Single Electricity Market

(SEM)

SEMO 2021 – 2024 Price Control

Decision Paper

SEM-21-073

10 September 2021

EXECUTIVE SUMMARY

Background

A SEM Committee (SEMC) consultation (SEM-21-046) was published on 3 June 2021 on the next SEMO price control. This outlined proposals which incorporated advance views of a Participant Consultative Forum, representing a broad range of participants and industry bodies. Key feedback was that SEMO should focus on stabilising existing market arrangements as a priority while acknowledging that considerations about future market design are also important. There was general agreement that evolution rather than revolution is required in the 2021-24 period.

A summary of the price control consultation proposals is as follows:

	SEMO best estimates 2018-21	SEMO submission 2021-24	RAs' consultation proposals
Opex	€30.7M	€44.9M	**€32.7M**
Capex	€16.7M	€29.3M	**€28.1M**
Capex framework	-	Agile & flexible framework	Agile & flexible framework with re-categorisation of projects + enhanced reporting with market participant involvement
KPIs	-	Retain existing suite but amend upper and lower bounds Up to €1.8M	Amend existing suite but retain upper and lower bounds + introduce 2 conditions **Up to €1.3M**
Financeability	€0.8M	Retain approach to WACC (€2.2M)	Retain approach to WACC **€2.2M**
	€0.9M	Retain receipt of PCG (€0.9M)	Retain receipt of PCG **€0.9M**
	€2.4M	Retain margin for collection agent activity (€2.4M)	No margin for collection agent activity **€0**
	n/a	New premiums for asymmetric capex risk (€0.8M) and opex risk	No premium for asymmetric capex risk **€0** (or opex risk)

Table A: Summary of 2021-24 SEMO price control consultation proposals

In respect of the cost recovery framework for capex, SEMO had suggested that the onus should be on the RAs to assess if actual expenditure was 'Demonstrably Inefficient and Wasteful' (DIWE) and that a new premium (equating to €0.8M over three years) should be introduced for the risk of disallowances. Further to this, SEMO proposed that a premium be introduced for operational risks; the RAs did not agree with either proposal.

During the 2018-21 SEMO price control, a margin was introduced to recognise SEMO's collection agent activity. At the time, the SEMC noted that this would be reviewed at the next (2021-24) price control. SEMO proposed that provision of this margin should continue but no quantifiable evidence was provided to justify it. For consultation, the RAs did not allow for the collection agent margin; this made a difference to SEMO's revenue recovery of €2.4M over the 2021-24 period. The RAs did, however propose to retain the existing RAB-WACC approach to SEMO regulation, allowing for a 'blended' WACC using those calculated for the most recent EirGrid TSO and SONI TSO price controls (and apportioned on a 75:25 basis). In addition, allowance for provision of a Parent Company Guarantee was allowed in line with precedent. Each of these two elements equates to recovery of €3.1M for SEMO.

Summary of responses

Eight responses[1] were received to the consultation from:

- EDF Renewables
- Energia
- Energy Association of Ireland
- Energy Storage Ireland
- Powerhouse Generation
- SEMO
- SSE
- Wind Energy Ireland

The SEMC wishes to thank all respondents for their input.

During the consultation period, SEMO was the only stakeholder to request clarification on statements made in the 'Financeability' chapter of the consultation on 5 July 2021. A copy of the RAs' consultants' report was provided to SEMO on 5 July 2021 and clarification to queries was provided on 14 July 2021.

SEMO's response noted that the minimum adjustments to be made by the SEMC to the RAs' consultation proposals are:

[1] SEMO's response was marked as 'confidential and commercially sensitive – not for publication'. A redacted version of SEMO's response was provided and has been published alongside this decision..

- another 6 FTEs to be allowed (ie. a total of 11 additional FTEs to bolster the existing baseline of 59.5. This equates to an additional €1.5M on proposed allowances);
- additional pension costs to be incorporated into average salary per FTE (equates to an additional €0.6M on proposed allowances);
- IT hardware and software to be allowed in full (equates to an additional €1.3M on proposed allowances);
- IT outsourced managed services to be allowed in full (equates to an additional €1.7M on proposed allowances);
- provision for Strategic Initiatives opex costs in full (equates to an additional €1.9M on proposed allowances);
- provision for High Level Analysis and Design fees in full (equates to an additional €2.3M on proposed allowances);
- collection agent margin to be allowed (equates to an additional €2.4M on proposed allowances).

SEMO also provided comment about some minor opex items and updates on costs experienced to date for some IT expenditure. In addition, SEMO noted that while the proposed capex allowance is welcomed, the framework proposed (ie. no introduction of guidelines for the RAs to assess 'Demonstrably Inefficient and Wasteful Expenditure' (DIWE)/no premium in respect of asymmetric capex risk) needs to change.

Other respondents focused on future-proofing market systems (while recognising the need to stabilise business-as-usual), the potential for involvement of participants in Testing, the need to expedite capital projects such as Electricity Balancing Guidelines and Clean Energy Package implementation; battery storage integration, improved service levels and ensuring adequate resources are in place to deal with the extent of change. All were keen on stakeholder engagement going forward.

In terms of incentivisation, the RAs proposed to retain four[2] of the existing six KPIs with a KPI incentive reward of €1.3M (based on 4% of the total opex allowance) for the three year period. However, it was proposed that the KPI reward would be conditional upon SEMO first closing out specific known issues and making certain improvements to resettlement and re-pricing by the end of the first year of this price control period (ie. by September 2022). The RAs also sought feedback on the appropriateness of KPIs associated with the SEM systems fully incorporating existing technologies (for example, battery storage and the ability to make energy payments directly to DSUs).

[2] Invoicing, Re-settlement Queries, General Queries, System Availability

SEMO did not disagree with the 4 KPIs (of existing 6) proposed but did not agree with rewards being conditional on two other elements. There was little support from other respondents for the introduction of conditions before rewards can be availed of.
Other respondents provided ideas for KPIs and many were keen for the KPI about publication of key information to be reinstated.

The RAs and SEMC have considered all responses received when compiling this decision. In addition, the RAs engaged further with SEMO on 17 August 2021 to allow SEMO the opportunity to outline key elements of its response. This engagement was supplemented by a set of questions posed to SEMO on 17/18 August.

Opex

The total Opex allowance for 2021-24 is €36.9M.

This compares to a proposed allowance of €32.7M at consultation, SEMO's request for €44.9M and SEMO's best estimate of costs incurred for 2018-21 of €30.6M.

The SEMC has decided to amend the following since consultation:

- An opex allowance commensurate with provision for an additional 3 FTEs[3] to recognise the need for functional testing by Market Operator staff is approved. The starting 'baseline' of internal headcount will be 67.5 for the purposes of calculating opex allowances. This takes into consideration all internal, outsourced, third party (consultancy) and capitalised resources for SEMO.
- IT hardware and software allowance will increase from €1M to €1.9M (compared to SEMO's request for €2.3M). This is because SEMO provided stronger justification for such costs in its response to the price control consultation. The allowance is based on actual costs incurred to June 2021, pro-rated for each future 12-month period.
- IT (outsourced) managed services allowance will increase from €0.8M to €1.7M (compared to SEMO's request for €2.5M). This equates to allowance for 4 rather than 6 outsourced FTEs; the business case for other FTEs was inconsistent.
- IT Telecoms allowance (while not a 'minimum requirement' of SEMO) will increase from €0.1M to €0.2M (compared to SEMO's request for €0.4M). This is because SEMO provided an up to date estimate of costs incurred in 2020/21 within its response which the RAs used in revised calculations.
- 'High Level Analysis and Design Fees' allowance will increase from a proposal of zero (due to a weak business case in the consultation) to €1.5M. This compares to SEMO's request for €2.3M. SEMO provided better justified information of the need for this support in its response to the consultation. The RAs are mindful that this

[3] An average salary per FTE per year of €83.5K has been retained for the purposes of calculating an opex allowance.

function will provide support (in terms of both resourcing and intellectual capital) for testing, battery storage integration and a number of other capital projects which market participants would like to see expedited.

- Allowances for Recruitment and 'General Admin' will increase by €80K due to new information provided by SEMO in its response.

Elements of SEMO's price control submission considered in the RAs' consultation which are unchanged in the SEMC final determination include:

- No additional pension costs of the EirGrid plc pension scheme will be included in the calculation of average salary per FTE.
- No provision will be allowed for 'Strategic Initiatives' within opex, noting that SEMO is encouraged to deploy resource to cyber security within its internal headcount.
- Allowances for travel costs and disputes have not changed since consultation.

The total Opex allowance for 2021-24 is €36.9M which equates to an annual opex allowance of c€12.3M; this compares to SEMO's best estimate of its 'run-rate' for 2020/21 as depicted in the chart below.

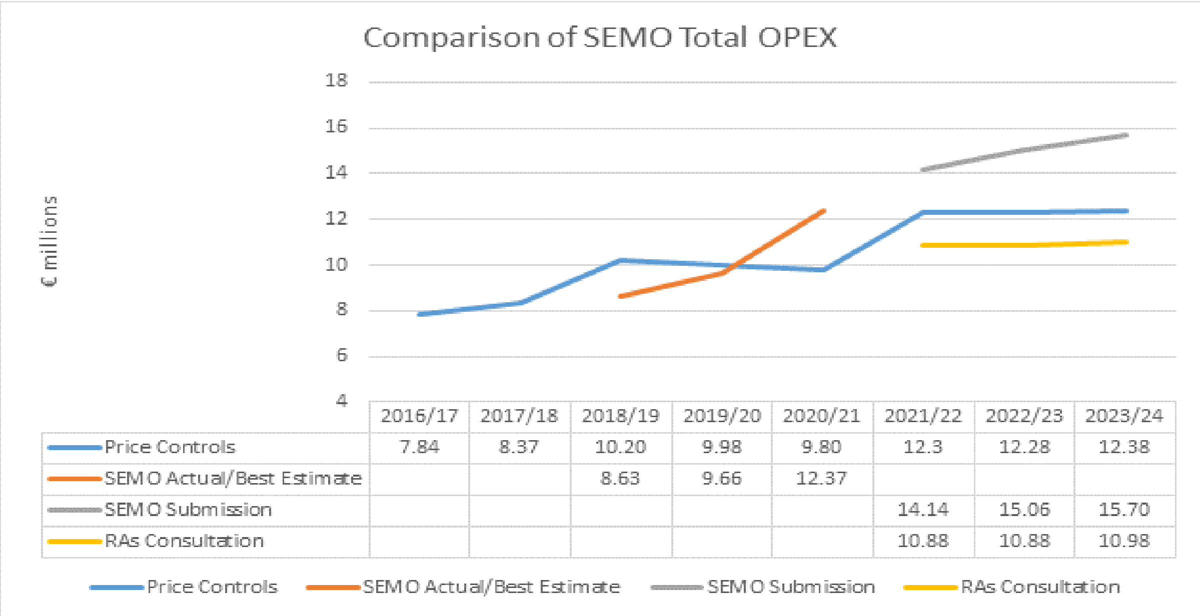


Figure A: Comparison of Opex request/ allowance

A high-level breakdown of key operating cost categories which were analysed for the purposes of determining an opex allowance is shown below:

2021-24	**SEMO submission**	**RAs' consultation**	**SEMC decision**
Labour	€19.2M	€16.2M	€16.9M
IT & Telecoms	€14.9M	€9.9M	€11.8M
HR, corporate, facilities	€6.2M	€5.1M	€5.2M

Finance & Regulation	€4.5M	€1.5M	€3.0M
Total Opex	**€44.8M**	**€32.7M**	**€36.9M**

Table B: Breakdown of key opex categories: request and SEMC decision

Capex

SEMO 'factorised' its original capex submission by 20% (ie. suggested a 20% reduction to its forecast due to the uncertain/unknown nature of much of the proposed investment). However, the RAs did not apply the factorisation reduction at consultation to allow for sufficient flexibility. This approach will remain in the SEMC decision.

