equal, incrementally incentivise new plant to locate behind an export constraint instead of inside the constrained area. The SEM Committee sees a trade-off between these competing factors and consider allowing more time to gain additional operational experience of the new market arrangements as a sensible approach to help inform this area.

The SEM Committee notes concerns raised on the potential of this change to weaken the incentives present in the Capacity Market to some degree. The SEM Committee does not agree with suggestions put forward that any possible changes could go further than option proposed in SEM-19-024. Such as extending the flag to all scenarios where generators are unable to meet their RO obligations for system reasons and/or allowing for plants which have longer start-up times. The SEM Committee would have concerns that expanding the scope of this proposed option could exacerbate any funding shortfall and possibly create unintended consequences.

Finally, a respondent mentioned that this may set a precedent of "over-reaction" to rare events, which lead to major market design changes. The SEM Committee continues to review the operation of the energy and capacity markets, capturing both rare high impact events but also more gradual trends. The SEM Committee are keen to stress that any possible changes such as those outlined in this consultation process will be subject to a measured and thorough level of consideration before any decision is taken.

Q 3.3) Do you consider this proposed change is in keeping with the broader CRM detailed design? Please explain your view.

Summary of respondents' comments

Of the respondents that answered this question, all but one agreed that the change would be in keeping with the CRM design.

Some of these respondents who agreed that the change was in keeping with the broader CRM design were of the opinion that this was the case as the risks to which they were exposed were outside of their control and thus unfairly burdened upon them currently, which was not an intention of the CRM design. A number of respondents raised the issue of the System Service Flag describing how units providing system services are not liable for Difference Charges when dispatched down by the TSO for this reason. One respondent therefore stated that it is valid to extend this treatment of units which cannot increase their generation, due to constraints, in this way and that it is in line with the detailed design of the CRM.

One respondent who did not agree that the change was aligned with the CRM design addressed this on a number of grounds. They stated that the cost would be unfairly socialised across suppliers and customers, and removes it from the TSO and generators, who have already paid Supplier Capacity Charges. They also described that there is the risk of new capacity building behind export constraints, this would impact competition negatively in the generation space. They also state that this option would ignore the needs of customers who are then liable to pay for the change.

SEM Committee Response

The SEM Committee notes that the majority of respondents who answered this question agreed that the change would be in keeping with the broader CRM detailed design. The SEM Committee understands the link made by a number of respondents regarding this change with the existing System Services Flag, with this option seeking to broaden the circumstances under which the flag would be set to zero. As described in SEM-19-024 this approach would not change the imbalance pricing but impacts on the settlement process for those units available to deliver and bound by certain constraints.

As set out above in SEM Committee response to comments to Q 3.2 above the SEM Committee see both potential upsides and downsides to the removal of exposure to the Difference Charges for generators behind an export constraint.

Q 3.4) Do you have any views on this option from a consumer perspective?

Summary of respondents' comments

A majority of respondents felt that the change would be a positive for consumers. The respondents mentioned a reliable provision of capacity, via the correct investment incentives for generation created by the alteration. Other respondents noted the reduced risk and a reduction in the PSO which would feed into lower prices for consumers.

Those respondents who argued against the change felt that customer would be subject to higher charges as a result of increased costs in the Socialisation Fund. One respondent felt that the change is not amending the source of the issue, which is creating these costs.

Finally, one respondent acknowledged the increased costs which are likely to the Socialisation Fund but was of the view that these would be at least somewhat offset by the lowered cost of capacity and reduced risk on generators. This respondent also stated that there was not enough data to make a solid quantities argument as to which would be larger impact.

SEM Committee Response

The SEM Committee notes that the majority of respondents felt that this change would be positive for consumers, arguing that a reliable provision of capacity, via the correct investment incentives and a reduction in the PSO levy, would reduce customer bills. In contrast the SEM Committee notes that other respondents argued that this change would create higher charges for customers as a result of increased costs in the Socialisation Fund. The SEM Committee in making any changes are very conscious of the possible impacts this may have on consumers.

The SEM Committee sees merit in allowing more time for additional operational experience of the new market arrangements reflecting different changes made since Go-Live (such as modifications introduced and SEMO system fixes). This would allow time for additional data to inform any decision and better understand any possible impacts this change may have on consumers.

Q 3.5) Do you have a strong view regarding an alternative option which could be implemented, i.e. preferably requiring only a configuration change rather than a system change?

Summary of respondents' comments

Several respondents provided alternative proposals to Option 2. One respondent provided several possible changes. The alternatives suggested in response to this question are briefly summarised below;

- A deeper review/audit of existing issues via a working group of market participants, TSOs and the RAs.
- An audit of the flagging and tagging processes involved in the formation of Imbalance prices.

- A modification to remove the exposure for generation units which have, just before an RO event, been dispatched off by the TSO and have a minimum off-time.
- Generators providing a specific system service (RM8) should not be exposed to Difference Charges
- An amendment to the calculations of SO and NM Flags, which do not follow physical generation and are inconsistent throughout the day.
- The use of the PMEA in the opposite direction to the NIV should be examined.
- A review of SO Flagging which would create an SO Flag for units for reasons outside of those mentioned in EirGrid's Monthly Operational Constraints report.

SEM Committee Response

The SEM Committee notes that respondents put forward many alternative suggestions to this question. As already stated in SEM Committee response to comments to Q 3.2 the SEM Committee do not agree with suggestions put forward that could go further than the option proposed in SEM-19-024 and would have concerns that expanding the scope of this proposed option could exacerbate any funding shortfall and possibly create unintended consequences.

The SEM Committee notes a suggestion to carry out a review of the operation of flagging and tagging. The SEM Committee continue to keep the operation of the balancing market under review, and see merit in allowing more time to gain additional operational experience of the new market arrangements.

4. SEM COMMITTEE DECISION

4.1 Option 1: Simple NIV Tagging

The SEM Committee has decided not to implement Option 1 (Simple NIV tagging) at this time, but will keep this matter under review in light of recent and ongoing developments. These developments include recent steps taken by the SEM Committee and SEMO to help address the balancing market concern (including but not limited to Mod_09_19), with ongoing work on compliance with European requirements and an examination by the SEM Committee of the recent significant increase in Imperfections charges. Also, the Repricing and Price Materiality Threshold consultation (SEM-19-042) process may impact what new information is available to inform any future decisions on the market arrangements.

As highlighted in response to comments to Q 2.2, the SEM Committee considers this approach to be the most prudent, allowing time to review the operation of the market with certain changes made. Due to the timing of the analysis carried out for consultation SEM-19-024, a number of these changes were not captured. The SEM Committee sees a benefit in capturing this information in any future analysis. The SEM Committee also sees a benefit in allowing for additional operational experience to be gathered, with only one Winter period captured in the original analysis.

4.2 Option 2: Removal of Difference charges

The SEM Committee has decided not to implement Option 2 (removal of difference charges where operational constraints are binding) at this time, but will keep this under review in light of the operation of the market arrangements, interactions with the capacity market and any future changes to the balancing market.

As above, the SEM Committee considers allowing more time before making any decision to be the most prudent approach. This would allow for additional operational experience to be gathered, and to better understand how certain changes made to the balancing market may impact on the area of Difference Charges.

5. NEXT STEPS

The SEM Committee has decided not to implement either option one or option two at this time. The SEM Committee will keep these areas under review in light of ongoing work and operational experience. Also, the repricing consultation (SEM-19-042) process may impact what new information is available to inform any future decisions on the market arrangements. If action is warranted the SEM Committee may review these decisions again in Quarter 2 2020, following a review of out-turn prices over Winter 2019/20.