



SEMO Response to the
SEM Committee's
Consultation –
SEM-20-086

08 January 2021

This document outlines SEMO's response to the SEM Committee's proposed approach outlined in Consultation SEM-20-086 regarding Capital Expenditure by SEMO for the period 01 October 2018 to 30 September 2021.

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Executive Summary

The Single Electricity Market Operator (SEMO) embraces its role to facilitate a competitive, sustainable and reliable electricity wholesale market, so as to deliver long-term economic and social benefits that are mutually advantageous to Northern Ireland and Ireland. In order to do so effectively, SEMO must secure regulatory recovery of the expenditure required to deliver changes to the systems that underpin and support the operation of the Single Electricity Market (SEM); it is in this context that this consultation response should be considered.

The proposals outlined in SEM-20-086 raise a number of concerns, both in terms of the Capital Expenditure for the period 2018-2021 and, equally pertinent, in relation to the regulatory principles that could impact the broader regulatory environment in which SEMO operates. These concerns will need to be resolved so as to develop a holistic regulatory framework that will enable SEMO to fulfil its core function in a way that will deliver value to market participants and consumers. Hence, it is important that the SEM Committee is cognisant of ongoing dialogue (including formal submissions) relating to SEMO's current and forthcoming Price Control when formalising its decision on SEM-20-086.

SEMO's response, detailed in full in the pages that follow, can be summarised as follows:

- We are surprised by some of the proposed regulatory principles set out, explicitly or implicitly, in the consultation. Of particular concern are:
 - o The proposed re-opening of SEM-20-086 at a later stage to further review the costs incurred during the Financial Year 2020-2021.
 - o The Regulatory Authorities' proposal to categorise certain capital expenditure costs as operating expenditure.
 - o How principles relating to asymmetric risk, and risk in general, are manifested through the proposals in SEM-20-086 when considered in conjunction with SEMO's other regulatory frameworks

- We note that the RAs propose to discount a significant amount of the funding requested for projects to be progressed in the Financial Year 2020-2021. If the requested allowances are not provided for SEMO will be unable to deliver these projects, which are required to stabilise and further enhance the SEM. This is disappointing, when the utmost work was been done by SEMO and others to stabilise the I-SEM since the launch of the market in October 2018 with a number of known defects and deficiencies.

SEMO makes itself available to work through these concerns with the Regulatory Authorities to ensure that these areas are adequately addressed, both in the context of SEM-20-086 and other applicable regulatory frameworks.

1. Introduction

SONI Ltd. and EirGrid plc, operating together as SEMO (in their capacities as licenced Market Operators in Northern Ireland and Ireland respectively), welcome the opportunity to provide feedback on the SEM Committee's consultation SEM-20-086 regarding SEMO's 2018 – 2021 Capital Expenditure (CapEx). Our response focusses on two main themes. The first concerns the regulatory principles that are set out or inferred in the consultation, while the second addresses feedback on the specific disallowances proposed.

By way of context, SEMO is aware of the challenges faced by the Commission for Regulation of Utilities (CRU) and the Utility Regulator (UR) as Regulatory Authorities (RAs) in consulting retrospectively on CapEx for the years 2018/19 and 2019/20. Furthermore, this retrospective assessment is of a newly-formed SEM, whose systems' architecture, and hence capital requirements, differ significantly from the antecedent market. Hence, as outlined in its recent Price Control Operational Expenditure (OpEx) submission¹, SEMO believes it is important to reiterate that the pre-October 2018 SEM should not be used as a benchmark to forecast costs for the period October 2018 to September 2021. The scale and complexity of the new market's multifaceted and interlinked systems, coupled with the RAs' decision to launch the market with multiple significant known defects makes for an inappropriate comparator.

In SEM-20-086, the SEM Committee (SEMC) refers to delays between phases for some projects. It is necessary to highlight that a driver for changes in project timeframes was the insufficient regulatory support received during the 2018 – 2021 price control period. Unfortunately, due to the lack of revenue certainty from the regulators, SEMO was unable to progress some of the projects. Advancing projects without clarity and confirmation from the RAs regarding certainty on revenue recovery meant SEMO would have been carrying considerable risk. As a result as a prudent operator it was necessary to delay advancement of some projects.

We also note the RAs' intention to *“engage further with SEMO in relation to the timing of costs to ensure the market system release costs and release support costs are being captured in the year the release is deployed.”* On this topic, SEMO feel it necessary to highlight the following:

- A number of the projects included as part of the CapEx 2018 -2021 submission are impacted by the software releases.
- From 2020 SEMO has moved to a regular Bi-Annual Release cycle.
- Although the releases will be twice a year, the work required for each Release begins well in advance of each new release date.
- Costs in SEMO's Regulated Asset Base are added from when they are incurred. This differs from the Fixed Asset Register to which assets are added once a project is complete.
- As such, the majority, if not all, of the work required for releases in SEMO is carried out prior to the date of deployment.