The Capex allowances remain unchanged for market system release-related expenditure and unpredictable capex, however, the RAs and SEMC remind SEMO of the flexible nature of the unpredictable capex pot; it is at SEMO's discretion, taking into account participant feedback, to justify and prioritise projects as necessary.

The allowance for predictable (ie. more certain/well scoped) capex has increased from €6.3M to €7.2M due to clarity provided by SEMO about its Finance System project. The total capex allowance increases from €28.1M to €28.9M (compared to SEMO's request for €29.3M).

2021-2024	**SEMO submission**	**RAs' consultation**	**Additional allowance**	**SEMC Decision**
Capex	€29.3M	€28.1M	+ €0.9M Finance System ['predictable' pot]	**€28.9M**
Breakdown:				
Market System Releases + support	*€17.1M*	*€17.1M*	*n/a*	*€17.1M*
Predictable capex	*€11.8M*	*€6.3M*	*+ €0.9M Finance System*	*€7.2M*
Unpredictable capex	*€0.3M*	*€4.1M*	*n/a*	*€4.1M*

Table C: Breakdown of key capex categories: request and SEMC decision

Capex recovery framework

The framework for capex recovery has not changed since consultation.

Introducing a 'Demonstrably Inefficient and Wasteful Expenditure' (DIWE) assessment by the RAs as part of cost recovery review could lower the probability of disallowance by the RAs due to information asymmetry – this could have the perverse outcome of SEMO not trying to minimize costs, prematurely investing and adopting a more tolerant approach to risk.

SEMO states that it faces a significant degree of asymmetry in respect of cost recovery for predictable capex since it is impossible to keep any upside benefit from greater efficiencies while only being exposed to downside risk. SEMO focusses heavily on the risk of under-recovery, but DIWE was not applied to I-SEM implementation costs or to 2018-21 capex so there is no evidence of risk of disallowance.

NPV neutral revenue recovery

In its price control submission, SEMO requested Net Present Value (NPV) adjustment, using the WACC, if SEMO is to bear the risk of cost recovery and RAB/WACC return until the capital project is complete and capitalised and included on the Fixed Asset Register. This was a different approach to that previously applied to SEMO's investments pre I-SEM; however, I-SEM implementation costs were recovered on an NPV neutral basis as a 'one off' approach to recognise the time-lag (5-6 years) between when costs were incurred and recovered – EirGrid Group did not start to recover capital costs until I-SEM Go-Live.

Steady state operations are now largely in place. Almost 60% of SEMO's forecasted capital expenditure relates to biannual market system releases which take c12-18 months to complete; another 25% of SEMO's forecasted capital expenditure is viewed as 'predictable' (ie. more certain/ well scoped) with projects having a short life-span.

An estimated depreciation and RAB/WACC return are included within SEMO's price control allowances and applied to tariffs allowing SEMO to recover an estimated capex which is adjusted to reflect the actual depreciation and return values as part of the k factor trueing up process. SEMO is not expected to bear the risk of funding the full project cost of all projects through to completion, thereby negating the need for a neutral NPV adjustment in this SEMO price control.

Incentivisation

Opex

An ex-ante approach to setting opex allowances will continue to apply to this price control and, consistent with the approach taken in previous SEMO price control decisions, the RAs expect to continue to incentivise SEMO's opex via Revenue Cap (RPI-X) regulation.

Within the current 2018–2021 SEMO price control an efficiency factor (X) of 0.3 is applied as a reduction to the indexation (RPI-0.3). This will continue for the 2021-24 price control.

Capex

An ex-ante allowance/estimate will be set for capex.

Actual costs for both predictable capex and unpredictable capex (to include 'known unknowns') incurred will be subject to final out-turn (ex-post) efficiency review and adjusted in line with actual expenditure through the annual tariff process. If SEMO foresees exceeding allowances, a submission for additional funding can be made to the RAs which may be subject to public consultation.

The RAs' ex-post review will assess if:

- 1. Expenditure has been efficiently incurred;
- 2. Expenditure was demonstrably necessary;
- 3. Expenditure was incremental to existing price controls and capable of being robustly validated by the RAs.

For the avoidance of doubt, the onus will lie with SEMO to demonstrate that expenditure has been incurred in line with the criteria above.

<u>KPIs</u>

At consultation, the RAs had proposed to introduce two conditions for SEMO to meet in advance of earning KPI rewards. However, based on stakeholder responses, the SEMC has decided not to introduce these two conditions.

Instead two new KPIs[4] (re. storage and ad-hoc resettlement) will be introduced and the four existing KPIs (re. Invoicing, Re-settlement Queries, General Queries, System Availability) will be retained.

The KPI framework is asymmetric; there is only an upside reward available for SEMO with no risk of financial loss or penalty. The incentive reward available to SEMO is 4% of the total proposed opex allowance provided across the three-year period (which equates to €1.5M).

While recognising respondents were concerned with the proposed removal of the Timely Publication of Key Market Information KPI, the RAs consider a more appropriate approach is to consider a modification to the Trading and Settlement Code due to the limitations (regarding performance measurement) experienced during 2019/20 with this requirement

[4] No separate KPI will be set for the known issues, which are reported upon weekly by SEMO. Instead the RAs strongly urge SEMO to engage with market participants to ascertain those known issues which should be prioritised including identification of those known issues which have a high cost to rectify and low value add. Effort is required by SEMO to address (prioritise/action) these known issues particularly as the revised SEM is almost in its fourth year.

within the KPI framework. We note that SEMO has licence obligations[5] to comply with the Trading and Settlement Code.

Financeability

With regard to SEMO's 'Financeability', the SEMC outlines its decision on the following:

<u>Weighted Average Cost of Capital (WACC):</u>

No change to existing approach will be made for 2021-24; a blended WACC (using that calculated for the most recent EirGrid TSO and SONI TSO price controls and applied in specified proportions of 75:25) will apply to SEMO.

<u>Parent Company Guarantee (PCG) provision:</u>

The SEMC does not propose a change to the existing approach to SEMO's WACC or PCG at this time. An amount of €300K p.a. will be provided for.

<u>Collection agent margin:</u>

In its response, SEMO states that it manages cashflows covering the Capacity Market, Capacity Socialisation Fund and Residual Error, and faces significant exposure to cash shortfalls due to the revenue risk. The RAs remain of the view that the risks relate only to the timing of cash flows and are not risks that amounts will be lost without subsequent recovery.

Taking previous SEMC statements in the 2018 price control decision about recovery of costs via TSO tariffs for the working capital facility, the lack of evidence from SEMO about the risk involved to warrant receipt of a margin notwithstanding RA requests for information in this regard and the lack of information on costs of having the facility in place/costs of drawing down monies from it in the price control questionnaire by SEMO, the RAs have concerns about the continuation of the margin as is.

The SEMC has decided to 'phase down' the collection agent margin. Rather than continue to allow a margin equating to 0.25% of revenues during 2021-24, a collection agent margin will be provided using the following rates:

- Year 1: 0.15%
- Year 2: 0.125%
- Year 3: 0.1%

---

[5] Condition 3 of the EirGrid Market Operator licence and Condition 15 of the SONI Market Operator licence

This equates to recovery of c.€1.3M over 3 years.

This 'phased down' approach appreciates that the WACC return continues to increase to 2023/24. In addition, rewards available to SEMO via KPIs in Year 3 should be easier to achieve. This is depicted in the chart below.

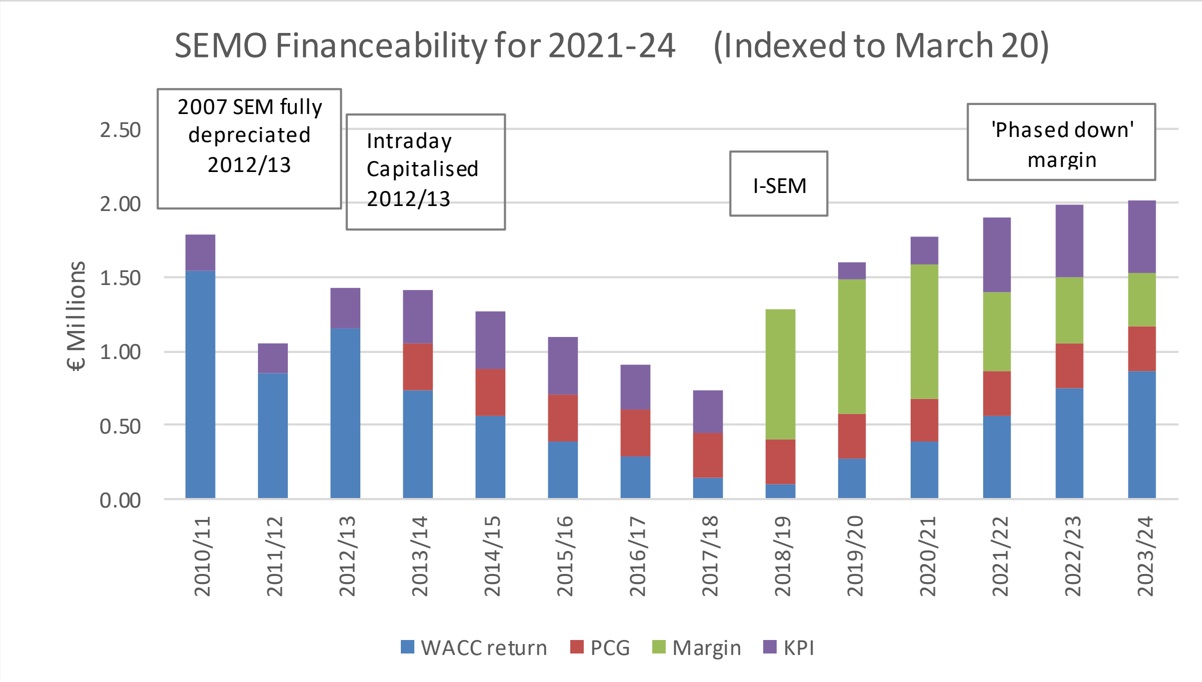


Figure B: SEMO financeability 2021-24

Summary: Variation from consultation to decision

A summary of the SEMC's price control decision for the SEMO price control 2021-24 is as follows:

2021-2024	**SEMO submission**	**RAs' consultation proposals**	**SEMC decision**
Opex	€44.9M	€32.7M	**€36.9M**
Capex	€29.3M	€28.1M	**€28.9M**
KPIs	Retain existing suite but amend upper and lower bounds Up to €1.8M	Amend existing suite but retain upper and lower bounds + introduce 2 conditions before rewards can be attained **Up to €1.3M**	Amend existing suite + 2 new KPIs [no conditions] **Up to €1.5M**
Financeability	Retain approach to WACC (€2.2M)	Retain approach to WACC (€2.2M)	Retain approach to WACC **€2.2M**

	Retain receipt of PCG (€0.9M)	Retain receipt of PCG (€0.9M)	Retain receipt of PCG **€0.9M**
	Retain margin for collection agent activity (€2.4M)	No margin for collection agent activity **(€0)**	Margin allowed for collection agent activity but phased-down **c.€1.3M**
	New premium for asymmetric capex risk (€0.8M)	No premium for asymmetric capex risk (€0)	No premium for asymmetric capex risk **€0** (or opex risk)

Table D: Summary of 2021-24 SEMO price control decisions

Contents

1. Introduction

1.1 Background

The next SEMO price control is due to commence on 1 October 2021 for three years until 30 September 2024.

