



**Single Electricity Market  
(SEM)**

**SEMO 2018 – 2021 Capital  
Expenditure**

**Consultation Paper**

**SEM-20-086**

**30 November 2020**

## EXECUTIVE SUMMARY

The current SEMO price control (SEM-18-003) is effective for the period 1 October 2018 (go-live of the revised Single Electricity Market (SEM) arrangements, referred to hereafter as 'SEM Go-Live') to 30 September 2021. While the current price control covers SEMO's operational expenditure (opex) and financeability allowances it could only, at the time it was determined, provide a limited capital expenditure (capex) allowance<sup>1</sup> for SEMO of €0.8m over the three year period.

Due to significant uncertainty associated with forecasting capex in advance of SEM Go-Live, SEMO was unable to include proposals for predictable business capex that may be required for the 2018 – 2021 period.

In recognition of this uncertainty, the SEM Committee outlined principles to apply to any SEMO capex during the 2018 – 2021 period within its price control decision paper. These principles included the expenditure during this period being subject to a final outturn review and efficiency review.

The SEM Committee is of the view that it is important that the final outturn review and efficiency review is consulted upon with industry and wider stakeholders. The key focus of this paper is to consult on proposed allowances for the following which will then be applied to the appropriate SEMO tariffs:

- actual capex for the year 2018/19
- actual capex for the year 2019/20
- forecasted capex for the year 2020/21

The Commission for Regulation of Utilities (CRU) and Utility Regulator (UR) as Regulatory Authorities (RAs) consider this approach to consulting on the SEMO capex retrospectively (for years 2018/19 and 2019/20) as a one-off event, driven by introduction of the revised SEM arrangements from October 2018.

The RAs will revert to consulting on future capex allowances via the regular price control review processes. For example, the capex associated with October 2021 to September 2024 will be consulted upon in Quarter 2 of 2021 as part of the SEM Committee's wider SEMO price control consultation for that period.

The RAs received a capex submission for the period from 1 October 2018 – 30 September 2021 from SEMO on 29 October 2020 ('the October 2020 capex submission'). The submission totals €20.8m over the three year period and can be depicted as follows:

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<sup>1</sup> This allowance was for 'unpredictable' capex.

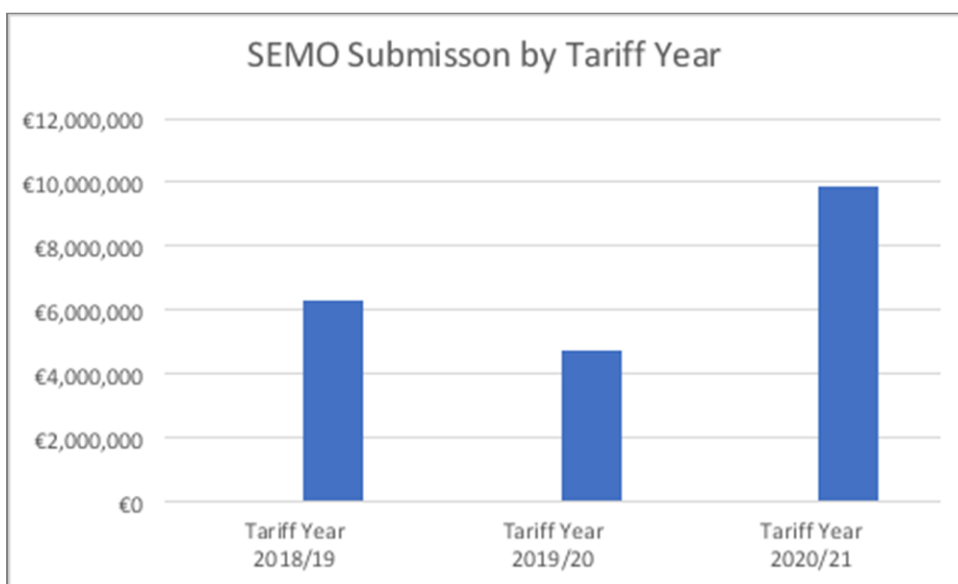


Figure 1: Summary of SEMO October 2020 Capex Submission by Year

In its review of the October 2020 capex submission for the 2018-21 period, the RAs have paid particular attention to the 2020/21 tariff year. This is due to an upward projection in forecasted costs and commencement of a number of projects which have passed project initiation phase. The table below broadly summaries the execution phase of projects across the three year period.

2018/19	2019/20	2020/21
I-SEM Post Production Support		
I-SEM Day 1+		
Market System Release	Market System Release (D and E)	Market System Release (F, G and H)
Release Support	Release Support (D and E)	Release Support (F, G and H)
Settlement Support and Resettlement	Settlement Support and Resettlement	
		Market System Data Archiving
		Additional Market Environments
		MMS Performance Enhancements
		Market Analysis Tools (Design Phase)
		Compliance Management
		Website Development

Table 1: Overview of SEMO Execution Phase Timelines by Year

The RAs are keen that SEMO focusses on particular projects which will add value to industry stakeholders and to SEMO while also being feasible and achievable within the 2020/21 tariff year. We have assessed SEMO's capex submission with a view as to which projects should be prioritised for 2021 and have posed questions throughout this consultation to encourage stakeholder views on our proposals.

A summary table of SEMO's October 2020 capex submission compared to the RAs' proposals is provided below. A more detailed comparison of allowances for each individual capital project is found in Appendix A.

Totals	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	6.262	4.707	9.851	20.820
RA's' Proposal	5.916	4.435	6.602	16.953

Table 2: Summary of SEMO October 2020 Capex Submission and RAs' Proposals

The RAs recognise that the decision for the current SEMO price control (SEM-18-003) sought to require a final outturn review of capex for the years 2018 – 2021; this consultation seeks to do this for the two years 2018/19 and 2019/20. It is intended to set an allowance for SEMO for the 2020/21 year within the decision following this consultation. Should SEMO's outturn costs for 2020/21 be materially different to the allowance allocated, the RAs reserve the right to re-consult on SEMO's 2020/21 outturn costs.

We note that the SEMO October 2020 capex submission did not include specific projects/ allowances relating to the Clean Energy Package requirements (including Articles 12 and 13 of Regulation EU 2019/943), or any necessary changes relating to Brexit. These, together with the Electricity Balancing Guideline (EBGL) requirements, will be considered separately by the RAs when there is greater clarity on these requirements. We will assess any requests in line with the EirGrid Group cost allocation and re-charge policy.

This consultation also includes a section at Chapter 3 relating to the treatment of these capital allowances within tariffs.

Responses to the proposals within this consultation should be sent to Karen Shiels ([karen.shiels@uregni.gov.uk](mailto:karen.shiels@uregni.gov.uk)) and Conall Heussaff ([cheussaff@cru.ie](mailto:cheussaff@cru.ie)) by Friday 8 January 2021.

A decision is expected to be published in February 2021; this will inform the tariff process which takes place in summer 2021.

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# 1. Introduction

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## 1.1 Background

The current SEMO price control is effective for the period 1 October 2018 (go-live of the new SEM arrangements, referred to hereafter as ‘SEM Go-Live’) to 30 September 2021. This price control review process was carried out during 2017 and determined by the SEM Committee in February 2018 (SEM-18-003). While this current price control covers SEMO’s operational expenditure (opex) and financeability allowances, it could only provide a very limited allowance for SEMO’s ‘unpredictable business capex’ of €0.8m over the three year period.

Due to significant uncertainty associated with forecasting capital expenditure (capex) in advance of SEM Go-Live, SEMO was unable to include any predictable business capex proposals for the period 2018 – 2021.

In recognition of this uncertainty, the SEM Committee 2018 – 2021 price control decision paper (SEM-18-003) noted<sup>2</sup>:

**“Predictable capex**

*SEMC is cognisant of the uncertainty in the level and nature of change in the I-SEM market following implementation. It is also aware that there are likely to be a number of actions outstanding post go-live as well as a number of sustainable solutions to be developed following interim solutions implemented as part of I-SEM (Day 2 list).*

*The SEMC is of the view that it will be important to be clear in defining any Day 2 list so as to avoid any boundary issues between these costs and those associated with other change, as well as clearly stipulating what constitutes unpredictable and predictable capex.*

*In order to facilitate the setting of future tariffs in a clear and robust fashion, SEMC would reinforce the need for any foreseeable and predictable capex to be submitted at least 4 months ahead of any new tariffs being applicable to allow sufficient time for scrutiny and inclusion.*

*Given SEMO’s response to the SEMC proposal concerning the principles for Predictable Capex and Viridian’s query as to what would practically occur if Capex spends do not meet the materiality threshold, the SEMC has decided to remove this materiality threshold and apply the following principles to predictable Capex;*

- 1. Submissions should be made in a timely manner, at least 4 months prior to annual tariff setting so as to allow the SEMC sufficient time to scrutinise, review and approve.*
- 2. Submissions which may arise should be based on costed estimates, rather than forecast estimates.*

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<sup>2</sup> Page 32: [SEM-18-003 SEMO Final Determination SEMC FINAL.pdf \(semcommittee.com\)](#)

*3. Where such predictable Capex is accepted by the SEMC, it will be subject to final outturn review as part of the next Price Control.*

*4. This will include efficiency review of the Capital Expenditure and any inefficiency (plus return) will be corrected where deemed inefficient.”*

As there has been no SEM Committee consultation to date on SEMO capex for the period 2018 – 2021 and SEMO has continued to incur capital-related costs, the SEM Committee is of the view that it is important that the RAs' final outturn and efficiency review is consulted upon.