¹ SEMO Price Control Operational Expenditure Submission for the period 2018 – 2021 and 2021 to 2024, submitted to the Utility Regulator and the Commission for Regulation of Utilities on 11 December 2020.

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- Any change to the current Regulatory Asset Base arrangements, when costs are added to same and thus recovery of costs commenced would be a change in SEMO's core regulatory framework.

This understanding is important in the context of the Market System Release Capital and the Release Support Capital, which are explored further in this response.

2. Theme One: Regulatory Principles

In this section of our response, we address the underlying regulatory principles that are directly, or indirectly, referenced in the consultation paper. By outlining these principles in this section, we set out some of our concerns which we hope will facilitate subsequent discussions with the RAs to ensure the approaches taken are consistent with the extant frameworks that apply to SEMO.

2.1 Incumbent Regulatory Environment

SEMO wishes to highlight a number of concerns with the following extract from the SEM Committee's consultation:

"While the RAs recognise the 2018-21 SEMO Price Control decision paper (SEM-18-003) sought to require a final outturn review of Capex for the years 2018 – 2021, this consultation seeks to do that for the two years 2018/19 and 2019/20. However, the RAs intend to set an allowance for SEMO for the year 2020/21 within the decision to this consultation. Should SEMO's outturn costs for 2020/21 be materially different to the allowance provided the RAs may seek to re-consult on SEMO's 2020/21 outturn costs."

This text could be interpreted to infer that the RAs may undo the decision taken following the SEM-20-086 Consultation at a later stage. Fundamentally, SEMO considers this inappropriate; this would not strike a suitable balance between (1) setting ex ante cost allowances and (2) ex post review and use of uncertainty mechanisms. This uncertainty would serve to encourage SEMO to delay investment and adopt risk-averse behaviours; not only would this potentially frustrate market participants in the short-term, but it would also lead to future investment needs in the medium-to-long term. Such an approach is ultimately not in the consumer interest.

SEMO therefore requests clarification that the RAs would not intend, through this process, to conduct an ex-post review of costs – the outcome of which would inevitably be influenced heavily by the benefit of hindsight. SEMO is required to progress projects in the context of deemed regulatory support in accordance with the applicable extant regulatory environment which currently provides that those costs as incurred will be recoverable. As such, we request that the RAs clarify their approach in a manner that is cognisant of the time, and therefore the context, in which such projects are progressed.

2.2 Expenditure Categorisation and Risk Management

SEMO notes the RAs' proposal to consider certain capitalised costs as OpEx and, thus, disallow the CapEx requested in full. SEMO is opposed to this approach.

Any decision that SEMO takes to capitalise costs is conducted in accordance with International Financial Reporting Standards. In particular SEMO has complied with IAS 16 Property, Plant and

Equipment (PPE). Items of PPE *"should be recognised as assets when it is probable that future economic benefits associated with the asset will flow to the entity and the cost of the asset can be reliably measured"*.

The RAs will be aware that the SEMO Price Control OpEx submission is premised on core assumptions relating to the allocation of risk and how these are manifested across a number of risk categories spanning the various facets of the SEMO Regulatory Framework. It is of some concern, therefore, that the RAs are proposing to apportion costs that we have considered as CapEx as OpEx; acknowledging the complex landscape of SEMO's remuneration for the risks it faces as the Market Operator (and the treatment thereof), this may require a wholesale review of the OpEx submission, so as to ensure that the risks associated with the RAs' proposed reallocation are reflected, and can therefore be calibrated, appropriately.

Within SEM-020-086 the RAs propose that by simply changing the cost categories from CapEx to OpEx that there is no requirement to provide SEMO with a "return" on such expenditure. Respectfully SEMO would suggest that this is not the case. The "return" accorded is designed to remunerate both the time value of money (through delayed recovery by virtue of the Regulatory Asset Base) and the risk associated with the expenditure (as part of a wider overall risk remuneration framework). Whilst a recategorisation changes the time value proposition the overall risk remains unaltered. If unremunerated through return on RAB, remuneration for the risk must be captured elsewhere within the framework. As part of its OpEx submission for 2021-24 SEMO has suggested that it would be beneficial that the RAs and SEMO work collaboratively to devise a framework that adequately deals with operational risk; the treatment of capital costs and the application of return to those costs in the form of WACC return on RAB should form a part of those discussions/ considerations.

2.3 Asymmetric Risk

The principle of regulatory oversight is an important part of the regulatory framework which seeks to incentivise efficiency and allows the regulator to oversee the efficient delivery of activities by the regulated entity and to act on behalf of its consumers to intervene when this is not the case.

However, the exposure from the use of ex-post review is asymmetric whereby (1) companies can only recover "efficient" costs whilst being exposed to downside risk (i.e. the disallowance of costs deemed to have been inefficient); and (2) there is no equivalent upside potential (i.e. for a regulator to allow additional costs as a result of the ex-post review). As a result, on average, the company would have to expect some disallowance of costs incurred.