During the price control review period, SEMO submitted proposals relating to operating expenditure (opex), capital expenditure (capex) and modifications to its existing suite of Key Performance Indicators (KPIs) for review by the Commission for Regulation of Utilities (CRU) in Ireland and the Utility Regulator (UR) in Northern Ireland, collectively referred to as the Regulatory Authorities (RAs). SEMO proposed amendments to the price control framework and approach to capital cost recovery, and sought engagement with the RAs about the introduction of new margins in addition to its existing receipt of a WACC return, an amount for provision of a Parent Company Guarantee and a margin on collection agent revenues.

A SEM Committee (SEMC) consultation (SEM-21-046[6]) was published on 3 June 2021 about the next SEMO price control. This outlined the RAs' proposals which considered advance views of a Participant Consultative Forum (PCF). This group was established by the RAs to gather views representing a broad range of participants and industry bodies. Key feedback from the PCF was that SEMO should focus on stabilising existing market arrangements as a priority while acknowledging that considerations about future market design are also important. There was general agreement that evolution rather than revolution is required in the 2021-24 period.

A summary of the SEMC's price control proposals which were subject to public consultation from 3 June – 21 July 2021 is as follows:

	SEMO best estimates 2018-21	SEMO submission 2021-24	RAs' consultation proposals
Opex	€30.7M	€44.9M	**€32.7M**
Capex	€16.7M	€29.3M	**€28.1M**
Capex framework	-	Agile & flexible framework	Agile & flexible framework with re-categorisation of projects + enhanced reporting with market participant involvement

[6] SEM-21-046 SEMO 2021-24 Price Control Consultation.pdf (semcommittee.com)

KPIs	-	Retain existing suite but amend upper and lower bounds Up to €1.8M	Amend existing suite but retain upper and lower bounds + introduce 2 conditions **Up to €1.5M**
Financeability	€0.8M	Retain approach to WACC (€2.2M)	Retain approach to WACC **€2.2M**
	€0.9M	Retain receipt of PCG (€0.9M)	Retain receipt of PCG **€0.9M**
	€2.4M	Retain margin for collection agent activity (€2.4M)	No margin for collection agent activity **€0**
	n/a	New premiums for asymmetric capex risk (€0.8M) and opex risk	No premium for asymmetric capex risk **€0** (or opex risk)

Table 1.1: Summary of 2021-24 SEMO price control consultation proposals

1.2 Principles and Assumptions

Duration

The duration of the next SEMO price control will be three years (1 October 2021 to 30 September 2024).

Indexation

All costs in this consultation are based on March 2020 prices, consistent with SEMO's submission. An adjustment will be made within market operator tariffs to adjust for out-turn inflation. This is carried out as part of the k-factor trueing up adjustments undertaken each year as part of the tariff process. The indexation rate applicable will be a blended rate of the Consumer Price Index in Ireland (75%) and the Consumer Price Index including owner occupiers' Housing costs (CPIH) in Northern Ireland (25%). This represents a change to indexation for Northern Ireland which previously was indexed using the Retail Price Index (RPI). The change is consistent with the indexation applied to the SONI 2020 – 2025 System Operator price control.

Revenue recovery apportionment

Consistent with previous SEMO price controls, the 2021-24 price control will be provided on a combined basis between EirGrid and SONI on a 75% and 25% basis respectively, with revenues being ascribed to EirGrid in its capacity as market operator for Ireland and to SONI in its capacity as market operator for Northern Ireland. The current apportionment is also detailed in the Market Operator Agreement between EirGrid and SONI.

Other assumptions

In addition to the principles outlined above, we provide a list of other key assumptions some of which are reflected in this decision and others which will impact the k factor trueing up adjustment process. They are:

- Business-as-usual approach to operating and maintaining the balancing market;
- Changes in legislation or regulation that impose unforeseen costs to SEMO's operations are grounds for making a submission to the RAs'
- Variations in market energy demand from the level assumed in tariffs will be treated on a pass through basis;
- Tariff revenue associated with accession or participation fees under the TSC is separately recoverable and to continue to be declared in the annual k factor adjustment process;
- Foreign exchange rate assumed within SEMO's submission and this paper is €1:£0.9 with actual foreign exchange rate gains or losses catered on a cost pass through basis as part of the k-factor adjustments;
- Interest on borrowings associated with the SEM business are catered on a cost pass through basis;
- Interest received on surplus funds associated with the SEM business are catered on a cost pass through basis.

1.3 Developments since consultation

Other than price control responses, no further submissions were made by SEMO or any other stakeholders during the consultation period.

During the consultation period, SEMO requested clarification on statements made in the 'Financeability' chapter of the consultation on 5 July 2021. A copy of the RAs' consultants' report was provided to SEMO on 5 July 2021 and clarification to queries was provided on 14 July 2021.

Engagement between the RAs and SEMO took place on 17 August 2021 about SEMO's response. A number of questions were also issued to SEMO on 17/18 August 2021.

1.4 Format and purpose of document

This document follows the RAs' consultation (SEM-21-046) by summarizing responses to the price control consultation proposals, outlining considerations of the RAs' and SEMC when reviewing those responses and confirming the SEM Committee's decisions for the next SEMO price control, due to commence on 1 October 2021:

- Chapter 2 summarises a decision on the **regulatory framework** pertaining to SEMO's next price control;
- Chapter 3 provides a high level outline of the RAs' consultation proposals, summarises stakeholder responses, and confirms the SEM Committee decision about SEMO's **opex**;
- Chapter 4 provides a high level outline of the RAs' consultation proposals, summarises stakeholder responses, and confirms the SEM Committee decision about SEMO's **capex**;
- Chapter 5 clarifies decisions about incentivisation and key performance indicators **(KPIs)**;
- Chapter 6 notes a decision on SEMO's **financeability**;
- Chapter 7 provides a **high level summary of the decision** compared to consultation;
- Chapter 8 closes with **Next Steps**.

2. Regulatory Framework

2.1 Summary of RAs' proposals for consultation

The regulatory framework is the overarching structure to apply to key aspects of the price control such as opex and capex and impacts on how allowances are set in advance of the price control period and the k factor adjustment process which follows after the completion of each tariff year.

In its price control submission, SEMO maintained that there are currently gaps within its regulatory framework which needed to be addressed.

The RAs' consultation proposals suggested that the recovery framework for opex will not change (and nor was a change requested by SEMO), but the recovery framework for capex would be amended. This would entail:

- Continuation of provision for biannual market system releases and associated support.
- Re-categorisation of capital projects depending on how certain the business case is. If more certain, a project will be categorised as 'predictable'. If less certain, unforeseen or a 'known unknown', a project will be categorised as 'unpredictable'.
- The predictable capex 'pot' is based on project costs relating to 'more certain' projects as estimated by SEMO and provided for in business cases to the RAs.
- The unpredictable capex 'pot' is based on project costs relating to less certain (but previously categorised by SEMO as 'predictable') projects as estimated by SEMO and is expected to also cover unforeseen hardware and software upgrades and 'known unknowns'. It will be at SEMO's discretion to use the unpredictable capex allowance as appropriate, but legislative, regulatory and participant obligations or preferences should be taken into account in its considerations. This approach was to acknowledge uncertainty and allow SEMO flexibility to react to priorities in a timely manner without the need to seek additional regulatory approval.

In terms of capex recovery, the RAs proposed that:

- for predictable (and certain) capex: ex ante allowances will be provided as an estimate and an ex-post regulatory review will be conducted to assess if:
    1. Expenditure has been efficiently incurred;
    2. Expenditure was demonstrably necessary;
    3. Expenditure was incremental to existing price controls and capable of being robustly validated by the RAs.

- for unpredictable (uncertain, unforeseen or ‘known unknown’) capex:
    - An ex ante allowance will be provided as an estimate, but to a cap due to the level of uncertainty involved. Should SEMO foresee exceeding the allowance, SEMO can approach the RAs for additional funding. The RAs may consult on any submissions for additional funding with stakeholders.
    - It was envisaged that any project updates be communicated with participants regularly, particularly to ensure appropriate prioritisation.
    - An ex-post regulatory review will be carried out by applying the same principles to that for predictable capex.

To bolster the framework, the RAs suggested that an enhanced regulatory reporting regime would be established to include involvement of market participants.

2.2 Responses to consultation

SEMO responded that the RAs did not acknowledge an assumed principle relating to capex which was noted in its price control submission. This was that:

- *Uncertainty mechanisms [would] be developed in relation to capital expenditure; such uncertainty mechanisms to be clear and defined*

SEMO stated in its response that if this, alongside other principles relating to financeability and KPIs, are left unchanged in the Final Decision, will significantly undermine SEMO’s ability to deliver its ambition as set out in its Business Plan.

SEMO also commented that "*In order to reduce this risk and uncertainty, SEMO require that elements of the Agreed Approach Document that governed the I-SEM Implementation Capital project are introduced, in particular the principle of DIWE and the application of Net Present Value (NPV) Neutral adjustment to all CapEx spend up to the point of addition to the RAB are required as part of the framework. These elements, along with allowing the margin against the downside only asymmetric risk on CapEx would provide SEMO the necessary support to develop our capital programme*".

The majority of other respondents supported an agile and flexible approach to capital expenditure.

EDF Renewables noted that ‘business-as-usual projects should be clearly defined and handled separately to business improvement projects, and that high priority projects such as EBGL and implementation of the Clean Energy Package are expedited as quickly as possible’.

ESI support flexibility, more transparency and industry involvement in capex planning.

Powerhouse Generation commented that rather than allow an unpredictable capex fund, it would be better to set an allowance but have SEMO cost up an economic investment assessment that would be brought to market participants and the RAs.

SSE was of the view that, while appreciating the need for flexibility, SSE does not accept that none of the 'known unknowns' can be quantified in any manner at present and likely costs should be able to be expressed.

Wind Energy Ireland and Renewables NI recommended expedition of Loose Volume Coupling, EBGL, storage facilitation and Clean Energy Package related work, referred to as 'known unknowns' by SEMO.

2.3 RAs' comments

The RAs have considered SEMO's response in relation to SEMO's assumption that '*Uncertainty mechanisms [would] be developed in relation to capital expenditure; such uncertainty mechanisms to be clear and defined*'.

In the SEM-21-046 consultation, the RAs outlined that they had discounted the use of an explicit uncertainty mechanism due to the time-lags and risk which this could create if SEMO needed to react quickly to an obligation. The RAs recognise the need for SEMO to invest in the SEM (to include currently less certain projects or 'known unknowns') so proposed an 'unpredictable' capex fund in the absence of SEMO providing forecast costs for 'known unknowns' and notwithstanding the RAs' view that, 45% of the value of SEMO's capital programme was poorly or not forecasted or scoped:

> *The RAs agree that SEMO needs to have flexibility to adapt and find the best solutions to system challenges, particularly with respect to the 'known unknowns'. Any approach to unpredictable (including 'known unknown') capex should allow for flexibility and a more agile response by SEMO to requirements and obligations. The existence of an allowance for more uncertain initiatives with the option to substitute projects on a priority basis should alleviate the possibility of unnecessary delays rather than rely on an uncertainty mechanism.*
>
> *Introduction of an uncertainty mechanism for SEMO as part of its revenue formula has been considered by the RAs; this would involve SEMO submitting individual business cases to the RAs on a project-by-project basis for approval. The approvals*

process could take many months which could affect SEMO's ability to invest in a timely manner[7].

In advance of consultation, the RAs' discussed the capex framework with SEMO on two occasions. These discussions considered the use of the principles outlined in a previously agreed 'Agreed Approach Document' which were applied to I-SEM implementation (capital) costs which focusses on the onus being on SEMO to demonstrate:

1. Expenditure has been efficiently incurred;
2. Expenditure was demonstrably necessary;
3. Expenditure was incremental to existing price controls and capable of being robustly validated by the RAs.