This consultation paper covers the following:

- SEMO's actual capital expenditure for 2018/19
- SEMO's actual capital expenditure for 2019/20
- SEMO's forecasted capital expenditure for 2020/21
- Treatment of capex within SEMO tariffs

Recognising that the values being consulted on for the 2020/21 tariff year are forecasted costs and that the SEM Committee recommended outturn and efficiency reviews for the 2018-21 period, the RAs are of the view that there will be no need for a further consultation on 2020/21 capex outturn unless actual outturn differs materially to the 2020/21 allowance provided in the decision paper which will follow this consultation process.

It is important to be aware that the projects and allowances within this consultation paper do not specifically relate to the Clean Energy Package requirements (including Articles 12 and 13 of Regulation EU 2019/943), or any necessary changes relating to Brexit. These, together with the Electricity Balancing Guideline (EBGL) requirements, will be considered separately by the RAs when there is greater clarity on these requirements. We will assess any requests in line with the EirGrid Group cost allocation and re-charge policy.

The RAs see merit in consulting separately on SEMO's capex for the 2018-21 period from the upcoming review for the 2021–2024 price control period. This will ensure that each price control is considered separately and will inform SEMO's capex related submission for 2021-24. In addition, there is benefit in ensuring a decision is made to inform the tariff setting process, particularly in respect of the k-factor true-up processes for years 2018/19 and 2019/20.

Future capex allowances will revert to being consulted upon in the regular price control review consultation processes. For example, the capex associated with the years 2021 to 2024 will be consulted upon in Quarter 2 of 2021 within the wider SEMO price control consultation process for that period.

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## 1.2 Market Systems Development Plan (MSDP)

SEMO recently consulted on its Market Systems Development Plan (MSDP) relating to the two year period from 1 October 2019 to 30 September 2021<sup>3</sup>. This consultation closed on 15 October 2020 and has informed SEMO's October 2020 capex submission to the RAs for the 2018-21 period.

SEMO is required under its licences<sup>4</sup> to produce an MSDP for the development of the SEM Trading and Settlement System over the following two years. The MSDP is produced annually<sup>5</sup> and, following consultation, requires approval of both RAs.

The MSDP provides market participants with an important overview of proposed forthcoming SEMO capital projects. Historically, the focus of the MSDP has not been on costs of the projects. However for the recent MSDP consultation the RAs requested that SEMO include an overview of costs given they had not previously been consulted upon as part of the 2018-21 price control process. This was provided in Appendix 2 of the published 2019 – 2021 draft MSDP. It is acknowledged that this consultation is closely related to the MSDP however the primary focus of the RAs is on costs and setting appropriate capex allowances for SEMO.

The information provided in the MSDP regarding each project is not repeated here, however respondents may wish to use the MSDP<sup>6</sup> as a reference when responding to this consultation.

The RAs will consider the MSDP (which will have been revised by SEMO in response to stakeholder comments) for approval; this is due to be submitted to the RAs by SEMO in December 2020. It is envisaged that any approval by the RAs of the MSDP will be provided within the same timelines as the decision paper associated with this SEM Committee consultation. Respondents' comments on this consultation will also be considered.

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## 1.3 Indexation

All costs submitted by SEMO and included in this consultation paper are based on a mid-tariff (March) price base. The following will be the price bases for the various years reviewed in this consultation paper:

- 2018/19: price base of March 2019 (actual costs)
- 2019/20: price base of March 2020 (actual costs)
- 2020/21: price base of March 2020 (forecast year)

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<sup>3</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>

<sup>4</sup> EirGrid Market Operator Licence Condition 4  
SONI Market Operator Licence Condition 16

<sup>5</sup> Due to the development of the revised SEM arrangements (I-SEM project) the publication of annual MSDP consultations had been paused. Consultation recently recommenced with the publication of the 2019 – 2021 MSDP consultation in September 2020.

<sup>6</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>



If necessary, the SEMO tariffs will allow for an adjustment for outturn inflation up to March of each year, with any adjustment accounted for through the end of year k-factor adjustment mechanism.

The applicable indexation rate is a blended rate based on the indexation method (CPI or RPI) used within the EirGrid and SONI TSO price controls on a 75:25 split, respectively.

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## 1.4 2018 – 2021 Capital Expenditure (Capex)

In this section we provide information on the unpredictable capex allowance already provided in the current 2018 – 2021 price control and the background to and overview of the October 2020 capex submission which relates to predictable capex.

### **Unpredictable Capex**

Unpredictable business capex is a discretionary fund that was requested by SEMO to cover the aggregate costs of smaller scale but ongoing levels of business capex. This was broken down into two components:

1. Failing or obsolete software or hardware components; new business requirements that demand a different set of components; the availability of new products on the market that would address longstanding issues; or the fact that a software upgrade on one side of the business may mean that existing software on another side may be incompatible.
2. The need to provide for corporate developments which are emerging from SONI/ EirGrid to which SEMO would contribute.

The SEM Committee decided within the 2018 – 2021 price control (SEM-18-003) to allow SEMO an underlying unpredictable capex allowance (for replacement servers and additional software licenses etc) of €0.4m for 2018/19, €0.2m for 2019/20 and €0.2m for 2020/21. These allowances have been provided on a passthrough basis up to the threshold for each year of the price control.

It is understood from recent engagement with SEMO that there has been no spend associated with unpredictable capex for the years 2018/19 and 2019/20.

### **October 2020 Capex Submission**

SEMO made a capex submission for 27 projects to the RAs in August 2019 (based on the process outlined in SEM-18-003). No allowances were approved in respect of the August 2019 submission. Following engagement, SEMO reduced the number of proposed projects from 27 to 11. These were consulted on by SEMO in the most recent draft MSDP. SEMO has since revised and re-profiled the suite of proposed projects before submission to the RAs.

The SEMO October 2020 capex submission contains 9 (rather than 11) new projects plus 2 I-SEM related projects for the period from 1 October 2018 – 30 September 2021. This suite of projects is subject to this consultation.

A brief overview of each capex project together with the RAs' view, proposed allowance and question(s) posed to stakeholders is provided below. A summary of each project, costs submitted by SEMO and the RAs' proposed allowances is provided in Appendix A.

As the proposed allowances for 2020/21 are at this stage an estimated cost, the RAs intend to provide the 2020/21 allowances on an ex-ante basis up to the threshold provided. This is consistent with the approach taken within the current 2018 – 2021 price control decision (SEM-18-003) in respect of the unpredictable capex allowance of €0.8m. An appropriate mechanism to ensure efficient capex spend will be considered as part of the next SEMO price control but in the RAs' view is not warranted for one year.

The RAs see value in SEMO providing a mid-year progress report for the 2020/21 year in early April 2021 on project status to both the RAs and to stakeholders, perhaps through a presentation at the regular Market Operator User Group (MOUG).

## 2. SEMO Capital Expenditure Projects

SEMO's October 2020 capex submission includes 11 projects, 2 of which are 'I-SEM' related workstreams. SEMO's submission, at a high-level, is summarised below:

Project Description	SEMO Oct 2020 Capex Submission			
	Oct 18 - Sept 19	Oct 19 - Sept 20	Oct 20 - Sept 21	Total
	€m	€m	€m	€m
Market System Release Capital	€0.135	€2.065	€6.400	€8.600
Release Support Capital	€1.369	€2.103	€1.262	€4.734
Settlement Support & Resettlement	€0.346	€0.267	€0.000	€0.613
Market System Data Archiving	0	0	€1.128	€1.128
Additional Market Environments	0	€0.005	€0.138	€0.143
MMS Performance Enhancements	0	€0.267	€0.303	€0.570
Market Analysis Tools	0	0	€0.250	€0.250
Compliance Management	0	0	€0.140	€0.140
Website Development	0	0	€0.230	€0.230
<b>Sub Total</b>	<b>€1.850</b>	<b>€4.707</b>	<b>€9.851</b>	<b>€16.408</b>
I-SEM: Post Production Support	2.041			2.041
I-SEM: Day1+	2.371			2.371
<b>Total CAPEX</b>	<b>€6.262</b>	<b>€4.707</b>	<b>€9.851</b>	<b>€20.820</b>

Table 3: SEMO October 2020 Capex Submission by Project Cost

The RAs have provided an overview (based on SEMO's submission) for each individual project below, alongside the RAs' initial view, allowance proposals and questions directed to stakeholders to support development of the SEM Committee's final determination.