Through the proposed process outlined in SEM-20-086, SEMO faces a level of asymmetric risk in respect of the recovery of the CapEx detailed in the consultation. By design, the ex-post review mechanism is downside only as SEMO can only incur disallowances without upside potential for the RAs to allow additional costs which means that SEMO is exposed to asymmetric risk. As a result expected returns are below assumed expected returns; the basic principles underpinning CAPM in the determination of that expectation of returns are violated.

This is consistent with SONI's exposure as TSO from Dt and Transmission Network Pre-Construction Project (TNPP) mechanisms under its TSO licence; however, for SONI the expected negative impact on returns is likely to be lower because the ex-post review is constrained by the Demonstrable Inefficiency and Wastefulness of Expenditure (DIWE) mechanism which means that on a relative basis the probability of disallowance is lower. SONI TSO also receives a premium to compensate it for the asymmetric risk. In contrast, SEMO does not receive any remuneration for its exposure which appears to be higher than SONI's.

In its deliberations pertaining to SEMO's CapEx requirements, we look forward to engaging on and hearing how the RAs propose to address this issue of asymmetric risk. At present, it appears that the RAs' approach may not be consistent with the 'fair bet' principle, as the process being followed would appear to expose SEMO to material asymmetric risks over which it has no control. SEMO makes itself available to the RAs to further explore the means through which this issue can be managed.

3. Theme Two: Response to the SEMC's proposed allowance

In this section of the response, SEMO addresses the RAs' proposed disallowances of specific project costs. We acknowledge that the proposed allowances for the Post Production Support and Day1+ projects is consistent with the full amount requested and expect the RAs' position on these to be upheld through this consultation process. There are, however, a number of projects for which the RAs' proposed allowances differ significantly from the costs detailed in SEMO's submission. Such proposals represent only disallowances, rather than over-recovery; as referenced in the Regulatory Principles section of this response, this is important to note in the context of SEMO receiving no remuneration for its exposure and, as it stands, being exposed, in full, to the potential downside risk (i.e. the disallowance of costs deemed to be inefficient).

The projects which include disallowances are explored in turn, including those whose costs are disallowed in full and the proposed reallocation of Settlement Support and Resettlement expenditure from CapEx to OpEx.

It should be noted that the recent SEMO OpEx 2021-24 Price Control submission was based on the assumption that the below projects would be implemented during, or shortly after, the 2021 financial year. As such, should any of the below projects not receive the necessary funding to be carried out this financial year, there may be an increase in OpEx costs for 2021-24 as the forecast efficiencies which formed part of that submission will not be achieved. Any disallowances made for Financial Year 2021 will also have a knock-on impact on the CapEx requirements for the 2021-24 price control period.

3.1 Market System Release Capital

In the consultation paper, the SEM Committee noted some views regarding the Market System Release Capital which SEMO finds concerning; most notably the comparison of hours between the legacy SEM and I-SEM, the timing of the costs for releases being incurred, and the efficiency on resolving defects.

3.1.1 Increase in Vendor Hours

The RAs consider the vendor hours required for the revised SEM arrangements "excessive". However, SEMO believes this increase in hours is fully justified and required given the scale of change being driven for both operational and strategic reasons. The new SEM systems are considerably more complex than those in the legacy SEM. The diagram below shows the difference in complexity (e.g. 137 interfaces in the I-SEM versus 5 in the legacy SEM). The 24x7x365 operation of the I-SEM arrangements is highly integrated with System Operations and to the outside world. The level of complexity means that the delivery of change requests takes more time to design, develop and, most of all, to test by vendors.

As regards testing, the greater complexity leads to the following for any change:

- Longer design, development and test effort to deliver change from the vendors
- Longer duration of testing by SEMO (SIT, UAT, Market Test)

- Longer and wider scope of Regression testing than the previous SEM
- Higher overhead in environment preparation for testing, including connectivity and data provision and verification of outputs (137 interfaces)
- Tighter coupling with other systems which involve a far greater system landscape and wider test scope to include end to end testing across all platforms. Tighter coupling with the EMS also results in new technologies (unit types) which need to be accommodated in the systems (e.g. batteries).

Typically in the legacy SEM releases tended to be approximately 7000 hours in size per release (i.e. 14000 hours per year). Under the new arrangements Release G is expected to be approximately 4000 hours and Release H to be up to 9000 hours. One change request (Repricing) alone in Release G is 3000 hours. Given the complexity outlined above and the pipeline of work to be done it is not unreasonable to have this size of release planned. The consequences of not having the scope to deliver large release (i.e. up to 9000 hours) is risks associated with delays, including technical, functional, and ongoing defect resolution.