SEMO requests in its response that Demonstrably Inefficient and Wasteful Expenditure (DIWE), as incorporated in the Agreed Approach Document, should be introduced. The RAs note that, while regulatory approvals were 'subject to finding no DIWE', the onus was on EirGrid and SONI to prove adoption of the above principles (with a second layer of verification by internal EirGrid Group audit) rather than the onus on the RAs to prove disapplication[8]. In addition, there were no 'DIWE' guidelines for the Agreed Approach Document expenditure recovery framework.

To that end the full I-SEM implementation (capital) costs of €105M were allowed by the RAs; this was in the absence of 'DIWE' guidelines.

In addition, the CRU has not introduced DIWE guidance for PR5. Instead, CRU's PR5 determination stated: "*As with previous price reviews the ex-post review will be carried out at the end of PR5, in the same manner as previous Price Reviews. The ex-post review will assess whether the network companies have achieved their deliverables and incurred their expenditure efficiently. Any expenditure not demonstrated to have been efficiently incurred will be disallowed and expenditure demonstrated to have been efficiently incurred will be allowed. For the avoidance of doubt the obligation rests with the network companies to demonstrate that their expenditure has been efficient. The network companies will be expected to make submissions under the cost incentive demonstrating this in order to retain any efficiency savings"[9].*

The RAs and SEMC maintain their view that there is no need for DIWE guidance for SEMO.

---

[7] Section 3.5: SEM-21-046 SEMO 2021-24 Price Control Consultation | SEM Committee

[8] Page 23 SEM-15-004 Published AAD 9 Jan 2015.pdf (semcommittee.com)

[9] Page 4: CRU20154-PR5-Regulatory-Framework-Incentives-and-Reporting-1.pdf (kinstacdn.com)

A margin on asymmetric capex risk is considered in Chapter 6 about Financeability. The RAs note that this is not listed as a 'minimum requirement' in SEMO's response.

The RAs have taken account of comments raised by Powerhouse Generation and SSE. In order to manage the unpredictable capex pot, an enhanced reporting regime will be introduced and implemented to involve market participants. This will be progressed in Q4 of 2021. The RAs agree that a 'zero' forecast for capital projects is not ideal and while we can acknowledge the current high levels of uncertainty in regard to projects such as Clean Energy Package and Loose Volume Coupling, the RAs would encourage SEMO to be more proactive in the next price control review exercise. Enhanced reporting with market participant involvement is intended to improve accountability and transparency between SEMO and market participants.

2.4 SEM Committee decision

Opex framework

An ex-ante approach to setting opex allowances will continue to apply to this price control and, consistent with the approach taken in previous SEMO price control decisions, the RAs expect to continue to incentivise SEMO's opex via Revenue Cap (RPI-X) regulation. Within the current 2018–2021 SEMO price control an efficiency factor (X) of 0.3 is applied as a reduction to the indexation (RPI-0.3). This will continue for the 2021-24 price control.

Capex framework

The RAs propose to provide an ex-ante allowance for all capex.

If SEMO foresees exceeding the allowances, a submission for additional funding can be made to the RAs which may be subject to public consultation.

Actual costs for both predictable capex and unpredictable capex (to include 'known unknowns') incurred will be subject to final out-turn (ex-post) efficiency review and adjusted in line with actual expenditure through the annual tariff process. The RAs' ex-post review will assess if:

1. Expenditure has been efficiently incurred;
2. Expenditure was demonstrably necessary;
3. Expenditure was incremental to existing price controls and capable of being robustly validated by the RAs.

For the avoidance of doubt, the onus will lie with SEMO to demonstrate that expenditure has been incurred in line with the criteria above.

We consider that there is merit in conducting a review with the assistance of a market participant focus group for the unpredictable/uncertain/unknown projects during the price control period since many of SEMO's proposals require further development. Further development of proposals would improve reliability of SEMO's costings and ensure value-add for consumers. This will be considered further by the RAs.

A margin on asymmetric capex risk is considered in Chapter 6 about Financeability.

3. Operational Expenditure (OPEX)

3.1 Summary of RAs' proposals for consultation

SEMO's opex forecasts for 2021-24 totalled €44.9M. The RAs proposed to allow €32.7M compared to a best estimate of total expenditure by SEMO of €30.7M during the current price control period.

OPEX (€M)	2018-21 actuals/ best estimate	SEMO's 2021-24 submission	RAs' proposals 2021-24
Labour	13.3	19.2	16.2
IT & Telecoms	10.7	14.9	9.9
HR, facilities, corporate	5.1	6.3	5.1
Finance & Regulation	1.6	4.5	1.5
Totals	**30.7**	**44.9**	**32.7**

Table 3.1: Summary of 2021-24 SEMO price control opex consultation proposals by category

Key elements of the RAs' proposals were that:

- Allowance to align with 5 rather than 15.5 additional FTEs would be provided for to support a starting baseline of 59.5 FTEs with an average salary of €83.5K (rather than SEMO's requested €87K per FTE);
- IT and Telecommunications opex were proposed at 33% less than SEMO's request, mainly due to smaller allowances than forecasted by SEMO for IT hardware/ software, outsourced managed services and 'Strategic Initiatives';
- HR, corporate and facilities opex were proposed at 22% less than SEMO's request mainly due to smaller allowances than projected by SEMO for recruitment and staff travel;
- Finance and Regulation opex were allowed for 'ongoing' type costs, but a new 'High Level Design and Analysis Fees' cost of €2.3M was disallowed in full as the business case was considered brief and not well evidenced.

A comparison of SEMO's 'best estimate' expenditure in 2018-21, SEMO's request for allowances for 2021-24 and the RAs' proposed allowances are shown below:

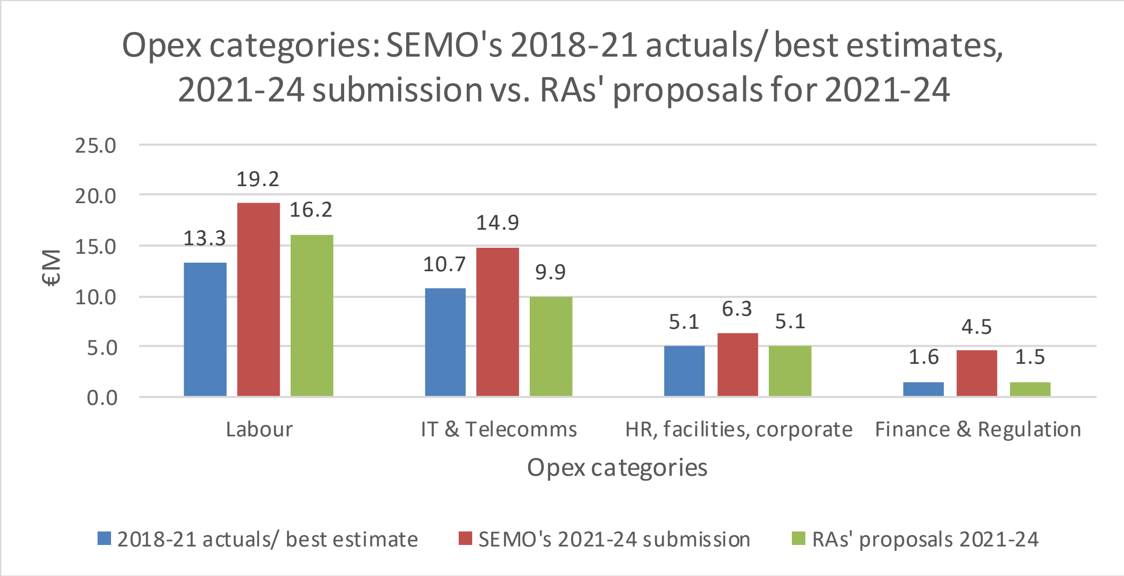


Figure 3.1: Comparison of 2021-24 opex

3.2 Responses to consultation

All respondents commented on the RAs' opex proposals.

General

SEMO was disappointed by the proposed opex allowances which it claims are less than the 'run rate' for 2020/21 and leave little opportunity for improvement on today's service levels. SEMO states that "*The RAs proposals are insufficient to enable SEMO to provide even the most basic of service levels to market participants and, if unchanged, SEMO will have to reallocate provisions to service fixed costs to which it is committed, particularly in IT, without which the most fundamental operability and security of the systems will be at risk*".

SEMO is of the view that there is misalignment between the proposed opex and capex allowance. SEMO acknowledges that the capex pots are considerable but the necessary support mechanisms in terms of a financeable framework and associated opex activities (resources for Testing and the High Level Analysis and Design Fees), required to enable SEMO to develop the necessary capital projects are not provided for.

Four of five[10] of SEMO's 'minimum requirements' which are specified in its response fall within the opex category. These are:

[10] The other 'minimum requirement' of a margin in respect of collection agent activity is discussed in Chapter 6 about Financeability.

- another 6 FTEs to be allowed (specifically 5 FTEs for Testing and 1 Legal FTE ie. A total of 11 additional FTEs to bolster the existing baseline of 59.5)
- additional pension costs to be incorporated into average salary per FTE
- IT hardware and software and managed services to be allowed in full
- provision for Strategic Initiatives and High Level Analysis and Design fees in full.

EAI commented that while the RAs have prioritised a desire for SEMO to stabilize existing market arrangements before focusing on future market design, future proofing of the SEMO market systems is as important and both processes should be progressed in parallel over the period of the 2021-24 price control.

EDF Renewables was of the view that operational stability should be a priority going forward.

Energia highlighted that ongoing market system developments are vital to ensuring the market is flexible and can support integration of technologies.

ESI is of the view that a well-functioning market that allows technologies such as battery storage to fully participate and compete with other market participants is essential. EAI requested a roadmap for an enduring solution to provide clarity and certainty to industry.

Resources (FTEs)

SEMO provided new information previously unseen by the RAs in its response about the need for additional Testing resources. These are to enable SEMO to robustly test any changes delivered. SEMO also outlined more detail about the need for an additional 1 Legal resource.

EAI, Energia and SSE encouraged involvement of market participants in Testing from early stages to bring the benefit of increased defect detection/reduce post release defects arising and aid SEMO's in-house testing resources. This suggestion was previously made by participants in response to SEMO's consultation on the Market System Development Plan 2019-21.

EAI suggested in its response that SEMO's tasks will become more difficult up to 2030 and beyond. Additional resources for future markets and system changes, where justified by SEMO, should be fully allowed.

EDF Renewables' response encouraged the RAs to consider the capability of SEMO in the delivery of its ambitions.

Energia noted that it is essential that the market is effectively resourced and incentivized to support 'business-as-usual' as well as future developments. Energia was supportive of resourcing for facilitation of technology integration (eg. batteries).

ESI commented that SEMO should be allowed what it needs rather than rely on benchmarking against previous periods.

SSE suggested that resourcing for 'known unknowns' should have been quantifiable by SEMO. SSE was supportive of the principle that the RAs are assessing a new starting baseline for 2021 from an actual headcount of 48 FTEs in place in 2018. SSE commented that resource allocation must take account of planning, development and system changes to deliver Articles 12 and 13 of the CEP; implementation of other market changes to reflect European requirements; first stage changes under EBGL and planning for second stage; Loose Volume Coupling and recoupling with Europe; administrative work and supporting of CRM into the future; increased security of supply issues for this and future winters.

Wind Energy Ireland and Renewable NI were of the view that SEMO requires more resources than it has now and the RAs should define expectations.

Labour costs

In terms of labour costs, SEMO stated that additional pension provision should be included within the calculations of average salary per FTE. SEMO stated that "*The RAs proposed allowance is directly inconsistent with the recent analysis and ultimate provision of costs by CRU related to the pensions obligations of EirGrid plc staff under the TSO control*".

No other respondents commented on this.