## 2.1 Project: Market System Release Capital

### Overview based on SEMO October 2020 Capex Submission

This project relates to the capital required to procure vendor support hours which are essential for delivering functional changes and regulatory approved market modifications for the SEM systems. The procurement of vendor support hours is a standard feature of price controls and a key element of the Bi-Annual Release Capex provided in previous SEMO price controls. Internal resources provide technical, project and management support for the various releases.

This project and costings relate to the following system releases:

Release	Number of Defects	Date of Deployment
D	56	Oct 2019 & Dec 2019
E	64	Apr-20
F	94	Nov-20
G	TBA	Scheduled June 2021
H	TBA	Scheduled Q4 2021

Table 4: Summary of Market System Releases within SEMO October 2020 Submission

More information on this project has been published by SEMO in their recent Market System Development Plan (MSDP) 2019 – 2021 consultation<sup>7</sup>.

### SEMO Estimated Capital Expenditure

The SEMO total estimated capex associated with this project relates to professional fees/consultancy support and internal resources. The profiling by tariff year is provided in the table below:

	2018/19	2019/20	2020/21	Total
	Tariff Year	Tariff Year	Tariff Year	
	€m	€m	€m	€m
Market System Release Capital	0.135	2.065	6.400	8.600

Table 5: Summary Project Costs within SEMO October 2020 Submission

SEMO has acknowledged cost profiling across the years and clarified that in 2018/19 and 2019/20 costs do not reflect the true underlying effort employed in those periods due to the number of defect fixes which were remedied under warranty. Moving from 2019/20 into 2020/21, the efforts increasingly relate to change requests which are chargeable, which is reflected in the increased cost each year.

<sup>7</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>

## RAs' View

The Market System Release project is currently underway. These releases are necessary to update market systems to implement change requests, SEM Committee decisions and Trading and Settlement Code modifications and therefore have limited impact on opex savings.

Now that the balancing market is much more stable since SEM Go-Live, the RAs recognise the move by SEMO to reduce the number of releases to two releases per year since Release E in April 2020.

The RAs note variances in incurred/ forecasted costs in each of the three respective years when comparing SEMO's October 2020 capex submission with the SEMO tariff submission which the RAs received in May 2020. This shows significant reductions in years 2018/19 (65%) and 2019/20 (43%) but a significant increase for year 2020/21 (54%). Overall, total costs have increased by €0.415m to €8.6m.

For year 2020/21 SEMO has estimated the number of vendor hours for Release G in June 2021 and Release H (scheduled to be deployed between October – December 2021). Release H has been estimated by SEMO as requiring 80% more vendor hours than Release G. Based on the information provided by SEMO, Release G has been partially scoped and Release H has yet to be scoped. The information provided by SEMO for these releases is shown in the table below:

Release	Number of Defects	Change Requests	Date of Deployment
G	TBA	CR-158 Repricing and relationship with instruction profiling CR-129 Correction of QUNDELTOOL calculations CR-072 Clarification on Intraday Quantity and Payment CR-119 Change Day ahead Difference Quantity to Day Ahead Trade Quantity CR-081 Amendments of conditions in which the Backup price is used CR-126 Configuration of Variable Market Operator Price CR-088 Changes to configuration of FX rate CR-079 Registered Capacity Report Amendments	Schedule June 2021
H	TBA		Q4 2021

Table 6: Detail of Release Scoping for 2021 Market System Releases within SEMO October 2020 Capex Submission

The RAs have considered the number of vendor hours budgeted for each release within the legacy SEM (when in a steady state) and can see a 67% increase in the number of vendor hours required for Release G and a 200% increase in the number of vendor hours required for Release H.

While the RAs acknowledge the revised SEM arrangements are somewhat more complex than the legacy SEM, an increase of 133% in vendor hours per year (when compared to the legacy SEM budgeted vendor hours) is considered excessive.

Given the move to bi-annual releases, the RAs' expectation is that annual Market Release Capital costs would also reflect the costs associated with two releases. The RAs are concerned that the Market System Release Costs associated with Release H are proposed as being capitalised, recovered by SEMO and added to SEMO's RAB in the 2020/21 tariff year. However, Release H will not be implemented into systems until Quarter 4 of the 2021 calendar year i.e. within the 2021/22 tariff year.

Now that bi-annual releases are in place the RAs' expectation is that the 2020/21 tariff year would correlate to the costs associated with two releases i.e. Release F (deployed in November 2020) and Release G (expected to be deployed in June 2021) only. The RAs have reduced the allowance to reflect that capital costs associated with Release H should fall within the 2021/22 tariff year.

The RAs will 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. For example, the RAs expect costs associated with releases A to C be captured in 2018/19, Releases D and E in 2019/20 and Releases F and G in 2020/21. Should there be any changes to the profiling of the release and release support costs due purely to timing for the allowances, this will be clearly explained in the SEM Committee's decision paper.

Throughout SEMO's October 2020 Capex submission, numerous references are made to defects and their resolution since SEM Go-Live in October 2018. Defects have been defined as known issues and, within the submission, SEMO states that they will be resolved by the vendor at no extra cost to SEMO. However, within the project section of the submission it states that an additional €0.5m has been included in 2020/21 for defect resolution where defects are out of their warranty period<sup>8</sup>. The RAs are concerned that, given the extensive resources being sought within the Market System Release Capital project the Release Support Capital project and the emphasis and resources provided to date for testing releases, some defects have not been resolved efficiently within the warranty period and additional monies are being sought.

Given the above concerns regarding the recent fluctuations in costs and the inclusion of Release H costs within the 2020/21 tariff year (even though Release H isn't due to be deployed until during the 2021/22 tariff year) and the additional monies sought for defects outside of their warranty period, the RAs propose to reduce the submitted request for the tariff year 2020/21 to reflect the information provided in SEMO's tariff submission received in May 2020. The RAs view the tariff submission figure of €4.16m as being a more reasonable allowance for the year 2020/21.

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<sup>8</sup> In responses to RAs questions received 13 November 2020 an estimated amount of €800,000 per annum was given as relating to defects outside of warranty.

Therefore, the RAs' proposed allowances are as follows:

Market System Release Capital	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	0.135	2.065	6.400	8.600
RAs Proposal	0.135	2.065	4.164	6.364

Table 7: Summary Project Costs within SEMO October 2020 Submission and RAs Proposal

### Question 1:

Do respondents have any views on:

- this Market System Release Capital project in general,
- SEMO's proposal for a 133% annual increase in vendor hours per year in comparison to the legacy SEM,
- the RAs' proposed allowances, particularly for tariff year 2020/21.

## 2.2 Project: Release Support Capital

### Overview based on SEMO October 2020 Capex Submission

The Release Support Capital project provides resources to support, oversee and govern the use of the vendor hours detailed in Market System Release Capital project and to carry out testing activities during the execution phase for releases.

In SEMO's October 2020 capex submission it considers the underlying resource provision in the SEMO Price Control Decision for the current SEM operation was premised and benchmarked against an assumed stable SEM market operation; it was not designed to provide for the volume and scale of change necessary to stabilise and further enhance the market following Go-Live. Noting that the market went live with numerous open defects and consequential workarounds in situ, this project seeks to rectify this shortfall and, thus, deliver consistent high quality market change.

This project relates to the following system releases:

Release	Number of Defects	Date of Deployment
D	56	Oct 2019 & Dec 2019
E	64	Apr-20
F	94	Nov-20
G	TBA	Scheduled June 2021
H	TBA	Scheduled Q4 2021

Table 8: Summary of Market System Releases within SEMO October 2020 Capex Submission

More information on this project has been published by SEMO in their recent Market System Development Plan (MSDP) 2019 – 2021 consultation<sup>9</sup>.

### SEMO Estimated Capital Expenditure

The SEMO total estimated capex associated with this project relates to professional fees/consultancy and internal resources. The profiling by tariff year is provided in the table below:

	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
Release Support Capital	1.369	2.103	1.262	4.734

Table 9: Summary Project Costs within SEMO October 2020 Capex Submission

### RAs' View

The RAs consider the estimated project cost of €4.7m significant; this project is in addition to the Market System Release Project estimated at €8.6m and represents over 50% of the Market System Release project across the three year period under review. The Release Support project is currently underway and will continue to September 2021 (ie. within the period under review in this consultation).

The RAs note that SEMO's described benefits of the project include the development of a comprehensive test programme and the addition of a second market environment (MMS/CSB P2) deployed in 2019<sup>10</sup> which should lead to higher quality releases in future. SEMO considers this project necessary to stabilise its systems in order to improve the efficiency of market operations and the amount of time and resources spent on defect resolution and query management.