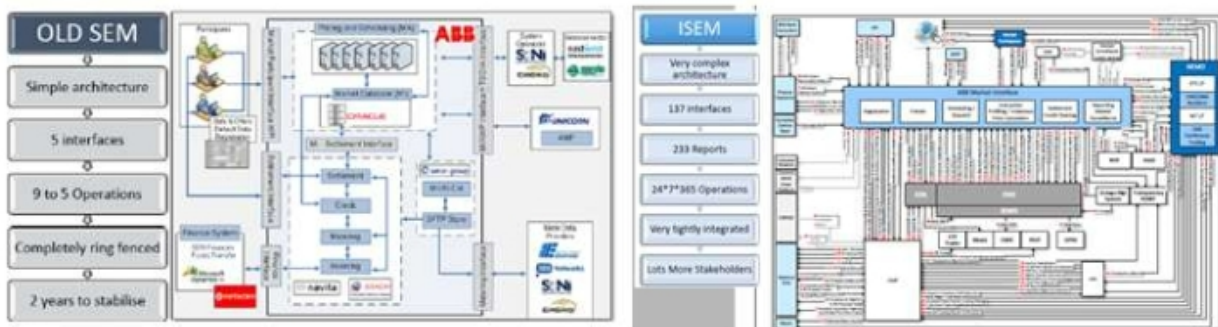


Figure 1 – Comparison between Legacy SEM and I-SEM

3.1.2 Bi-annual System Release

Market System Release Capital is generally driven by four different types of change:

- technical projects to improve stabilization;
- functional changes;
- Trading and Settlement Code modifications; and
- Defects.

These changes are delivered as part of the Bi-annual system releases.

It is imperative that work starts on the technical projects to improve stabilization and reduce the risk of underlying technical failure in a timely manner. This work would include changes in the ABB releases related to areas such as Failover. The systems have been operational for over 2 years which has resulted in changes being identified that are needed to provide operational efficiencies and automation improvements to remove manual workarounds.

To prepare for Release H in October 2021² there are over 25 changes being assessed or about to be assessed in order to finalise the scope. These include modifications and functional changes but do

² Currently, the estimated date of deployment for Release H.

not include defects. For Release H to be deployed in October 2021, the work will need to be carried out prior to this release date. As such, although the deployment will happen in tariff year 2021/22, the work and costs associated with this release will be completed in tariff year 2020/21.

3.1.3 Efficiency of Defects being resolved

The RAs note their concern that “some defects have not been resolved efficiently within the warranty period and additional monies are being sought”. This is simply not true and a very worrying concern for SEMO if this is the opinion of the RAs. As such, we have provided additional information below regarding the large amount of work carried out on the defects during the warranty period.

As the RAs are aware, the I-SEM went live with known defects. Since go live in October 2018, defects have been prioritized with nearly 850 defects resolved. The warranty period ended for the Go Live Releases in October 2019. There remains c. 200 defects, which have mostly low impacts, which will incur costs should SEMO determine that they need to be fixed.

To ensure that the resolution of defects was as efficient as possible SEMO embarked on an aggressive programme of deploying hot fixes and major releases during the first year of operation. There were 28 code releases which were bundled into 4 major releases as well as a total of 61 hot fixes deployed during the first year as per the diagram below.