IT & Telecommunications costs

With regard to IT hardware and software costs, SEMO maintains that in order to achieve *"a well functioning market (including the necessary systems to support it), then it needs sufficient funding to maintain the underlying hardware and software that runs the market".* SEMO also states that *"operating a market with unsupported hardware and software in any situation, never mind in the context of our current [cyber security] threat landscape is an action which SEMO simply cannot condone. Simple preventative measures are better (and more cost-effective) than having to recover from a system attack".*

While not listed as a 'minimum requirement' by SEMO, SEMO provided up-to-date information about Telecoms costs incurred in 2020/21.

Strategic Initiatives is a cost element which had both a capex and opex component. SEMO claims that failure to provide for the opex element will impact SEMO's security and its ability to deliver and utilize projects due to be advanced under the capital programme.

No other respondents commented on the IT & Telecommunications allowance proposals.

HR, corporate and facilities costs

SEMO responded that recruitment, travel and general admin allowances should be increased. This is to account for natural staff turnover, expected travel returning to 2018/19 levels and payment for corporate subscriptions.

No other respondents commented on the HR, corporate and facilities allowance proposals.

Finance & regulation costs

SEMO noted that if the RAs do not restore provision for the High Level Analysis and Design Fees, SEMO will be unable to advance critical projects (eg. Batteries) in a timely manner nor indeed the scope and scale of projects currently envisaged (such as EBGL, priority dispatch, future arrangements, capacity markets, reintegration to Europe). The High Level Analysis and Design Fees work precedes the commencement of a project.

No other respondents commented on the Finance & Regulation proposed allowances.

3.3 RAs' comments

General

In terms of the 2020/21 'run-rate', no further update on SEMO's opex forecasts was provided by SEMO for 2020/21. As noted in our consultation, the 'run-rate' of a predicted €12.4M for 2020/21 is more than 30% higher than operating costs incurred in each year of 2018/19 and 2019/20.

SEMO has interpreted that the (almost) full capex allowance was provided for and this is welcomed but SEMO comments that the opex and capex allowances are disjointed. SEMO's interpretation of the capex provision is somewhat misleading and the RAs are of the view that it is necessary to clarify that while the RAs proposed to allow for Market System releases and support capital in full:

- the RAs proposed to allow 55% of the value of SEMO's predictable capex request for a small number (4 of 14) of discrete capital projects which were deemed more certain and were better justified by SEMO. These are categorized by the RAs' as being predictable capex;
- the RAs instead allocated the other 10 projects and 'known unknowns' to an 'unpredictable capex' category which, while not re-named, had a different intended purpose than in previous price controls. The 'unpredictable capex' allowance is now available to ensure that adequate funds are available for other capital projects in the absence of proper scoping in advance of the price control period.

Resources (FTEs)

In its price control submission, SEMO asked for 15.5 additional FTEs to its existing price control baseline of 59.5. The RAs proposed to allow an additional 5 (using business cases from SEMO and taking account of participant views in respect of 2 FTEs for Future Markets, 2 FTEs for Programme Delivery and 1 FTE for Cyber Security).

In its response, SEMO has said that, as a minimum, it needs a further 6 FTEs (and has specified 5 for Testing and 1 for Legal work). This would increase the internal resource baseline to 70.5 from 59.5. Other respondents have urged the need for SEMO to be adequately resourced to cope with future challenges.

As made clear in the consultation, *"It is important that SEMO assesses its HR strategy, job specifications, current allocation of resources to core functions and targeted intake grade of staff to ensure efficient and effective operations going forward"* and *"It is at SEMO's discretion to allocate its quota of resources to roles as required to meet its core obligations, reviewing these to ensure efficiencies and allocation against priority/challenging work areas at a particular point in time during the price control"*.

SEMO has an opportunity to 're-set the bar' now that the originally allowed full staff complement is in situ. In addition, SEMO now has almost three years experience of operating the revised SEM and can benefit from 'lessons learned'. This is further complemented by the provision of allowance for new additional resources equating to a c.13% uplift on the baseline at the last price control.

However, to ensure that necessary activities are well resourced, an opex allowance commensurate with allowance for 67.5 internal FTEs is approved. This includes the provision of an additional 3 FTEs to recognise the need for functional testing by Market Operator staff. This will be supplemented by external consultancy support discussed later in this chapter. It is within SEMO's own commercial decision-making capabilities to allocate/re-allocate staff within the entity during a price control period. SEMO should take account of participant responses to the price control consultation and SEMO's own industry consultations (eg. Market Systems Development Plan) when assessing this.

Labour costs

SEMO has chosen not to disclose how many pension scheme members are EirGrid MO employees; nor has actuarial information been provided.

Additional pension costs proposed by SEMO will not be included in the calculation of average salary for SEMO internal resources. An average salary of €83.5K p.a. per FTE has been used for the purposes of calculating an opex allowance.

IT & Telecommunications costs

The RAs have focused on SEMO's 'minimum requirements' under the IT & Telecommunications category as Hardware and Software/Outsourced managed services/Strategic Initiatives as well as Telecoms in this section:

- *Hardware and Software:* The RAs have considered SEMO's statement in its response that it would need to reduce/remove support (thereby compromising system security) or reallocate opex from other areas (which could impact on service levels) if a higher allowance is not provided. The RAs are of the view that re-allocation of regulatory allowances is a business decision for every regulated entity and is not exclusive to SEMO. However, the RAs are minded to provide for an allowance of €1.9M (compared to SEMO's request for €2.3M) to reduce risk of system security being compromised. The RAs' estimate is based on a pro-rata of SEMO's projected spend to June 2021.
- *(Outsourced) Managed services:* SEMO has taken the opportunity to provide additional detail of the need for 4 additional outsourced managed service FTEs (compared to the RAs' proposal for none) to bolster 2 which were approved for 2018-21. The RAs are minded to allow for 2 additional outsourced FTEs for Apps Support. SEMO's response focusses heavily on the need for 2 (of the 4) additional FTEs for App DBA support (for "EirGrid's" rather than SEMO's IT infrastructure team) as well, yet the original price control submission was for App Infrastructure support. The business case is not clear so the full requested allowance is not provided for.
- *Strategic Initiatives*: SEMO comments that *"the costs proposed by SEMO for Strategic Initiatives within the IT opex have not been provided for by the RAs in the consultation paper, notwithstanding the fact that the capex associated with these Strategic Initiatives has been allowed".* This is incorrect; the RAs proposed an allowance for 4 specific predictable capital projects but none of the projects related to Strategic Initiatives were included; they were instead deemed uncertain/not well scoped but can be progressed using the unpredictable capex fund at SEMO's discretion when assessing project need and prioritization. The RAs also note that SEMO has not deemed the 1.5 FTEs for Strategic Initiatives (not allowed in the consultation) as a 'minimum requirement' in terms of internal resources so there is a disjoint between the apparent need for the work and who will carry it out. In addition, SEMO asserts that the RAs disallowed SEMO's full ask of €1.03M for this initiative; SEMO actually asked for €1.97M (€1.5M under IT & Telecoms opex + €0.47M under Finance & Regulation opex). The business case is not well evidenced so the requested allowance is not provided for.
- *Telecoms:* While not listed as a 'minimum requirement', SEMO has asked that a budgeted expenditure of €160K for 2020/21 Telecoms is included within the RAs' calculations for an allowance. This has been taken account of and proposals will be increased for decision.

HR, corporate and facilities costs

- The RAs have reconsidered the allowance for recruitment costs in light of SEMO's reminder that the original proposal does not take account of staff turnover. An adjustment will be made to the allowance to allow for SEMO's request in full.
- A full allowance was proposed for training requirements in the consultation. The RAs received no responses to the consultation to suggest that this should change.
- Travel costs were considered by the RAs in light of Covid-related activity in the consultation proposals. SEMO's response states that an allowance of at least €150K p.a. in line with 2018/19 travel levels is required; this compares to the RAs' proposal to allow €120K p.a. The RAs are not minded to amend the allowance since efficiencies can be realized from virtual working arrangements.
- SEMO commented in its response that €210K is required for 'General Admin'; in SEMO's response it states that this cost line is mainly for corporate subscriptions. An adjustment will be made to the allowance to allow for SEMO's request in full.

Finance and regulation costs

SEMO commented on 'High Level Analysis and Design Fee' proposals and proposals for disputes, neither of which were proposed to be provided for by the RAs in the consultation.

The RAs understand that High Level Analysis and Design fees are for external consultancy support required to scope and advance projects in a timely manner; this analysis work precedes commencement of a project and provides technical specialism for the planning and design phases of capital projects. An example of 'batteries' is provided by SEMO, but other projects referred to include EBGL, Priority Dispatch, Brexit and future arrangements including new interconnection. SEMO is of the view that it will not be able to advance such critical projects without reinstatement of this allowance.

The RAs have considered this request alongside the suite of resources requested by SEMO for 'Future Markets' type activities.

The RAs are minded to recommend an allowance of €1.5M for High Level Analysis and Design fees; this will support a number of capital projects.

In relation to disputes, the RAs will not allow the amounts requested by SEMO in the price control submission. In its response, SEMO stated that *"Following previous disputes where an appointed DRB recommended and implemented a course of action not provided for in the SEM Trading and Settlement Code, it has been acknowledged by the Regulatory Authorities that ensuring a three person DRB is selected provides optimum protection for market rules"*. However, via Mod-12_20 the RAs actually changed the TSC to read *"The DRB shall be comprised of either a sole member or three members, except where the Disputing Parties cannot agree on the number of members. In this case, it shall be comprised of three* *members."* The allowances should provide for SEMO operating the market in accordance with the TSC and therefore disputes should be limited.

Agent of Last Resort (AOLR)

The consultation paper (SEM-21-046) provided more detail on the Agent of Last Resort (AoLR) function and costs but in summary, SEMO is obligated under the EirGrid and SONI Market Operator Licences to act as Agent of Last Resort to provide these AoLR trading arrangements. SEMO would act on behalf of generator units if these units considered the interaction with the ex ante markets through the preparation and submission of orders presented a barrier to their participation in these markets.

SEMO confirmed that up to the end of year 2019/20[11] no participant has utilised the AoLR service provided. The costs of providing this service are already captured within the opex allowances (IT and labour allowances) but are summarised in the table below for information.

Estimated AOLR Costs	2021/22 €M	2022/23 €M	2023/24 €M	Total for 2021-2024 €M
IT opex costs	0.17	0.18	0.19	0.53
Labour costs (1 FTE)	0.08	0.08	0.08	0.25
Total AOLR costs	**0.25**	**0.26**	**0.27**	**0.78**

Table 3.3: SEMO's Estimated AoLR Captured within the SEMC's OPEX allowances

The AoLR function was introduced as part of the revised SEM arrangements which went live in 2018 and reflects the SEM Committee's 'I-SEM Aggregator of Last Resort Decision Paper' (SEM-15-063). It was also stated that the AoLR would levy a fee for its services which would be subject to regulatory scrutiny.

Consistent with the approach taken in setting the AoLR fee in 2018[12] the SEM Committee have determined a flat fee of €0.23 per MWh which represents 50% of the full cost of the AoLR being charged to participants. This tariff will be published in SEMO's statement of charges.

As costs are already captured within SEMO's allowances any revenue generated from the AoLR fee being levied on those using the AoLR will be reflected in SEMO's k-factor adjustment at the end of each tariff year.

[11] https://www.sem-o.com/documents/aolr/SEMO-AoLR-Annual-Report-Oct-2019-Sept-2020.pdf

[12] SEM-18-003 SEMO Price Control 2018 – 2021 Decision

3.4 SEM Committee decision

Resources (FTEs) and average salary

An opex allowance commensurate with 67.5 FTEs with an average salary of €83.5K per year will be provided. It is at SEMO's discretion to allocate resources as required to meet its core obligations, reviewing these to ensure efficiencies and allocation against priority/challenging work areas at a particular point in time during the price control. We expect that participant views should be taken into account when prioritizing workload.