The need for Release Support costs is recognised by the RAs however there is a concern regarding the magnitude of the costs which are in addition to the Market System Release project, particularly given the high level justification provided in the submission. The RAs propose to allow the amounts requested for years 2018/19 and 2019/20 in recognition of the effort involved in stabilising the market during that two year period. Year 2020/21 represents the third year since SEM Go Live; the RAs therefore expect there to be greater efficiency associated with supporting the bi-annual releases. The RAs are also of the view that capex associated with Release Support should align with the proposals for Market Systems Release capex. Now that bi-annual releases are in place, the expectation of the RAs is that the 2020/21 tariff year would correlate to two releases i.e Release F (deployed in November 2020) and Release G (expected to be deployed in June 2021) only and that Release H would be accounted for in the next tariff year.

The RAs have therefore proposed a reduction to the amount being sought for Release Support costs in 2020/21 consistent with the reduction applied to Market System Release

<sup>9</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>

<sup>10</sup> Additional Market Environment Project (August 2019 submission)



Capital project in the year 2020/21; the RAs are of the view that this is more representative of a reasonable and proportionate cost estimate. The RAs' proposed allowances are shown in the table below:

Release Support Capital	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	1.369	2.103	1.262	4.734
RAs' Proposal	1.369	2.103	0.821	4.293

Table 10: Summary Project Costs within SEMO 2020 Capex Submission and RAs Proposal

As indicated above in the Market System Release project, the RAs will 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. For example, the RAs expect costs associated with Releases A to C be captured in 2018/19, Releases D and E in 2019/20 and Releases F and G in 2020/21. Should there be any changes to the profiling of the release and release support costs due purely to timing for the allowances, this will be clearly explained in the decision paper.

## Question 2

Do respondents have any views on:

- a) this Release Support Capital project in general,
- b) the RAs' proposed allowances, particularly for year 2020/21.

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## 2.3 Project: Settlement Support and Resettlement

### Overview based on SEMO October 2020 Capex Submission

The Settlement Support and Resettlement project has ended and it addressed a number of settlement issues including:

- M+4 (four months after actual settlement period) delays with €2m of monthly underpayments to Market Participants;
- Large number of manual workarounds;
- Performance Issues;
- Settlement document breaches;
- Data not flowing to the next operational process;
- Ad hoc resettlement not functioning; and
- Issues during the build of repricing and resettlement processes.

SEMO's submission indicates that it was forced to carry out a large number of manual workarounds as temporary measures in order to settle the market. These were caused by defects in the system which did not enable the full resettlement of the SEM. The capability to deliver M+4, M+13 and ad hoc resettlement was severely curtailed. Additional resources were therefore required including resources with subject matter expertise to analyse and resettle a large number of participants.

SEMO also indicates that there were a significant volume of disputes and formal queries following SEM Go-Live in October 2018 which required additional resources to investigate, analyse and resolve. Furthermore, approximately 1,400 of the total general queries received were specifically added to the workload of an already stretched settlement team.

Workarounds were also required to process settlement statements due to known defects and issues with the system. This required additional external resource to support and train internal staff.

All of the above system workarounds and manual interventions were labour intensive. Project resources were needed to help automate these processes, which led to efficiencies and further stability in the longer term.

More information on this project has been published by SEMO in their recent Market System Development Plan (MSDP) 2019 – 2021 consultation<sup>11</sup>.

#### SEMO Estimated Capital Expenditure

The SEMO total capex associated with this project relates to professional fees/consultancy and internal resources. The profiling by tariff year is provided in the table below:

	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
Settlement Support and Resettlement	0.346	0.267	0.000	0.614

Table 11: Summary Project Costs within SEMO October 2020 Capex Submission

#### RAs' View

The RAs note that this project is now complete.

Due to issues and defects within the system developed there were considerable difficulties with settlement and resettlement which required significant extra resources to carry out the various complex manual workarounds, and to deal with the vast amount of settlement general and formal queries as well as disputes. In the RAs' view, the benefits of these extra resources at that time will have been utilised within year as a temporary measure to address the immediate settlement difficulties.

The RAs contend that the longer term benefits of this project will be received from the resolution of the settlement and re-settlement defects and issues within the Market System Release Capital project. The RAs requested that SEMO include future benefits of each

<sup>11</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>

project in its October 2020 capex submission and also indicate the number of years this benefit is expected to be experienced. This information was not provided in respect of this project; this has reinforced the RAs' opinion that this project is akin to an operational expense rather than capex.

In recognition of this 'one-off' project directly related to dealing with the settlement and resettlement difficulties experienced after SEM Go Live, the RAs propose to allow these costs to be recovered as opex rather than as capex. This means that SEMO would be able to recover the costs incurred in one tariff year rather than the costs being depreciated over a five year period and attracting a return<sup>12</sup>. Treating the project in this way avoids a situation where it attracts a return where no future benefit associated with this specific project has been identified or provided. Instead the future benefits of correcting settlement/resettlement defects and issues within the system will be derived from the capex associated with the market release project which will be treated as capex and attract a return.

The RAs note that within the Release Support Capital project, SEMO clarified in a footnote that the project did not include any settlement defects or change requests - these were included in the Settlement Support and Resettlement Project. Having considered this, the RAs retain the opinion that this project in full should be considered as opex for the reasons outlined above. There may be opex elements within other projects for which the RAs have not had sufficient information to make an adjustment and therefore consider the approach for this project as appropriate when considering the full suite of 11 projects covered in this consultation.

Given the above, the table below outlines the RAs' proposed capital allowance of zero while proposing the costs incurred of €0.614m are instead allowed for as opex:

Settlement Support and Resettlement	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	0.346	0.267	0.000	0.614
RAs' Proposal*	0.000	0.000	0.000	0.000

\* This expenditure will be treated as opex instead of capex and applied in full within the 2021/22 SEMO tariffs.

Table 12: Summary Project Costs within SEMO October 2020 Capex Submission and RAs Proposal

### Question 3

Do respondents have any views on:

- a) this Settlement Support and Resettlement project in general,
- b) the RAs' proposed allowance and treatment of €0.614m as opex rather than capex.

<sup>12</sup> SEMO Weighted Average Cost of Capital (WACC) for tariff year 2020/21 is 5.18%

## 2.4 Project: Market System Data Archiving

### Overview based on SEMO October 2020 Capex Submission

SEMO continue to have an obligation under the Trading and Settlement Code Agreed Procedure 5 (Data Storage and IT Security) to maintain the integrity and availability of information including for purposes of disaster recovery. Furthermore, the Agreed Procedure also requires SEMO to store market data for not less than six years.

The scale of data within the new SEM arrangements has led to massive volumes of data being created on a daily basis. To support the data archiving obligations, SEMO requires investment in the underlying infrastructure in both Dublin and Belfast for the delivery of a data archiving solution.

More information on this project has been published by SEMO in their recent Market System Development Plan (MSDP) 2019 – 2021 consultation<sup>13</sup>.

### SEMO Estimated Capital Expenditure

The SEMO total estimated capex associated with this project relates to professional fees/consultancy, internal resources, hardware and software. The profiling by tariff year is provided in the table below:

	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
Market System Data Archiving	0	0	1.128	1.128

Table 13: Summary Project Costs within SEMO October 2020 Capex Submission

### RAs' View

This project is currently in the scoping phase (which follows project initiation in 2019) with a view to being completed in November 2021. Benefits are expected for the duration of the market (5 years +).

Based on the October capex submission, the RAs consider this project to be closely related to the dynamic reporting facility associated with the Website Development project and also the Market Analysis Tools project. As part of this project SEMO points out the burden on the front office in relation to queries from interested parties including regulators, participants and market research companies relating to requests for data. This aspect will be alleviated once the dynamic reporting facility is available via the Website Development Project. SEMO also recognises that this project will assist with market analysis.

The October capex submission advises that at present data is stored predominantly online with very limited archiving capability, and, as a direct result SEMO is experiencing storage space problems as the data builds on a daily basis. Given the significant amount of

<sup>13</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>

pressure on the current architecture, and the resulting performance degradation across the SEM central systems the RAs are concerned that the daily increase in storage related issues is not reflected in the progress of the project.

The RAs understand that this project was previously profiled over a two year period from 2019 – 2021 but is now condensed into year 2020/21. Furthermore, SEMO has indicated the Market Analysis Tools project is dependent on this Data Archiving project being advanced prior to the Market Analysis Tools delivery. The RAs are therefore mindful of providing an allowance for what is a reasonable expectation for 2020/21 rather than an overly ambitious project list. Hence in the section relating to the Market Analysis Tools project we consider the need to defer that project to allow this Data Archiving project to advance and complete in 2021.