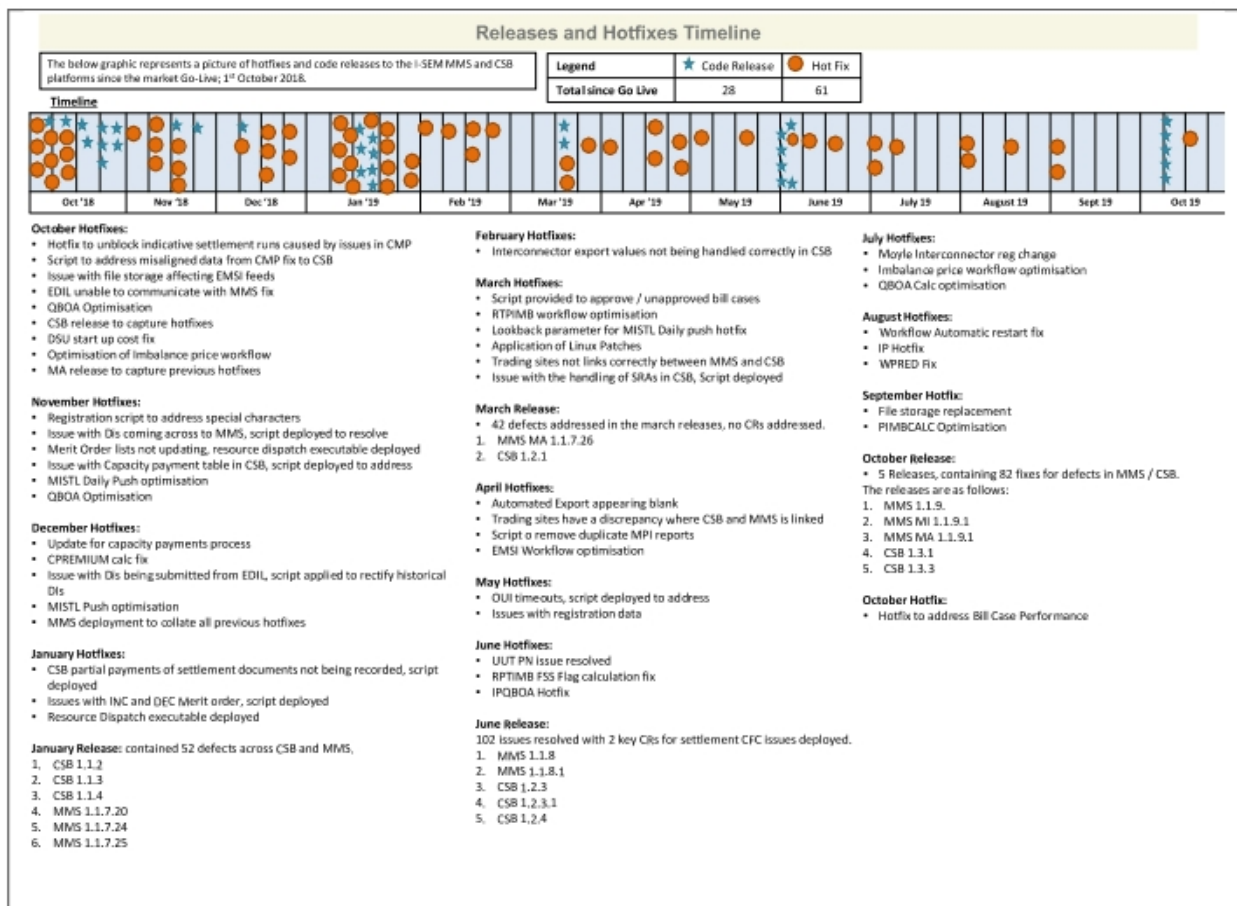


Figure 2 – Releases and Hotfixes Timeline

It was very challenging to deliver defect fixes while keeping the systems going 24x7. As all of the major releases involved outages, a balance had to be maintained between delivery of fixes which improved the stability of the market systems on one hand and the necessary outage time which adversely impacted traders on the other. The RAs view appears to suggest that the priority should have been to resolve all defects in the warranty period, so as to prevent any costs being incurred outside of the period, above the ongoing day to day functioning of the market itself. The cost and operational ramifications of such an approach on the market and consumers appears to have been overlooked by the RAs and would far exceed any costs that may now be incurred in remedying defects outside of the warranty period.

SEMO notes that it has worked hard to improve its testing capability to reduce the number of defects making their way into live production. The result of this has been that some of these defects were found after the warranty period; however, we believe that it is better to find them in test rather than in the field.

- Defect numbers trending down with significant impact attributable to Release F (Nov 2020)

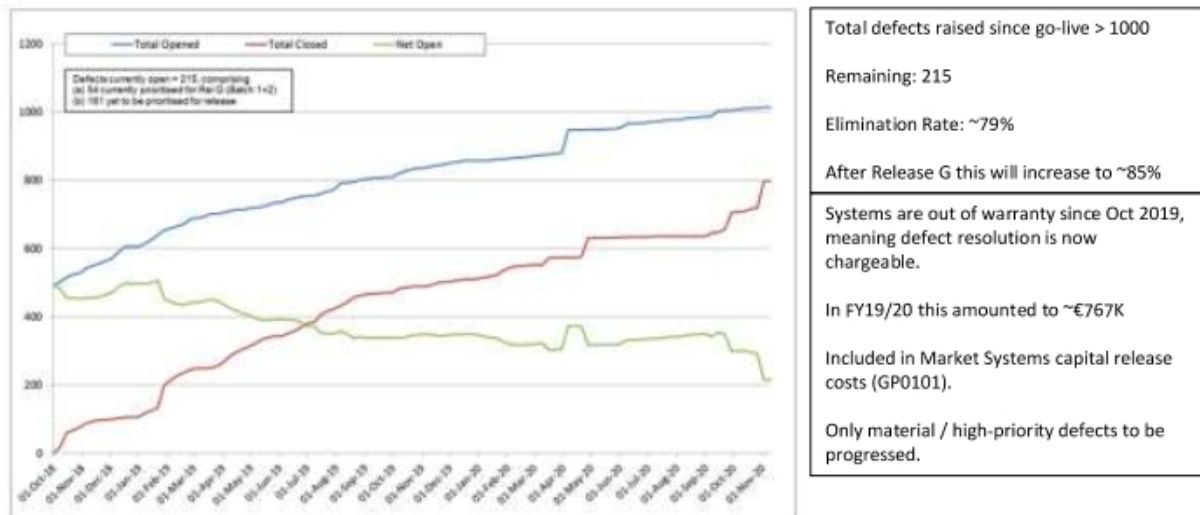


Figure 3 – Summary of Defects since Go-Live of I-SEM

The RAs’ proposed allowances for the Market System Release Capital is €4.164m for 2020/21, a reduction of €2.236m. This is a significant reduction and would restrict the development and scope of planned improvements for Release G and H.