IT & Telecommunications costs

The decision since consultation has changed as follows:

- IT hardware and software allowance will increase from €1M to €1.9M (compared to SEMO's request for €2.3M). This is because SEMO provided stronger justification for such costs in its response to the price control consultation. The allowance is based on actual costs incurred to June 2021, pro-rated for each future 12-month period.
- IT (outsourced) managed services allowance will increase from €0.8M to €1.7M (compared to SEMO's request for €2.5M). This equates to allowance for 4 rather than 6 FTEs; the business case for other FTEs was inconsistent.
- IT Telecoms allowance (while not a 'minimum requirement' of SEMO) will increase from €0.1M to €0.2M (compared to SEMO's request for €0.4M). This is because SEMO provided an up-to-date estimate of costs incurred in 2020/21 within its response which the RAs used in revised calculations.

HR, corporate and facilities costs

The decision for HR related costs has changed since consultation with respect to recruitment and General Admin, allowing for an additional €80K over the price control period.

The decision for corporate and facilities costs is unchanged since consultation.

Finance and regulation costs

The decision has changed since consultation.

'High Level Analysis and Design Fees' allowance will increase from zero (disallowed due to a weak business case in the consultation) to €1.5M. This is because SEMO provided much better justified information in its response to the consultation. The RAs are also mindful that this function will provide support (in terms of both resourcing and intellectual capital) for testing, battery storage integration and a number of other capital projects which market participants would like to see expedited.

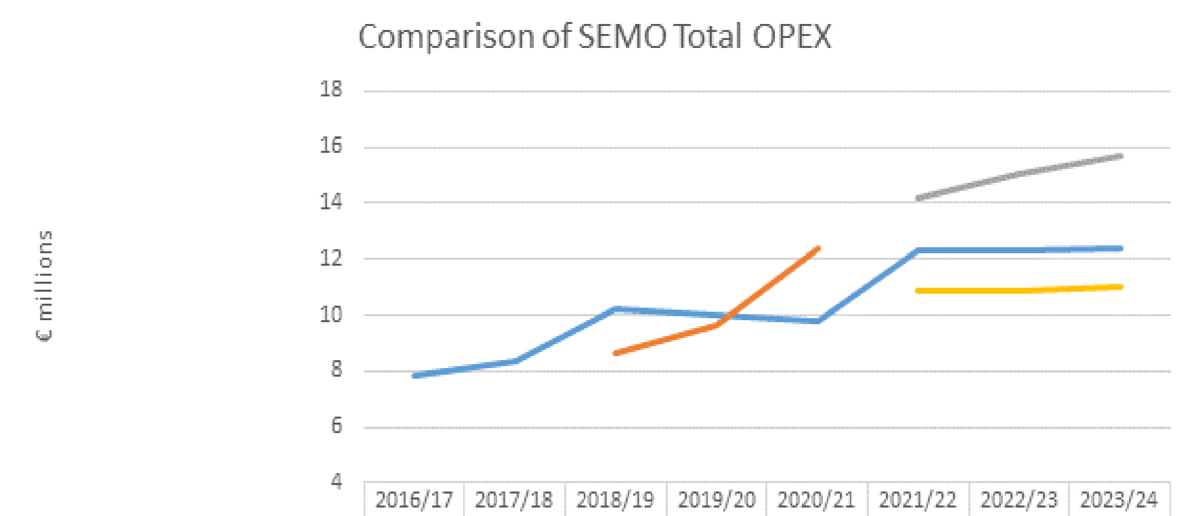
Agent of Last Resort (AOLR)

Based on cost information provided by SEMO in the price control submission the AoLR fee will be a flat fee of €0.23 per MWh from 1 October 2021.

SUMMARY OPEX DECISION

	SEMO submission 2021-24	RAs' consultation proposals	SEMC decision
Labour	€19.2M	€16.2M	€16.9M
IT & Telecomms	€14.9M	€9.9M	€11.8M
HR, corporate, facilities	€6.2M	€5.1M	€5.2M
Finance & Regulation	€4.5M	€1.5M	€3.0M
Total Opex	**€44.8M**	**€32.7M**	**€36.9M**

Table 3.4a: Opex Comparison of SEMO's Submission, RAs' Consultation and SEMC's Decision



	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Price Controls	7.84	8.37	10.20	9.98	9.80	12.3	12.28	12.38
SEMO Actual/Best Estimate			8.63	9.66	12.37			
SEMO Submission						14.14	15.06	15.70
RAs Consultation						10.88	10.88	10.98

Price Controls   SEMO Actual/Best Estimate   SEMO Submission   RAs Consultation

Figure 3.4: Comparison of SEMO's Total Opex Allowance

Opex Categories	SEMC Opex Decision			
	2021/22	2022//23	2023/24	Total
Labour	5.6	5.6	5.6	16.9
IT & Telecomms	3.9	3.9	3.9	11.8
HR, Corporate, Facilities	1.7	1.7	1.7	5.2
Finance & Regulation	1.0	1.0	1.1	3.0
Total	12.3	12.3	12.4	37.0

Table 3.4b: SEMC Opex Decision by Year and Category

4. Capital Expenditure (Capex)

4.1 Summary of RAs' proposals for consultation

SEMO's capex submission is summarised as follows:

SEMO CAPEX Submission	2021/22	2022/23	2023/24	Total € million
Market System Releases	4.62	4.62	4.62	13.86
Market System Release Support	1.10	1.10	1.10	3.30
Predictable Business capex	3.32	5.53	2.96	11.81
Unpredictable Business capex	0.10	0.10	0.10	0.30
Known Unknowns	0.00	0.00	0.00	0.00
Total	**9.14**	**11.35**	**8.78**	**29.27**

Table 4.1a: Summary of SEMO's capex submission 2021-24

In terms of capex, SEMO has expressed considerable uncertainty in its forecasts, and posed the argument that the framework underpinning capital expenditure needs to be flexible and agile in order to respond to a changing environment.

The RAs have reviewed all projects proposed, assessed SEMO's level of certainty, and divided projects into the 'predictable capex' pot and a new 'unpredictable (uncertain) capex' pot. The 'known unknowns' presented by SEMO will be included in the unpredictable capex category. The proposed unpredictable capex allowance is capped but flexible and has capability to flex/substitute priority projects as required. Should SEMO foresee the cap of this pot being breached, additional funding can be sought.

In addition to SEMO's 'uncertain' business cases, we note that our assessment of SEMO's 2018-21 capital expenditure indicated that the bulk of expenditure was predicted to take place in the last year of the control. We are mindful of feasibility/do-ability of the programme of forecasted capital projects and want to ensure that SEMO completes the 'must-dos' while also being afforded funding to progress with projects that would provide benefit to SEMO in 2021-24 and into the future.

RAs' CAPEX Proposal	2021/22	2022/23	2023/24	Total € million
Market System Releases	4.62	4.62	4.62	13.86
Market System Release Support	1.10	1.10	1.10	3.30
Predictable Business capex	1.88	2.93	1.49	6.30
Unpredictable/Uncertain Business capex	1.44	1.74	1.47	4.65
Total	**9.04**	**10.39**	**8.68**	**28.11**

Table 4.1b: Summary of RAs' Capex Proposals 2021-24

4.2 Responses to consultation

There was broad support from respondents for the flexible approach to capex.

However, there were mixed views specifically on the treatment of the unpredictable capex which was proposed to be sufficiently flexible to encompass "known/unknown" projects identified by SEMO. Some respondents such as Energia supported the flexible nature of this unpredictable capex while others such as EDF Renewables, ESI, Powerhouse Generation, SSE and Wind Energy Ireland preferred that discrete projects be identified and tracked as they viewed the lack of transparency and de-prioritisation of projects as potential risks.

There was strong support from EAI, EDF Renewables, Energia, SSE and Wind Energy Ireland for the involvement of participants in pre-release testing. In their view, pre-release testing of significant changes by participants would bring the benefit of increased defect detection and would aid SEMO's in-house testing resources and could reduce post release defects arising. Involving market participants in testing and trialling would contribute to market confidence, transparency and a clear knowledge of the extent of existing issues that need to be remedied.

A further suggestion was made by Energia for the involvement of market participants in a separate committee set up to engage on system developments including known issues relating to Go-Live which are still outstanding, system changes triggered by TSC modifications and future development system changes. In their view, such a forum could provide SEMO with efficiencies by being a gauge to help prioritise system development.

SEMO welcomed the RAs' recognition of the scale of potential capital investment required and SEMO did acknowledge that the predictable and unpredictable capex pots were considerable.

However, SEMO was concerned that the RAs had dismissed SEMO's proposed capex financeable framework which included a DIWE mechanism for the assessment of outturn capex; SEMO suggested it was the role of the RAs and not SEMO to determine whether capex is deemed to be inefficient or not. Furthermore, the RAs had not provided an asymmetric risk premium nor a NPV neutral adjustment. In SEMOs view the exclusion of these reduces SEMO's financial incentive to develop any capex projects.

SEMO was also concerned that the proposed opex allowance had excluded certain associated opex activities (such as high level analysis and design fees, testing, and costs of support and maintenance in running the additional functionality) and therefore SEMO would not be in a place to develop the capex projects. In its view, the RAs have instead made an assumption that a reduction in opex costs will be achieved through the capex programme.

SEMO specifically commented on the project relating to the SEM Finance System migration to the cloud and confirmed this project to be completely separate from the TSO Dynamic AX Upgrade allowed for within the TSO price controls and the cost of €2M is entirely SEM related.

4.3 RAs' comments

The RAs welcome the support for this new approach to SEMO's capex allowances within an agile and flexible framework. The ongoing capex requirement proposed by SEMO is significant and is triple the requirement for the legacy SEM. Given the costs involved and the introduction of a flexible capex framework there will be enhanced reporting with market participant involvement (eg bi-annual capex updates at the MOUG). This will be developed further in Q4 of 2021.

The RAs understand the concerns raised by some respondents and their desire for discrete projects within the 'unpredictable capex'. This 'unpredictable capex' will be capped but flexible by allowing SEMO the capability to flex/substitute priority projects as required including those 'known unknown' projects such as Brexit (Loose Volume Coupling), battery storage facilitation, the Clean Energy Package (CEP) and the Electricity Balancing Guidelines (EBGL).

Each project cost (across all capex categories) will be subject to the RAs' approval (as part of the k-factor process) with the onus on SEMO to prove that the expenditure has been efficiently incurred, demonstrably necessary for the purposes of the market operator business and expenditure is incremental to existing price controls and capable of being robustly validated by the RAs.

In addition to the Market Release project and Release Support project there were four projects identified as 'predictable capex' based on need and timelines. One such project was the SEMO Finance System migration to the cloud scheduled for 2022/23. The RAs welcome the additional clarification provided in SEMO's response that this system is separate from the corporate finance system and that the costs are entirely SEM related. The allowance for the SEMO Finance System has therefore increased from €1.1M to €2M in this decision. All other allowances remain unchanged from the consultation paper.

The RAs note from the responses the willingness of market participants to engage with SEMO in respect of prioritisation of system changes in scoping release and also in pre-release testing. Such engagement would be welcomed by the RAs. Indeed it is suggested by the RAs in the KPI section in relation to prioritisation of the known issues relating to SEM Go-Live as SEMO stated in their response that the resolution of known issues may have a high cost but low value or impact to market participants to the detriment of high priority or urgent issue resolution.