Operational savings may be experienced with the greater ease of accessing archived data, for example, alleviating the significant overhead of a very resource-intensive process in retrieving data from backups. 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. This quantitative information was not provided.

The RAs consider this an important project and propose allowing the amount requested by SEMO on the basis this project is prioritised for completion in 2021. The table below outlines the RAs proposed allowance:

Market System Data Archiving	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	0	0	1.128	1.128
RAs' Proposal	0	0	1.128	1.128

Table 14: Summary Project Costs within SEMO October 2020 Capex Submission and RAs Proposal

#### Question 4

Do respondents have any views on:

- a) this Market System Data Archiving project in general,
- b) the RAs' proposed allowance of €1.128m to SEMO,
- c) the RAs' request that this project be prioritised for completion in 2021.

## 2.5 Project: Additional Market Environments

### Overview based on SEMO October 2020 Capex Submission

In SEMO's view there are insufficient market environments to carry out all the activities required of SEMO. Additional environments are required for emergency software/application patches, fixes to defects, training, regression testing etc.

SEMO currently maintains nine MMS/CSB environments, including the production environment. The other eight environments facilitate testing activities as well as providing a progressive release management process.

Additional Market Environments are required to:

- Support and maintain each environment;
- Provide a pre-production environment for purposes of testing infrastructure upgrades and to provide downtime reduction in release management process;
- Provide a second production environment to test non-functional defects and to avoid a downtime in the availability of the market systems when implementing release and changes to the existing production environment.

More information on this project has been published by SEMO in their recent Market System Development Plan (MSDP) 2019 – 2021 consultation<sup>14</sup>.

### SEMO Estimated Capital Expenditure

The SEMO total estimated capex associated with this project relates to professional fees/consultancy, hardware, software, internal resources and the first year maintenance costs. The profiling by tariff year is provided in the table below:

	2018/19	2019/20	2020/21	Total
	Tariff Year	Tariff Year	Tariff Year	
Additional Market Environments	0	0.005	0.138	0.143

Table 15: Summary Project Costs within SEMO October 2020 Capex Submission

### RAs' View

This project is currently in the planning phase, having gone through the initiation and scoping phases. It is expected to be completed in April 2021 with benefits experienced for the lifetime of the market (5 years +). This project is heavily focused on various testing activities including those associated with change requests and defect fixes as part of the market system release testing.

<sup>14</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>

The first year’s annual maintenance cost is included in this project. The RAs expect that annual maintenance for future years will be treated as an operational expense (opex).

Given the MMS P2 environment is already deployed<sup>15</sup> and this project is so closely related to the testing associated with change requests and defect fixes which make up the market system releases, the RAs contend that there is sufficient scope within the Release Support Capital project to cover the areas outlined. The RAs do not propose allowing any costs for the 2018 – 2021 period under review in this consultation; SEMO can submit a business case in its 2021 – 2024 price control capex submission. The RAs’ proposed allowance is shown in the table below.

Additional Market Environments	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	0	0.005	0.138	0.143
RAs’ Proposal	0	0.000	0.000	0.000

Table 16: Summary Project Costs within SEMO October 2020 Capex Submission and RAs Proposal

### Question 5

Do respondents have any views on:

- a) this Additional Market Environment project in general,
- b) the RAs’ proposal to not include an allowance at this stage.

## 2.6 Project: Market Management System (MMS) Performance Enhancements

### Overview based on SEMO October 2020 Capex Submission

The MMS is the central system for managing and administrating the balancing market. Its main component Counterparty, Settlement and Billing (CSB) is the system responsible for the settlement of the balancing market and capacity market. As the MMS/CSB system is a key component of the overall system landscape of the SEM markets, it is critical that they continue to perform at a high level. There are many factors which impact the performance of the MMS/CSB system including infrastructure, design, data and storage. There are multiple applications within the MMS which providing different functionality including registration, scheduling and dispatch, instruction profiling and imbalance price calculation and reporting.

The business case proposes some performance enhancements to the MMS, such as:

- a back-up system to provide fail over;
- improved MMS performance to improve control centre functions e.g. Real Time Dispatch (RTD) and updating constraints;

<sup>15</sup> As referenced in the August 2019 submission

- a process to reduce Dispatch Balancing Costs when MMS is on outage;
- improvements to reduce late publication of settlement documents;
- separating MMS/CSB databases with dedicated server resources, data partitioning and archiving;
- reducing time-lags between initialising of RTD for a schedule and the sending of Dispatch Instructions.

More information on this project has been published by SEMO in their recent Market System Development Plan (MSDP) 2019 – 2021 consultation<sup>16</sup>.

### SEMO Estimated Capital Expenditure

The SEMO total estimated capex associated with this project relates to professional fees/consultancy, hardware, software, internal resources and the first year annual maintenance. The profiling by tariff year is provided in the table below:

	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
MMS Performance Enhancements	0	0.267	0.303	0.570

Table 17: Summary Project Costs within SEMO October 2020 Capex Submission

### RAs' View

The RAs note this project is currently in the final execution phase, due to be completed in February 2021 with benefits likely to be experienced for five or more years or until there is a major market re-design.

The RAs also note the benefits expected both in terms of failover and system performance. However, in the RAs' opinion 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.

Furthermore, the Capex submission received in October 2020 refers to the need for a process to avoid generators being settled on their simple commercial offer data at times when the back-up price is being used. In February 2020 the RAs approved Mod\_19\_19 'Determining the use of Complex Commercial Data in Settlement when required information is not available' which was recently implemented into systems via the market system bi-annual Release F. Therefore the RAs assume the cost for this enhancement will be captured under market system releases rather than this project.

In addition, the first year's annual maintenance cost is included in this project. The RAs expect that annual maintenance for future years will be treated as an operational expense (opex).

The RAs note that SEMO considers it hard to estimate opex savings associated with this project, but also noted that the outputs would significantly assist in achieving a 'business as

<sup>16</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>



usual' operational norm with the reduced need for out-of-hours processing of settlement reports and other key documentation.

The five key areas of concern have changed between SEMO's August 2019 capex submission and the October 2020 capex submission to the RAs. These are summarised in the table below.

August 2019 Submission	October 2020 Submission
No MMS redundancy - single point of failure	No MMS redundancy - single point of failure
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
MMS Data Storage	N/A
Bumpless MMS/EDIL/ICMP Outages/Software Upgrades/Patches	Extended MMS/EDIL/ICMP Outages/Software Upgrades/Patches Releases
Reduced Time Lags for RTD	Reduced Time Lags for RTD
N/A	System Performance Impacts on Settlement

Table 18: Comparison of Issues raised in the SEMO Submissions relating to justification for this Project

A key issue relating to MMS data storage has been removed from this project and replaced with system performance improvements to improve the timing of settlement runs and publication of settlement documents.

Given the above, the RAs have estimated a reduced allowance for the tariff year 2020/21. Of the five key areas of concern associated with this project we have reduced the allowance for professional fees and internal resources by three fifths as an estimated adjustment for those areas which are the responsibility of the TSOs rather than SEMO. The reduction also reflects that a Trading and Settlement Code modification process has been put in place to reduce Dispatch Balancing Costs when the MMS is on outage. The RAs' proposed allowance is shown in the table below:

MMS Performance Enhancements	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	0	0.267	0.303	0.570
RAs' Proposal	0	0.267	0.259	0.526

Table 19: Summary Project Costs within SEMO October 2020 Capex Submission and RAs Proposal

## Question 6

Do respondents have any views on:

- this Market Management System Performance Enhancement project in general,
- the proposed enhancements and which should be prioritised,
- the SEMO estimated project costs of €0.570m,
- the RAs' proposed reduction to €0.526m.

## 2.7 Project: Market Analysis Tools

### Overview based on SEMO October 2020 Capex Submission

SEMO considers a wide range of market analysis tools for monitoring the performance and quality of its operations. Sufficient analytical capability is necessary to support real-time monitoring, market analysis for complex market queries, specific market concerns and trends. This may also include market performance reporting under the Trading and Settlement Code and an annual audit of its operations.

Additionally, the development of an analytical approach to develop useful analytical reports in a timely manner is included. This would be an alternative to the current process by which new reports or modifications to existing reports are carried out by 'Change Requests' within the bi-annual release. These can often have a 9 – 12 month lead time before a report is developed or changed.

This Market Analysis Tools project will help to address the exponential increase in data being used across the markets. Ultimately, the outputs of the tools will be made available to key external stakeholders including market participants, regulators and others.

There is a dependency on the Market System Data Archiving project being advanced before this project can be delivered.

More information on this project has been published by SEMO in their recent Market System Development Plan (MSDP) 2019 – 2021 consultation<sup>17</sup>.