3.2 Release Support Capital

The underlying resources to carry out this work were originally benchmarked against stable legacy SEM operations (c.4+ years pre I-SEM Go-Live³). The complexity and challenge associated with fully stabilizing the systems and deliver high quality changes requires additional resources for programme management, design and most of all testing.

³ The RAs benched the SEMO I-SEM requirements of the 2014 Legacy SEM operational costs at which point some operational costs associated with market development were already reduced as the focus moved to the I-SEM implementation.

As of December 2020 over 79% of the defects (~800) identified since Go-Live have been resolved. SEMO is therefore about to start into releases which are considerably larger than before. In order to be as efficient as possible and to deliver as much improvement as possible SEMO will be paralleling the development of two releases in 2021, see figure 4. This means that there will be the need for more design and more testing.

A key lesson learned from earlier releases is the need for more rigorous testing. Any reduction in the test resources being made available in particular would risk the quality and delivery schedule for the releases e.g. Release G contains the critical repricing change request which is challenging to both develop and test.

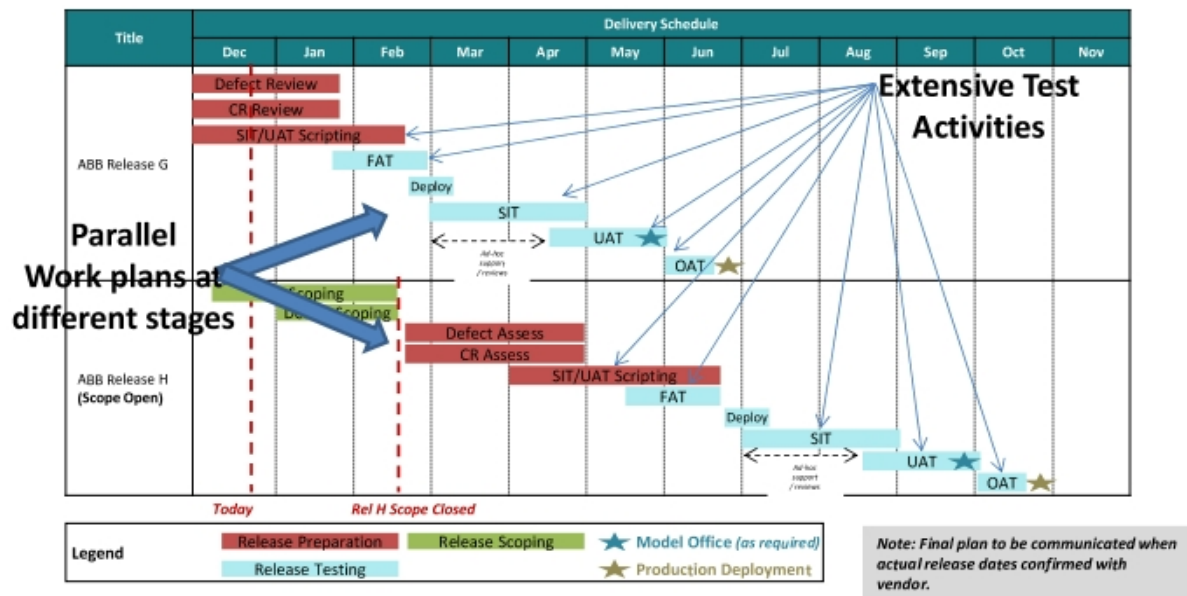


Figure 4 – Summary of Extensive Testing Activities

3.3 Settlement Support and Resettlement

As outlined in Section 2.2 above, SEMO is opposed to recognising this project as an operational expense rather than CapEx. The nature of SEMO’s investment in Settlement Support and Resettlement is capital expenditure and SEMO treats any such investment as capital expenditure in accordance with accounting policies. While Regulatory accounting can differ, we do not agree with the treatment of this investment as OpEx. Moreover as set out in Section 2.2 if the expenditure is to be treated as OpEx then the regulatory framework needs to elsewhere account for the risk associated with such expenditure. This may need to form part of a wider discussion as part of the SEMO regulatory framework for 2021-24.

SEMO has capitalised the settlement support and resettlement project in line with International Financial Reporting Standards. In particular SEMO has complied with IAS 16 Property, Plant and Equipment (PPE). Items of PPE "should be recognised as assets when it is probable that future economic benefits associated with the asset will flow to the entity and the cost of the asset can be reliably measured". The cost in this instance is €0.614m. The future economic benefit of this project was to resolve the significant number of issues with the settlement system post go-Live of I-SEM on

1 October 2018. These issues, as listed in the I-SEM Market Capital Investment submission dated 28th August 2019, included:

- Performance issues
- Settlement Document Breaches
- Bill Case Performance
- Very large number of work arounds
- Data not flowing through
- Resources required to support Repricing and Resettlement

Per IAS 16 PPE should be initially recorded at “cost”. Cost includes “*all costs necessary to bring the asset to working condition for its intended use*”. As the I-SEM project went live with a significant amount of defects it was not initially functioning as it was intended to do so. For example initial settlement documents were well outside prescribed timelines, there was a large number of complex work arounds and significant delays in M+4 resettlement to name but a few. SEMO, therefore, invested a further €0.614m in FY18/19 and FY19/20 in capital expenditure to bring the settlement and resettlement functions in line with their intended use i.e. to settle and resettle the market in a timely fashion.