The capex concern within SEMO's response related to the capex financeability framework (DIWE, premium for asymmetric risk and a NPV neutral adjustment). These are separately discussed in Chapters 2 and 6. However, SEMO will continue to recover its capex costs over a five year straight-line depreciation period and receive a WACC return. Estimated depreciation and WACC return will be applied to tariffs (based on this price control decision) and a true-up adjustment will be applied as part of the k-factor process once the final ex-post capex is approved. The RAs do expect a reduction in opex costs to be achieved through efficiencies achieved via the capex programme. SEMO emphasised such potential opex efficiencies in the capex submission, for example, resolving defects and thereby eliminating operational workarounds, introducing process efficiencies and consolidation through automation (eg automated testing allowing accelerated test phases freeing up existing resources to focus on enhanced and more complex functional testing) and improved data validation reducing the potential for operator error. Within SEMO's response, more information has been provided regarding opex required to support the capex programme. Chapter 3 notes that an additional c€4M of opex is approved from that consulted upon.

The introduction of a flexible capex framework has been introduced for the benefit of SEMO and market participants given the level of change in the pipeline. It will be reviewed afresh in advance of setting the next price control for 2024 onwards.

The consultation (SEM-21-046) provided additional information on capex and remains a useful reference.

4.4 SEM Committee Decision

Market System Release Capital

Approval is provided for the full requested amount of €13.86M for the releases during the 2021-24 price control period. However, given the close integration of systems and the level of uncertainty associated with changes during the price control period, the approval is subject to:

1. Assurances from SEMO that the c7,000 vendor release hours for each release are utilised on changes driven by the market operator licensable activities. Changes driven by system operator licensable activities, such as scheduling and dispatch processes, should be funded through the EirGrid and SONI system operator price controls and therefore an appropriate cost adjustment should be applied; and

2. Reporting to the RAs in the same month as the release takes place, including, as a minimum, the following:
    a. finalized scope for that release;
    b. detailing each change and the assigned vendor hours;
    c. clear indication of those changes which are market operator driven and those which are system operator driven
    d. clearly set out the hours and costs applicable to the market operator, showing the adjustments as necessary for the system operator driven changes eg scheduling and dispatch processes within the SEM systems.

Market System Release Support Capital

Approval is provided for the full requested amount of €3.30M for the release support during the 2021-24 price control period. This provides SEMO with sufficient resources and flexibility to fully support a high quality roll-out of the releases and testing within the SEM systems.

Similar to that set out above under the Market System Release Capital project the SEMC expect the release support costs to follow the same cost apportionment between market operator driven changes and system operator driven changes.

Predictable capital projects

These projects are viewed as being predictable and necessary for this price control period based upon the RAs' assessment of SEMO's submission. The SEMO Finance System allowance has increased to the full amount of €2M sought by SEMO based upon additional clarification in SEMO's response.

This is summarised in the table below:

SEMC Decision: Predictable Capital	2021/22	2022/23	2023/24	Total € million
SEM Infrastructure Refresh	1.32	1.52	1.22	4.06
SEMO Finance System	-	2.00	-	2.00
Automated Test Capability	0.33	0.27	0.27	0.87
Website Development	0.23			0.23
Total	**1.88**	**3.79**	**1.49**	**7.16**

Table 4.4a: SEMC Decision: Predictable Capex Projects for SEMO

Unpredictable capex

This provides SEMO with a level of certainty regarding a set allowance which can provide additional flexibility during the price control period that can be utilised on capital projects which are not specifically captured in the predictable capex allowances above, depending on the prioritisation of capital projects during the price control period.

This can also be utilised for the 'known unknowns' mentioned earlier for example if additional vendor hours are required for a bi-annual release to facilitate, for example, battery storage within the market.

The unpredictable capex allowance is €4.65M.

This is provided to SEMO to facilitate capital projects which SEMO deems necessary for the market operator business during the price control period which have not been captured within the other allowances. SEMO will have the flexibility to prioritise projects within this category without being confined to a definitive list.

This flexible framework would be provided on the following basis:

1. the unpredictable allowance is treated as a revenue cap and is not on a pass-through basis;
2. SEMO must report to the RAs annually detailing each project. This detail must include the need for the project, the final cost, detail of the asset delivered and the expected future benefit to be obtained from the asset.
3. SEMO must report to stakeholders/market participants annually on the use of this allowance.
4. Each project cost will be subject to RA approval (as part of the k-factor process) with the onus on SEMO to prove that the expenditure has been efficiently incurred, demonstrably necessary for the purposes of the market operator business and expenditure is incremental to existing price controls and capable of being robustly validated by the RAs.

Summary of decision

Each of the above capex categories, with the exception of unpredictable capex, are provided on the basis that actual approved outturn costs will be applied to the Regulatory Asset Base (RAB).

If SEMO foresees exceeding the allowances, a submission for additional funding can be made to the RAs which may be subject to public consultation.

All capex will be subject to RA approval (as part of the k-factor process) with the onus on SEMO to prove that the expenditure has been:

- efficiently incurred,
- demonstrably necessary for the purposes of the market operator business; and
- expenditure is incremental to existing price controls and capable of being robustly validated by the RAs.

Depreciation will be calculated on a five year straight line basis and SEMO will earn a WACC return on its capex. The WACC is a blend of the EirGrid TSO and SONI TSO WACCs in accordance with specified proportions, currently 75% and 25% respectively.

SEMO is to provide bi-annual capex updates at the MOUG and at least annually provide a detailed report to market participants/stakeholders on the use, including costings, of the unpredictable capex allowance.

The table below details the capex allowances provided for each capex category across the three year period totalling €29M.

SEMC's CAPEX Decision	2021/22	2022/23	2023/24	Total € million
Market System Releases	4.62	4.62	4.62	13.86
Market System Release Support	1.10	1.10	1.10	3.30
Predictable Business capex	1.88	3.79	1.49	7.16
Unpredictable/Uncertain Business capex	1.44	1.74	1.47	4.65
Total	**9.04**	**11.25**	**8.68**	**28.97**

Table 4.4b: Summary of SEMC's total capex decision 2021-24

4.5 Regulatory Asset Base (RAB), Depreciation, WACC Return

The commencement of the revised SEM arrangements on 1 October 2018 represented a 'clean slate' for SEMO capex and the associated Regulatory Asset Base (RAB) was re-set to zero. The I-SEM project costs were assigned to the EirGrid and SONI TSO RABs and a WACC return is provided via the respective TSO price controls. The MO RAB is estimated to be €12M at the commencement of this price control and is expected to rise to €22M based on the capex decision in this paper.

The blended WACC applicable to SEMO is shown in the table below.

WACC Rate	TSO WACC Decisions	Specified Proportion	SEMO WACC
EirGrid TSO[13]	3.80%	75%	2.85%
SONI TSO[14]	4.03%	25%	1.01%
Blended Rate for SEMO WACC			**3.86%**

Table 4.5a: Blended WACC applicable to SEMO

The table below summarises SEMO's RAB and WACC return for the period 2018-21 and expected RAB and WACC return for the period 2021-24. With the increase in the RAB value

[13] Pre-tax WACC as defined in EirGrid TSO PR5 Transmission Revenue for 2021 to 2025
[14] Pre-tax WACC as defined I SONI TSO Final Determination for 2020 to 2025

SEMO's WACC return is expected to continue to increase with a projected WACC return of €0.86M in 2023/24.

RAB Depreciation WACC	SEMO Price Control 2018 - 2021			SEMC Price Control Decision 2021 - 2024		
	Actual 2018/19	Actual 2019/20	Estimated 2020/21	Forecasted 2021/22	Forecasted 2022/23	Forecasted 2023/24
Opening RAB (€m)	-	3.996	6.651	12.181	16.977	21.954
Additions (€m)	4.454	4.184	8.064	9.040	11.250	8.680
Depreciation (€m)	**0.457**	**1.529**	**2.534**	**4.244**	**6.273**	**7.809**
Closing RAB (€m)	3.996	6.651	12.181	16.977	21.954	22.825
Average RAB (€m)	1.998	5.324	9.416	14.579	19.466	22.389
Blended WACC	5.18%	5.18%		3.86%	3.86%	3.86%
WACC return (€)	**103,509**	**275,778**	**383,247**	**562,761**	**751,370**	**864,227**

Table 4.5b: SEMO's Expected RAB, Depreciation and WACC Return based on SEMC Capex Decision

5. Incentivisation

5.1 Summary of RAs' proposals for consultation

A range of incentives were proposed for the 2021-24 price control period with differing approaches to incentivise opex, capex and SEMO's outturn performance.

Opex costs were proposed to continue to be incentivised via revenue cap (RPI-X) regulation. This provides an incentive for SEMO to make opex cost efficiencies which can be retained during the price control period. Such cost efficiencies are then to be captured by the RAs in setting the next price control and passed on to consumers.

Capex costs were proposed to be incentivised via a new approach focused more on outputs. This reflected the recognition of the need for a flexible and agile capex framework for the 2021-24 period. All capital expenditure by SEMO would be recoverable subject to SEMO proving the spend has been efficiently incurred, demonstrably necessary, is incremental to existing price controls and capable of being robustly validated by the RAs. In addition, the unpredictable capex allowance was proposed to be provided as a cap. SEMO would have the ability to apply for additional funding should it foresee the cap being breached. Enhanced reporting would also be required which should involve market participants. This capex incentivisation framework was aimed at incentivising SEMO to spend efficiently and prioritise capex workload for the advancement of the SEM.

Key Performance Indicators (KPIs) aim to encourage high performance and are an effective mechanism to encourage benefits to stakeholders with better quality and service. The incentives should evolve with the organisation and represent a challenging target which is attainable with the utilisation of resources provided. With this in mind, the RAs proposed to retain four of the existing six KPIs with a KPI incentive reward of €1.3M (based on 4% of the total opex allowance) for the three year period. However, it was proposed that the KPI reward would be conditional on SEMO first closing out specific known issues and making certain improvements to resettlement and re-pricing by the end of the first year of this price control (ie. by September 2022). The detail associated with these proposals was provided in the consultation paper (SEM-21-046). The RAs also sought feedback on the appropriateness of KPIs associated with the SEM systems fully incorporating existing technologies (for example, battery storage and the ability to make energy payments directly to DSUs).

5.2 Responses to consultation

Opex incentivisation was commented upon by Powerhouse Generation noting that SEMO keep any allowed expenditure, thereby incentivising SEMO to build a margin between what SEMO spends and allowed expenditure. Their concern is that SEMO keep the allowed expenditure even if they do not provide the basic services with poor provision of service impacting participants such as generators and suppliers but unlikely to impact SEMO.

The proposed approach for capex incentivisation was broadly supported by respondents as it provides SEMO with a flexible approach to capex so as SEMO are in a position to develop and implement necessary system changes and requirements including those associated with Brexit, CEP, and EBGL. EDF Renewables, Powerhouse Generation, SSE and Wind Energy Ireland had a preference for identifying discrete projects within the unpredictable/uncertain business capex particularly those associated with the “known unknown” areas. Energy Storage Ireland was concerned with the unpredictable/uncertain business capex being provided as a cap and that this might create a constraint risking de-prioritisation of key projects such as battery storage. EDF Renewables, Energy Storage Ireland, SSE and Wind Energy Ireland supported more transparency with SSE specifically supporting the RAs’ enhanced assessment criteria for capex.

KPI incentives were commented upon by all respondents. In general, there was broad support for the proposed KPI suite. However, concerns were raised with the proposed removal of the “Timely Publication of Specific Key Market Information KPI” with EAI, Energia and SSE citing possible remedies or alternatives for capturing this requirement if not through the KPI mechanism. A number of new KPIs were proposed, most notably, a battery storage KPI and an additional KPI associated with repricing and resettlement. There was limited support for making the KPI reward conditional on SEMO first closing out specific known issues and making certain improvements to resettlement and re-pricing by the end of the first year of this price control (ie. by September 2022), while noting SEMO fundamentally did not agree with applying contingencies on KPI returns.