### SEMO Estimated Capital Expenditure

The SEMO estimated capex associated with this project totals €0.250m which takes the project through the design phase by September 2021. SEMO has stated that the development and roll-out phases will be additional costs beyond tariff year 2020/21, and suggests that 'significant investment is required'. The profiling by tariff year is provided in the table below:

	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
Market Analysis Tools	0	0	0.250	0.250

Table 20: Summary Project Costs within SEMO October 2020 Capex Submission

### RAs' View

The RAs note the dependency of this project on the need for the Market System Data Archiving project being advanced before this project can be delivered. The Data Archiving project is currently scheduled for 2020/21 which is also the same year for the design phase for this Market Analysis Tools project. This Market Analysis Tools project is currently in the

<sup>17</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>

Initiation phase which completed in August 2019 with the scoping phase due for completion April 2021 and execution of design phase only in September 2021. While the business case seems to touch on a wide range of individual analytical tools the RAs have a preference for a more focused set of market analysis tools. Given the current delays between the initiation phase and the scoping phase, and the interdependence on the Data Archiving project, the RAs are reluctant to include this project in the 2020/21 tariff year. Deferring this project would allow for resources to be concentrated on bringing the Market System Data Archiving project to completion first and allows for a more focused set of market analysis tools to be designed and developed during 2021/22.

The RAs are also concerned that, without sight of the development and roll-out costs of this project with a design phase estimate of €0.250, future costs could be significant across multiple years until full project completion.

The RAs note that these market analysis tools will improve efficiencies with, for example, pricing and settlement query analysis being carried out in a more timely manner and the removal of lengthy manual analytical processes (e.g. market data interrogation) currently being used.

Given the above, the RAs recommend the deferral of the design phase of this project until the data archiving infrastructure is in place. The fuller project could then be captured within the 2021 – 2024 price control consultation and decision process. Therefore, the RAs' proposed allowance is shown in the table below.

Market Analysis Tools	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	0	0	0.250	0.250
RAs' Proposal	0	0	0.000	0.000

Table 21: Summary Project Costs within SEMO October 2020 Capex Submission and RAs Proposal

### Question 7

Do respondents have any views on:

- a) this market analysis tools project in general,
- b) particular analytical tools which should be prioritised,
- c) the estimated amount of €0.250m for the design phase only, and
- d) the RAs' proposal for the design phase of this project to be deferred by one year given the dependency on the Data Archiving project.

## 2.8 Project: Compliance Management

### Overview based on SEMO October 2020 Capex Submission

SEMO hold the view that the development of a compliance system is required to track the level of compliance with the various market codes and licenses. SEMO expects that this will make audits more efficient and allow it to proactively highlight any concerns regarding adherence to the codes and demonstrate where remedial or long term actions are being taken to resolve the non-compliances. At present there is no automated system; instead, a manual approach is currently used. The compliance project involves development of an IT tool to act as a single repository for all legislative, license and code obligations.

More information on this project has been published by SEMO in their recent Market System Development Plan (MSDP) 2019 – 2021 consultation<sup>18</sup>.

### SEMO Estimated Capital Expenditure

The SEMO total estimated capex associated with this project relates to professional fees/consultancy, hardware and software. The profiling by tariff year is provided in the table below:

	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
Compliance Management	0	0	0.140	0.140

Table 22: Summary Project Costs within SEMO October 2020 Capex Submission

### RAs' View

This project is currently in the initiation phase (which was completed August 2019 according to SEMO's submission) with a view to being completed in May 2021. The RAs note that this project relates to the Capacity Market Code (and Agreed Procedures) obligations which are the responsibility under licence of the Transmission System Operators.

As indicated in SEMO's August 2019 submission to the RAs, Compliance Management could be considered a group wide function across the System Operators, SEMOpX, SEMO and also include e.g. interconnector licences, meter data codes and corporate compliance (Financial, Human Resources). If this is the case, it is important for the RAs to be aware of the total cost for this project in order that they can assess that the €0.140m being sought by SEMO is both reasonable and proportionate. In addition, information available to the RAs notes that compliance related costs are allocated to the TSO businesses of the EirGrid Group.

<sup>18</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>

The RAs note that, if implemented, SEMO state this will make audits more efficient and will reduce the large overhead in providing any evidence of compliance. The RAs requested details of expected operational savings which could be reflected in the upcoming SEMO price control consultation for 2021 – 2024. However this quantitative information was not provided.

The RAs requested that SEMO provide justification as to why it considers this project essential for the 2019 – 2021 period and, if necessary, why such compliance-related costs should be allocated to SEMO. The RAs remain unconvinced that this project is essential for the period under consultation.

Subject to further clarifications the RAs propose to defer an allowance for this project. While the RAs are not proposing an allowance for the 2018 – 2021 period under review in this consultation, SEMO can submit a business case in its 2021 – 2024 price control capex submission. The RAs’ proposed allowance is shown in the table below.

Compliance Management	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	0	0	0.140	0.140
RAs’ Proposal	0	0	0	0

Table 23: Summary Project Costs within SEMO October 2020 Capex Submission and RAs Proposal

### Question 8

Do respondents have any views on:

- a) this Compliance Management project in general,
- b) the RAs’ proposal to defer an allowance for possible consideration as part of the 2021 – 2024 price control.

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## 2.9 Project: Website Development

### Overview based on SEMO October 2020 Capex Submission

SEMO went live with a new website in 2018; this is an important source of information for a wide range of stakeholders. The website needs to be enhanced so as to meet the data and reporting needs of participants. SEMO also need to enhance its communication ability through regular website publications, stakeholder market updates and through the provision of Dynamic Reporting capability. The SEMO website is the only public facing access point for market data (only participants have access to the Market Participant Interface).

SEMO's proposed solution and deliverables, provided in its October 2020 capex submission, are listed below:

1. Improved price and volume results,
2. Dynamic reporting to allow participants to query and retrieve market results for each unit in a readily accessible and useable format,
3. Market Status Indicators – providing real time status of IDAs and IDC consistent with other markets,
4. Ensure that the data sources are delivering the data reports in a high quality timely manner,
5. Publication of REMIT and other relevant market data, and improve data retention,
6. Publication of Remaining Interconnector capacities after each auction to provide further transparency ahead of subsequent auctions,
7. Provide a bulk data download capability for all market stakeholders,
8. Conduct a usability review of the website and restructure how the information is displayed on the site. Improve page structures and page layout, including dashboards and better screen layouts,
9. Provide suitable web publishing environments to test the content and changes being uploaded,
10. Develop new reports to meet the needs of participants,
11. Restructure the underlying data repository to fulfil the reporting needs of Participants, This will require a project to define the needs and create the required databases, and supporting infrastructure.

The provision of dynamic query and reporting capability will significantly improve the market participants' experience of engagement with SEMO.

More information on this project has been published by SEMO in their recent Market System Development Plan (MSDP) 2019 – 2021 consultation<sup>19</sup>.

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<sup>19</sup> <https://www.sem-o.com/documents/general-publications/MSDP-2019-2021-Published-for-Consultation.pdf>

## SEMO Estimated Capital Expenditure

The SEMO total estimated capex associated with this project relates to professional fees/consultancy, software and internal resources. The profiling by tariff year is provided in the table below:

	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
Website Development	0	0	0.230	0.230

Table 24: Summary Project Costs within SEMO October 2020 Capex Submission

## RAs' View

SEMO indicates that this project is currently in the initiation phase, which completed in August 2019. The October 2020 capex submission indicates that the project is due to commence the scoping phase in December 2020, with final completion August 2021. The RAs note that SEMO expects the benefits from this website to last at least 3 years or until the next major market refresh.

As indicated in SEMO's August 2019 submission to the RAs, the website development project was expected to cater for reporting categories under different licenses and hence different revenue streams and suggested a single website should support all I-SEM services. While recognising that revenue would be required from three revenue streams to support the ongoing development of the website, the amount being sought by SEMO relates specifically to the Market Operator. This project could therefore be considered a group wide function across the System Operators, SEMO and SEMOpX. If this is the case it would be important for the RAs to be aware of the total cost of this project in order to assess that the €0.230m being sought is both reasonable and proportionate.

The RAs note that, if implemented by SEMO, the burden on internal operational resources (e.g. currently fulfilling data extraction requests) would be significantly reduced, potentially giving rise to operational savings. The RAs requested details of expected future operational savings for such an enhanced website. However, this quantitative information was not provided.

The RAs consider this to be an important project and are unclear why there has been such a delay between the initiation phase being completed in August 2019 and the next phase, with scoping only 'about to commence'. In the RAs' view it is important that this project is completed by September 2021 in the timescales set out in SEMO's October 2020 capex submission.

Subject to clarifications being received from SEMO in their response to this consultation the RAs propose to allow the amount requested as shown below.

Website Development	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	0	0	0.230	0.230
RAs' Proposal	0	0	0.230	0.230

Table 25: Summary Project Costs within SEMO October 2020 Capex Submission and RAs Proposal

### Question 9

Do respondents have any views on:

- a) this Website Development project in general,
- b) the provision of €0.230m to SEMO for an enhanced website which includes dynamic reporting by September 2021?