3.4 Market System Data Archiving

SEMO has no further comments on the RAs’ proposed allowance. SEMO can confirm that this project is currently in the scoping phase which involves the development of Scope, Impact Assessment and High Level Requirements. It is anticipated that work will continue to advance this project until September 2021. Further data work will be required which will be documented in later CapEx submissions. SEMO will update the Regulatory Authorities regarding further developments that will be needed to support Market Analysis.

In the consultation, it states that “*The ease in retrieving data is also expected to improve the current manual process for responding to queries. The RAs requested details of expected operational savings which could be reflected in the upcoming SEMO price control consultation for 2021–2024.*” The recent SEMO OpEx submission was prepared on the assumption that the projects outlined in this CapEx submission would be implemented during, or shortly after, Financial Year 2021. As such the expected operational savings have been taken into consideration as part of our Price Control Operational Expenditure (OpEx) submission⁴.

⁴ SEMO Price Control Operational Expenditure Submission for the period 2018 – 2021 and 2021 to 2024, submitted to the Utility Regulator and the Commission for Regulation of Utilities on 11 December 2020.

3.5 Additional Market Environments

There remains to be a slight misunderstanding regarding the additional market environments. This project covers (i) the MMS – CSB database separation, and (ii) the P2 failover configuration. The above are either in progress (failover) or being planned (MMS-CSB Separation). Not progressing elements of this will increase risk of systems failure either in a lack of Failover capability in P1/2 performance problems.

By way of example, the diagram below outlines the plan to deliver Release G and H in 2021. This plan will require an extensive testing programme to happen in parallel, albeit for different test stages. The plan assumes that there is sufficient release support capital to provide testing resources in the form of designer, management and testers. In addition there is a need for additional market environments to improve the quality of the testing process. The amount being sought will enable SEMO to purchase a number of servers, VMware software etc. in order to develop an environment that will be used to test the infrastructure changes which are included in Release H. The provision of this additional environment will also test the configuration of the load balancers prior to promoting a P2 environment to production.

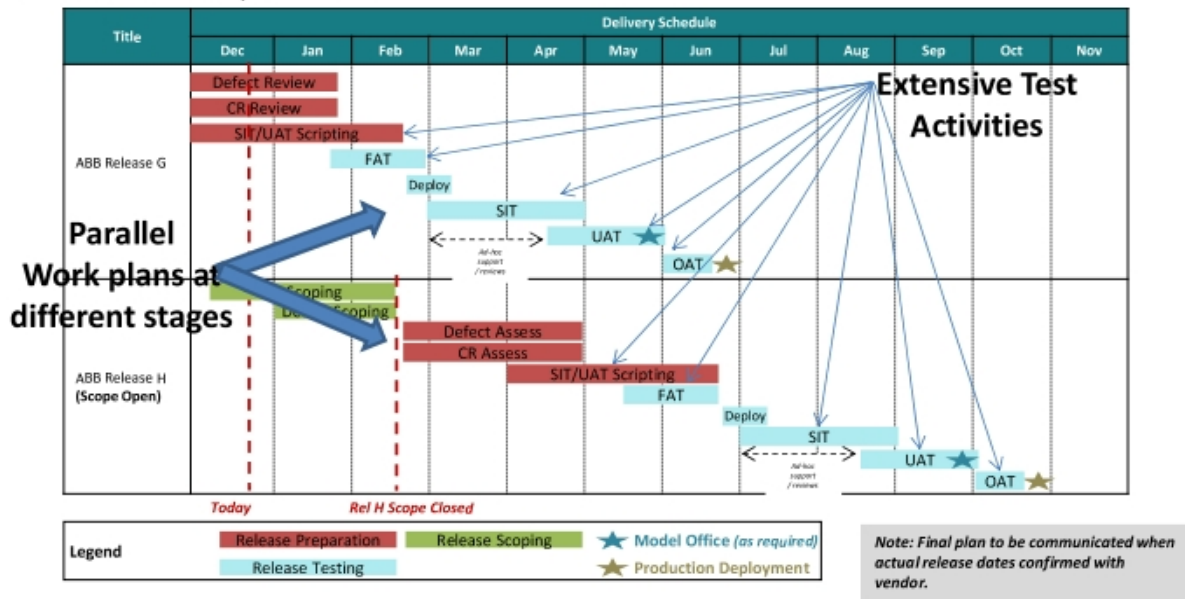


Figure 5 – Delivery Plan for Releases G and H

The additional investment will help to increase security mitigating against data loss. Work will also enable SEMO to have longer deployments which would be required for certain large scale releases. To disallow the funding for additional market environment for this price control period would mean the risk of potential defects in the production environment would remain.