## 2.10 I-SEM Project: Post Production Support

### Overview based on SEMO October 2020 Capex Submission

I-SEM Post Production Support (PPS) activities were required to stabilise the complex and interdependent market systems and business processes that support the SEM.

The focus during post production support was to manage participant queries and system incidents; and fix, test and deploy high priority defects. The key activities of this team included:

- providing heightened support across the market applications to ensure stabilisation;
- increased market participant engagement through:
  - the provision of a daily conference bridge (9:30-10:00) for industry stakeholders to provide increased levels of transparency to market participants while in the stabilisation phase, while also to centrally manage questions, queries and issues in a controlled fashion;
  - increased support for the above normal query submission and associated analysis and resolution;
  - acting as a central triage team for coordination and management of all issues across internal and external stakeholders;
- assisting in service management and post incident analysis;
- increased vendor engagement (including on site) for rapid turnaround of issues;



- heightened functional expertise from the resources involved through the design and implementation phase to assist in the resolution of issues from analysis through to test;
- providing expert solution guidance on major market issues;
- providing additional out of hours support for participants through the Limited Communications Failure (LCF) function;
- providing additional support to individual business areas:
  - operational improvements;
  - creation of additional supplementary processes and procedures;
  - manual workarounds and checks; and
  - assisting in analysis and trends.

### Outturn Capital Expenditure

The total incurred capex associated with this project relates to professional fees associated with a number of external vendors. This project relates to the period October 2018 to April 2019 with total outturn costs shown in the table below:

	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
I-SEM Post Production Support	2.041	0	0	2.041

Table 26: Summary Project Costs within SEMO October 2020 Capex Submission

### RAs' View

The RAs are aware that industry stakeholders may have had limited knowledge of these additional I-SEM related costs and have therefore provided more background information.

This project was originally driven by the TSOs and SEMO as part of the I-SEM project. A separate cost recovery framework (outlined in an Agreed Approach Document, as agreed by the RAs, EirGrid and SONI) was in place for I-SEM implementation costs but PPS costs extended to April 2019, seven months after SEM Go-Live and as such could not be recovered through the same framework. The TSOs engaged with the RAs in late 2018 and during 2019 regarding these costs and the RAs confirmed to the TSOs in May 2019 that the recovery mechanism for these I-SEM Post-Production Support costs would be via the SEMO price control, and be subject to a final outturn review on the same basis as other SEMO capex under the process outlined in SEM-18-003.

In December 2018 the TSOs indicated an estimated cost of €2.32m for PPS costs for the period October 2018 to April 2019 to the RAs; the RAs requested further information which was received in February 2019. Outturn costs are €2.04m and are (together with the I-SEM Day 1+ project in the next section) additional to the I-SEM total implementation costs<sup>20</sup>

<sup>20</sup> SEM Committee 2019 Annual Report

<https://www.semcommittee.com/sites/semc/files/media-files/SEM-19-071%20SEM%20annual%20report%20-%20October%202018%20-%20September%202019.pdf>

currently being recovered by EirGrid and SONI (75:25 split) via their respective TSO Regulatory Asset Bases (RABs).

PPS costs are 'one-off' I-SEM projects costs which the TSOs and RAs engaged on. Outturn costs are within the forecast provided therefore the RAs propose to allow recovery of these costs in full. The RAs' proposed allowance is shown in the table below:

I-SEM Project: Post Production Support	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	2.041	0	0	2.041
RAs Proposal	2.041	0	0	2.041

Table 27: Summary Project Costs within SEMO October 2020 Capex Submission and RAs Proposal

#### Question 10:

Do respondents have any views on:

- a) this I-SEM Post Production Support project in general,
- b) the RAs' proposed allowance for recovery of the full amount requested.

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## 2.11 I-SEM Project: Day 1+

### Overview based on SEMO October 2020 Capex Submission

The I-SEM Day 1+ project was to address a number of outstanding actions. The scope of the Day 1+ project included work on:

- Priority defects
- Priority system augmentations
- Critical modifications
- Certification of the Balancing Market and Capacity Market algorithms.

Two major releases were delivered in association with this project, the first in January 2019 (52 priority defects) and the second in March 2019 (42 priority defects). In addition, approximately 30 hot fixes were delivered under the Day 1+ project.

## Outturn Capital Expenditure

The total incurred capex associated with this project relates to professional fees, internal resources and facilities costs. This project relates to the period October 2018 to April 2019 with total outturn costs shown in the table below:

	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
I-SEM Project: Day 1+	2.371	0	0	2.371

Table 28: Summary Project Costs within SEMO October 2020 Capex Submission

## RAs' View

A similar approach has been taken to the I-SEM Day 1+ project as was outlined above for the I-SEM Post Production Support project; the RAs recognise that stakeholders may have had limited insight into these additional I-SEM related costs.

This project was originally driven by the TSOs and SEMO as part of the I-SEM project, however as it extended to April 2019, seven months after Go-Live, the I-SEM cost recovery framework had ended. The TSOs engaged with the RAs in late 2018 and during 2019 regarding these costs. The RAs confirmed to the TSOs in May 2019 that the recovery mechanism for the I-SEM Day 1+ project would, similarly to the I-SEM Post Production Support project, be via the SEMO price control, and be subject to a final outturn review on the same basis as other SEMO capex.

In December 2018 the TSOs indicated to the RAs an estimated cost of €2.35m for the period October 2018 to April 2019 for which the RAs requested further information; this was received in February 2019. Outturn costs are €2.37m and are, together with the I-SEM Post Production Support project in the previous section, additional to the I-SEM total implementation costs currently being recovered by EirGrid and SONI (75:25 split) via their respective TSO Regulatory Asset Bases (RABs).

These are 'one-off' I-SEM projects costs which the TSOs and RAs engaged on. Outturn costs are broadly in line with the forecasted costs provided. Therefore the RAs propose to allow recovery of these costs in full. The RAs' proposed one-off cost allowance is shown in the table below:

I-SEM Project: Day 1+	2018/19	2019/20	2020/21	
	Tariff Year	Tariff Year	Tariff Year	Total
	€m	€m	€m	€m
SEMO Submission	2.371	0	0	2.371
RAs Proposal	2.371	0	0	2.371

Table 29: Summary Project Costs within SEMO October 2020 Capex Submission and RAs Proposal

### Question 11

Do respondents have any views on:

- a) this I-SEM Day 1+ project in general,
- b) the RAs' proposed allowance for recovery of the full amount requested.

## 2.12 Summary of SEMO Submission and RAs Proposals

Having considered each of the projects within SEMO's October 2020 submission a summary table is provided below showing SEMO's submission and the RAs proposals for each project.

Project Description	SEMO Oct 2020 Capex Submission				RAs Proposals			
	Oct 18 - Sept 19 €m	Oct 19 - Sept 20 €m	Oct 20 - Sept 21 €m	Total €m	Oct 18 - Sept 19 €m	Oct 19 - Sept 20 €m	Oct 20 - Sept 21 €m	Total €m
Market System Release Capital	€0.135	€2.065	€6.400	€8.600	€0.135	€2.065	€4.164	€6.364
Release Support Capital	€1.369	€2.103	€1.262	€4.734	€1.369	€2.103	€0.821	€4.293
Settlement Support & Resettlement	€0.346	€0.267	€0.000	€0.613	€0	€0	€0	€0
Market System Data Archiving	0	0	€1.128	€1.128	0	€0	€1.128	€1.128
Additional Market Environments	0	€0.005	€0.138	€0.143	0	€0	€0	€0
MMS Performance Enhancements	0	€0.267	€0.303	€0.570	0	€0.267	€0.259	€0.526
Market Analysis Tools	0	0	€0.250	€0.250	0	€0	€0	€0
Compliance Management	0	0	€0.140	€0.140	0	€0	€0	€0
Website Development	0	0	€0.230	€0.230	0	€0	€0.230	€0.230
<b>Sub Total</b>	<b>€1.850</b>	<b>€4.707</b>	<b>€9.851</b>	<b>€16.408</b>	<b>€1.504</b>	<b>€4.435</b>	<b>€6.602</b>	<b>€12.541</b>
I-SEM: Post Production Support	2.041			2.041	€2.041			€2.041
I-SEM: Day1+	2.371			2.371	€2.371			€2.371
<b>Total CAPEX</b>	<b>€6.262</b>	<b>€4.707</b>	<b>€9.851</b>	<b>€20.820</b>	<b>€5.916</b>	<b>€4.435</b>	<b>€6.602</b>	<b>€16.953</b>

Table 30: Summary of SEMO October 2020 Capex Submission and RAs Proposals

## 3. SEMO Tariff Impacts and Timelines

### 3.1 Overview of SEMO Tariff Process

The tariff process is generally undertaken between May and early September each year. The process commences with a submission from SEMO and ends with SEM Committee approval of the tariffs to apply from 1 October the same year.

This annual tariff process includes two elements. The first is to allow SEMO a certain amount of revenue to be recovered which relates specifically to the forthcoming tariff year. The second element is a correction adjustment referred to as a 'k-factor' to true-up the revenue recovery from a previous tariff year. Such adjustments include updating the forecasted amounts for actuals, reflecting indexation etc.

The following table provides an overview of the tariff years and their corresponding 'k-factor' years relating to this consultation.

SEMO Tariff Year (commencing 1 October)	K-factor (previous tariff year)
2019/20	2017/18
2020/21	2018/19*
2021/22	2019/20
2022/23	2020/21

\* Further explanation is provided in the narrative below regarding the treatment of this k-factor year in the current 2020/21 SEMO tariffs.

Table 31: Overview of SEMO Tariff Years and corresponding K Factor Years

### 3.2 Summary of Treatment in SEMO Tariffs

#### 2020/21 Tariff Year

In August 2020 the RAs approved a total revenue requirement of €16.477m, incorporating the 2018/19 correction 'k-factors' for both the legacy SEM and the first year of the new SEM. The RAs published a SEMO 2020/21 Revenue Requirement Information Paper (SEM-20-

051)<sup>21</sup> which provided further detail for the breakdown of the total revenue requirement applied.

The information paper recognised that there was no predictable capex included in the 2018 – 2021 SEMO price control due to the uncertainty of determining an allowance in advance of the revised SEM arrangements going live. The 2020/21 SEMO tariff information paper recognised that SEMO, as part of its tariff submission, included depreciation and return figures based on forecasted capex for the year 2020/21 and actual capex for the ‘k-factor’ 2018/19 tariff year. As this capex had not been consulted upon previously by the RAs, the Information Paper stated the following:

*“Any of the costs accepted for inclusion on the SEMO RAB [Regulatory Asset Base] for the purpose of tariff setting will be subject to a detailed final outturn review as part of the next price control, in consultation with stakeholders.”*

One of the purposes of this consultation is to fulfil that requirement. For information purposes, the RAs can confirm the depreciation values applied within the 2020/21 SEMO tariffs are based on a five year straight line depreciation policy on the following SEMO estimated capital expenditure for the new SEM arrangements.

<b>SEMO Capital Expenditure estimates upon which the Depreciation Charge within the 2020/21 SEMO tariffs is based</b>	<b>Tariff Year 2018/19 (k factor 2020/21 Tariff)</b>	<b>Tariff Year 2020/21</b>
<b>Project Description</b>	<b>€m</b>	<b>€m</b>
Market System Release Capital	0.396	4.164
Release Support Capital	1.214	1.074
Resettlement	0.356	0.052
Market System Data Archiving	0	0.518
Additional Market Environments	0	0.095
Market Monitoring Systems	0	0.406
MMS Performance Enhancements	0	1.048
Market Analysis	0	0.333
Compliance Management	0	0.088
Website Development	0	0.188
Participant Urgent Communication	0	0.063
<b>Total</b>	<b>1.967</b>	<b>8.029</b>
I-SEM Project: Post Production Support	2.041	
I-SEM Project: Day1+	2.371	
<b>Total CAPEX Incurred</b>	<b>6.379</b>	<b>8.029</b>

Table 32: Breakdown of Estimated Capital Costs Currently Being Applied to the 2020/21 Tariff Year

<sup>21</sup> SEMO Revenue Requirement and K factor 2020/21 Information Paper  
<https://www.semcommittee.com/publications/sem-20-051-semb-revenue-requirement-and-k-factor-202021-information-paper>

Any subsequent adjustments to these estimates will be made in accordance with the corresponding decision paper associated with this consultation and applied to future tariff (in accordance with the k-factor mechanism).

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.



## 4. Next Steps

Questions directed to stakeholders are listed at Appendix B. Responses to the proposals within this consultation should be sent to Karen Shiels ([karen.shiels@uregni.gov.uk](mailto:karen.shiels@uregni.gov.uk)) and Conall Heussaff ([cheussaff@cru.ie](mailto:cheussaff@cru.ie)) by Friday 8 January 2021.

A decision is expected to be published in February 2021 and will inform the tariff process which takes place in summer 2021.

## Appendix A

### Summary of SEMO October 2020 capex submission and RAs' proposals

Project Description	SEMO Oct 2020 Capex Submission				RAs Proposals			
	Oct 18 - Sept 19 €m	Oct 19 - Sept 20 €m	Oct 20 - Sept 21 €m	Total €m	Oct 18 - Sept 19 €m	Oct 19 - Sept 20 €m	Oct 20 - Sept 21 €m	Total €m
Market System Release Capital	€0.135	€2.065	€6.400	€8.600	€0.135	€2.065	€4.164	€6.364
Release Support Capital	€1.369	€2.103	€1.262	€4.734	€1.369	€2.103	€0.821	€4.293
Settlement Support & Resettlement	€0.346	€0.267	€0.000	€0.613	€0	€0	€0	€0
Market System Data Archiving	0	0	€1.128	€1.128	0	€0	€1.128	€1.128
Additional Market Environments	0	€0.005	€0.138	€0.143	0	€0	€0	€0
MMS Performance Enhancements	0	€0.267	€0.303	€0.570	0	€0.267	€0.259	€0.526
Market Analysis Tools	0	0	€0.250	€0.250	0	€0	€0	€0
Compliance Management	0	0	€0.140	€0.140	0	€0	€0	€0
Website Development	0	0	€0.230	€0.230	0	€0	€0.230	€0.230
<b>Sub Total</b>	<b>€1.850</b>	<b>€4.707</b>	<b>€9.851</b>	<b>€16.408</b>	<b>€1.504</b>	<b>€4.435</b>	<b>€6.602</b>	<b>€12.541</b>
I-SEM: Post Production Support	2.041			2.041	€2.041			€2.041
I-SEM: Day1+	2.371			2.371	€2.371			€2.371
<b>Total CAPEX</b>	<b>€6.262</b>	<b>€4.707</b>	<b>€9.851</b>	<b>€20.820</b>	<b>€5.916</b>	<b>€4.435</b>	<b>€6.602</b>	<b>€16.953</b>

## Appendix B

### Questions to respondents

Question Number	Project	Question
1	Market System Release Capital	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this Market System Release Capital project in general,</li> <li>b) SEMO's proposal for a 133% annual increase in vendor hours per year in comparison to the legacy SEM,</li> <li>c) the RAs' proposed allowances, particularly for tariff year 2020/21.</li> </ul>
2	Release Support Capital	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this Release Support Capital project in general,</li> <li>b) the RAs' proposed allowances, particularly for year 2020/21.</li> </ul>
3	Settlement Support and Resettlement	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this Settlement Support and Resettlement project in general,</li> <li>b) the RAs' proposed allowance and treatment of €0.614m as opex rather than capex.</li> </ul>
4	Market System Data Archiving	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this Market System Data Archiving project in general,</li> <li>b) the RAs' proposed allowance of €1.128m to SEMO,</li> <li>c) the RAs' request that this project be prioritised for completion in 2021.</li> </ul>
5	Additional Market Environments	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this Additional Market Environment project in general,</li> <li>b) the RAs' proposal to not include an allowance at this stage.</li> </ul>
6	MMS Performance Enhancements	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this Market Management System Performance Enhancement project in general,</li> <li>b) the proposed enhancements and which should be prioritised,</li> <li>c) the SEMO estimated project costs of €0.570m,</li> <li>d) the RAs' proposed reduction to €0.526m.</li> </ul>

7	Market Analysis Tools	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this market analysis tools project in general,</li> <li>b) particular analytical tools which should be prioritised,</li> <li>c) the estimated amount of €0.250m for the design phase only, and</li> <li>d) the RAs' proposal for the design phase of this project to be deferred by one year given the dependency on the Data Archiving project.</li> </ul>
8	Compliance Management	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this Compliance Management project in general,</li> <li>b) the RAs' proposal to defer an allowance for possible consideration as part of the 2021 – 2024 price control.</li> </ul>
9	Website Development	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this Website Development project in general,</li> <li>b) the provision of €0.230m to SEMO for an enhanced website which includes dynamic reporting by September 2021?</li> </ul>
10	I-SEM Project: Post Production Support	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this I-SEM Post Production Support project in general,</li> <li>b) the RAs' proposed allowance for recovery of the full amount requested.</li> </ul>
11	I-SEM Day 1+	<p>Do respondents have any views on:</p> <ul style="list-style-type: none"> <li>a) this I-SEM Day 1+ project in general,</li> <li>b) the RAs' proposed allowance for recovery of the full amount requested.</li> </ul>