3.6 Market Management System (MMS) Performance Enhancement

The RAs note that *“the expected improved performance of control centre functions and the reduced time lag for Real Time Dispatch (RTD) are TSO obligations and therefore outside the scope of this SEMO capex review”*.

Performance Enhancements cover a number of functional areas including improvements that reduce the time lag for Real Time Dispatch. A significant factor in the determination of the 5 minute imbalance price (as required under the TSC) is that accurate flagging information is provided from the scheduling (RTD) process. Imbalance pricing is a SEMO function. If flagging information is out of date due to slow running of RTD the imbalance prices will be incorrect. On a number of occasions the 5 minute imbalance price workflow has been turned off once it has become apparent that RTD flagging information was no longer accurate. In addition to inaccurate flagging information, if RTD is not operating correctly the dispatch instructions will diverge from the desired market position. It is not possible to rerun the RTD process, post event, to calculate the correct flags etc. if they have not been calculated correctly in real time.

The RAs outlined 5 key areas of concern which have changed between SEMO’s August 2019 CapEx submission and the October 2020 CapEx submission. SEMO has addressed these concerns in the table below.

August 2019 Submission	October 2020 Submission	Update January 2021
No MMS redundancy - single point of failure	No MMS redundancy - single point of failure	<p>Switchover (where we move all processing to alternate DataCentre): This capability is in delivery mode at this point. We can switch to the alternate site and have tested this in the P2 environment on a number of occasions. We expect to exercise this in Jan 2021 on P1.</p> <p>Failover (where one site is lost, internet traffic will route via the other): This capability has been deployed and can be exercised by a manual configuration change. We have one issue to resolve on our Global Time Management devices (GTMs) that is under investigation. Once resolved auto failover will be possible.</p>
MMS workflow performance (slow performance impacting control centres e.g. Real Time Dispatch (RTD) runs	MMS workflow performance (slow performance impacting control centres e.g. Real Time Dispatch (RTD) runs	<p>A number of performance enhancements have been implemented in recent releases and which have improved performance of the MA software. These include:</p> <ul style="list-style-type: none"> • Software changes • Database indexing updates • Data Retention configuration

		<p>implemented.</p> <p>In addition as part of the overall MMS performance improvement programme we are deploying new higher spec physical servers to host the MA software. These will be deployed initially in Belfast (January 2021) and then Dublin.</p> <p>Finally, we monitor and record performance of all MA runs on a weekly basis and where performance issues are highlighted in these reports we follow up with the software vendors to investigate and where possible apply a performance improvement.</p>
MMS Data Storage	N/A	The focus has been on the completion of the <i>Data Archiving</i> project which if delivered will reduce risks associated with data. There is a need for further investment in data analysis which will be included in the 21-24 CapEx submission.
Bumpless MMS/EDIL/ICMP Outages/Software Upgrades/Patches	Extended MMS/EDIL/ICMP Outages/Software Upgrades/Patches Releases	We have certain capability but more work is required to get all of the failover and switchover capability in place to support long deployments (i.e. greater than 12 hours) which are necessary for certain large scale releases.
Reduced Time Lags for RTD	Reduced Time Lags for RTD	This is one of the specific areas which is being addressed by the <i>MMS workflow performance measures</i> . See above.
N/A	System Performance Impacts on Settlement	This is one of the specific areas which is being addressed by the <i>MMS workflow performance measures</i> . See above.

3.7 Market Analysis Tools

The provision of Market Analysis tools are important to ensure that SEMO can fulfil its obligations and requirements and can demonstrate compliance with licence obligation 10 regarding *Performance of the Single Market Operations business* and other regulatory obligations. A key area of focus it is in the use of analytical techniques to answer complex queries as current systems do not provide the necessary capabilities to SEMO. The rollout of an improved Data Archiving capability will form the first step to delivering the right data competencies. As such, SEMO will prioritise the data archiving project for tariff year 2020/21 and will look to readdress the Market Analysis Tools as part of the SEMO CapEx 2021 – 2024 price control.

3.8 Compliance Management

The RAs make reference to compliance related costs which are allocated to the TSO businesses of the EirGrid Group. SEMO wish to confirm that the cost of the Compliance Management project as set out in its CapEx submission is associated with SEMO only. Should the compliance management project not receive the necessary funding during this price control period, there will remain a risk of not being able to readily demonstrate compliance with the TSC obligations in an efficient manner.

3.9 Website Development

The sum included (€0.23m) in the submission is based on an estimate of the SEMO work that will be done by September 2021. There are a number of aspects to be addressed by SEMO in order to make dynamic reporting available to our Market Participants on the SEMO Website. The main focus will be on the availability of Historic Market Data. Any further website development will be included in the 2021-24 SEMO CapEx submission in February 2021.

The timeframes for the delivery of this, as with any project, will be dependent on overall business priorities. Operational priorities have impacted on the advancement of the Website Project outlined. However, it should be note that the website was continually improved as a result of a number of smaller operational projects.