Respondents recognised the importance of KPIs in relation to service levels by incentivising appropriate behaviour and performance and ensuring customer confidence. However, the underperformance against KPIs during 2019/20 was a concern raised by EDF Renewables and Wind Energy Ireland. Emphasis was placed on the need to sharpen KPIs both in terms of minimum service levels and KPI reward. SSE raised concerns with the SEMO-vendor relationship and the challenges that has had on the success of the KPIs as a regulatory framework.

EAI and Powerhouse Generation supported the proposed conditional factors being met before KPI rewards could be applied and recognition that this supported the priority the

Participant Consultative Forum put on improvements to business-as-usual. With the exception of SEMO no other comments were received on these conditions. SEMO fundamentally did not agree with applying contingencies on KPI returns. Instead, SEMO considers that KPI returns should be based on operational performance, and should not be impacted by delivery of capital projects.

SEMO's view on the condition to resolve known issues still outstanding from SEM Go Live would have a detrimental impact to the market by incentivising SEMO to focus on resolution of issues that may be significant in cost but of little value to the market participant. These would be prioritised over the more urgent change requests required by the market participants. SEMO also noted that the resolution of known issues is rarely the most efficient or effective use of limited resources to remedy all defects, in particular those that are of high cost to rectify and low value additions. SEMO has and must continue to prioritise defect resolution based on that which are most beneficial or of the highest urgency to the market participants, thus retaining the flexibility to make the right decision at the right time. SEMO did mention that if the resolution of known issues was of significant concern to the RAs and industry they would be happy to engage to discuss the introduction of resolving known issues as a separate KPI, rather than a pre-condition, in a manner that did not detract SEMO from addressing high priority issues/defects.

SEMO's view on the condition for improvements in both repricing and resettlement is that there seems to be a significant misunderstanding by the RAs regarding the resettlement process as market participants can raise formal queries since SEM Go Live under the Trading and Settlement Code. SEMO's current settlement process cannot accelerate ad-hoc resettlement significantly due to system time reasons. SEMO suggested that a more appropriate mechanism is to incentivise the rate at which ad-hoc billing periods are processed through a separate KPI, rather than a contingent factor based on an absolute time period.

In terms of the specific proposed KPIs the responses were more limited with mixed views on the proposed reduction of KPIs and the proposed weightings. Most comments related to the Re-settlement Queries KPI, the proposed removal of the Timely Publication of Key Market Information KPI and possible new KPIs. There was a view from Energia that the General Queries KPI, which provides for resolution of a query within 20 business days, was excessive and is equivalent to almost a month and instead should be tailored to urgent, complex or simple queries and therefore possibly attract a higher weighting. SSE noted that some of the KPIs related to business-as-usual activities that should be well integrated into the business activities and therefore not expected to continue to be additionally rewarded within the KPI framework. SEMO supported the proposed KPI incentives for the 2021-24 period.

Specific responses received to the proposed Resettlement Queries KPI included Energia's view that the weighting was too high given the fact the resettlement process has improved since SEM Go Live and many re-settlements are no longer material amounts. SSE was pleased this KPI was proposed to remain but considered the weighting to be insufficient and that the definition of the metric should be amended to measure how quickly a query is resolved and how engaging SEMO have been in reaching an agreeable resolution.

Concerns were raised from EAI, Energia and SSE to the proposed removal of the Timely Publication of Key Market Information KPI. They were concerned that this KPI was being abandoned because SEMO stated the data could not be compiled and instead asked that difficulties in measuring performance needs to be resolved or alternative arrangements, such as a Trading and Settlement Code modification or licence requirement, should be proposed. They emphasised that users of this information had a clear dependency on the provision of data by SEMO and that SEMO should be held to account in order that it will publish complete and accurate information. SSE suggested that as the publication of market information evolves over time, and where new publications may be required, this may be a suitable activity to encourage via a KPI under a lower weighting. A range of new KPIs were proposed in the responses at a high level. These included:

- KPI to support battery storage being full incorporated into market systems allowing full participation in the SEM within targeted timelines;
- KPI to ensure the repricing and resettlement backlog continues to fall during the price control period, perhaps with the use of a sliding scale;
- KPI specific to queries relating to the capacity market, auctions and secondary trading as such queries require a quicker turnaround;
- KPI to be applied to “known unknown” projects once they commence; and
- KPI to define how highly material settlement queries are dealt with.

EAI and SSE said they would welcome a further consultation on KPIs. EDF Renewables and Wind Energy Ireland requested performance against KPIs be reported on to market participants more regularly.

5.3 RAs’ comments

In setting the opex allowance within a revenue cap (RPI-X) mechanism the RAs take into consideration the opex incentivisation placed on SEMO. The expectation is that as a minimum a satisfactory service level is maintained throughout the price control period. In doing so SEMO may make efficiencies within the period which can be retained by SEMO in the expectation they will be captured in the setting of future price controls.

The capex incentivisation framework will remain unchanged from that consulted upon. For SEMO this will be the first price control which has provided such a flexible and agile capex framework which includes an unpredictable/uncertain capex allowance being provided as a cap. It is therefore in SEMO's interests to ensure all capital expenditure is recoverable to SEMO by meeting the assessment criteria of proving the spend has been efficiently incurred, demonstrably necessary, is incremental to existing price controls and capable of being robustly validated by the RAs. The capex incentivisation framework is aimed at incentivising SEMO to spend efficiently and prioritise capex workload for the advancement of the SEM.

KPIs have been raised at the Participant Consultative Forum and in the consultation paper and therefore the RAs are keen to include a decision on KPIs in this decision paper to provide SEMO with certainty in advance of the price control period commencing. In arriving at the KPI decision the RAs have targeted specific KPIs while recognising KPIs will continue to evolve over time.

Given the limited support for the two proposed conditions required to be met in advance of SEMO earning a KPI reward, the RAs and SEMC have decided not to introduce these two conditions. Instead, an additional KPI has been set which focuses on the process rate of the known billing periods (October 2018 to May 2020) which require ad hoc resettlement. No separate KPI will be set for the known issues, which are reported upon weekly by SEMO. Instead the RAs and SEMC strongly urge SEMO to engage with market participants to ascertain those known issues which should be prioritised including identification of those known issues which have a high cost to rectify and low value add. Effort is required by SEMO to address (prioritise/action) these known issues particularly as the revised SEM is almost in its fourth year.

A new KPI is being introduced to emphasise the importance of fully facilitating storage technology in the SEM to support a changing generation portfolio. For example, it is understood from respondents that there have been issues identified which impact on the operational battery projects today. Energy Storage Ireland stated that there are 250 MWs of battery storage projects now commercially operational in the SEM with the number expected to grow to between 700-800 operational by the end of 2022.

The target for this KPI is the successful implementation of the enduring solution which enables full participation of storage technology within the Balancing Market. This should include, inter alia, resolving registration difficulties, the capability of SEMO accepting and processing 'negative' Physical Notifications (PNs) for when the battery is charging, and overall providing a level playing field for battery storage providers with other providers. The weighting for this KPI is stronger in years 1 and 2 of this price control period to encourage implementation by the end of September 2023. The RAs will engage with SEMO and industry as to when this KPI has been met. If the KPI is met in year 1, the reward in year 2 and 3 can continue to be obtained to ensure SEMO has the opportunity to achieve the full KPI reward in each of the three years.

As mentioned above, a new KPI has also been set to encourage an accelerated approach to the known backlog of ad hoc resettlement for the period. SEMO is currently processing one ad hoc billing period (7 days) per week. SEMO have advised in their response that they propose to move to processing five ad hoc billing periods in a 4 week period from September 2021. This new KPI aims to encourage SEMO to increase this process rate further by targeting at least six ad hoc billing periods in a 4 week period during years 1 and 2 of this price control.

In relation to the General Queries KPI concern that 20 business days was excessive this KPI has been staggered across the three year period with aim of moving to general queries being resolved within 15 business days in year 3 of this price control. The weighting is therefore increased across each of these years to encourage improved performance.

The Invoicing KPI, SEMO Re-settlement Queries KPI and System Availability KPI will continue as is, with the weighting increasing in year 3 of the price control (as the storage technology KPI and ad hoc resettlement backlog KPI fall away).

While recognising respondents were concerned with the proposed removal of the Timely Publication of Key Market Information KPI, the RAs consider a more appropriate approach is to consider a modification to the Trading and Settlement Code due to the limitations (regarding performance measurement) experienced during 2019/20 with this requirement within the KPI framework. The RAs note that SEMO has licence obligations[15] to comply with the Trading and Settlement Code.

The RAs have targeted specific KPIs in this decision while recognising that KPIs should continue to evolve over time to remain effective.

5.4 SEM Committee decision

In summary, the SEM Committee has decided:

- Opex will continue to be incentivised via revenue cap (RPI-X) regulation
- Capex will be incentivised via a new approach focused on a flexible and agile framework with costs recoverable subject to SEMO proving the spend is efficiently incurred, demonstrably necessary, is incremental to existing price controls and capable of being robustly validated by the RAs;
- KPI will be incentivised as set out below.

[15] Condition 3 of the EirGrid Market Operator licence and Condition 15 of the SONI Market Operator licence

The SEMC has decided upon six KPIs, four existing KPIs and two new KPIs relating to storage technology and the known ad hoc resettlement backlog. This is summarised in the table below and more detailed KPI information is provided in Appendix A.

KPI Number	Final Annual KPIs 2021-2024						
	Metric	Weighting			Target	Upper Bound	KPI Reward in year 2021/22
		2021/22	2022/23	2023/24			
1	**Invoicing**	15%	15%	25%	97%	100%	€ 73,800
2	**SEMO Re-settlement Queries**	20%	20%	30%	<15 per Qtr	<5 per Qtr	€ 98,400
3	**Process Rate for Ad Hoc Resettlement to Clear Known Backlog**	20%	20%	0%	6 weeks ad hoc completed in 4 week period	8 weeks ad hoc completed in 4 week period	€ 98,400
4a	**General Queries** (resolved within 20 business days)	5%			95%	99%	€ 24,600
4b	**General Queries** (resolved within 17 business days)		10%		95%	99%	
4c	**General Queries** (resolved within 15 business days)			15%	95%	99%	
5	**System Availability**	15%	15%	25%	99%	99.9%	€ 73,800
6	**Storage Technology Facilitation**	25%	20%	5%	Successful Implementation of enduring solution enabling full participation in BM	N/A	€ 123,000
	Maximum Available Reward Per Year based on 4% of Opex Allowance for 2021/22	100%	100%	100%			€ 492,000

Table 5.4: SEMC Decision suite of KPIs for SEMO during 2021 - 2024

The KPI framework is asymmetric in that there is only an upside reward available for SEMO with no risk of financial loss or penalty. The incentive reward available to SEMO is 4% of the total proposed opex allowance provided across the three-year period (equates to €1.5M) and KPIs will be measured on a quarterly basis.

In relation to KPI reporting the performance criteria associated with the SEMO annual performance report should be amended to include a detailed outturn of the KPIs together with any expected financial KPI reward. This should include a breakdown of each of the different systems included within the System Availability KPI. This would provide stakeholders with greater transparency of SEMO's performance on a timely basis.

6. Financeability

6.1 Summary of RAs' consultation proposals

One of the considerations of the RAs and stated 'desired outcomes' of SEMO for the 2021-24 price control is to achieve a financeable framework under which SEMO can effectively operate.

The next SEMO price control sets the amount of money (allowed revenue) that can be earned by SEMO during 2021-24. Allowed revenues have to be set at a level which covers SEMO's costs and allows it to earn a reasonable return subject to incurring efficient and demonstrably necessary costs which are incremental to other price controls.

In its price control submission, SEMO stated that there were gaps in the price control framework which could affect its financeability. In addition to receiving a WACC return, an amount each year in respect of a Parent Company Guarantee, and a margin on collection agent revenues, SEMO requested consideration of a premium in respect of asymmetric capex risk and a margin in respect of operational risk.

The RAs' appointed consultants to review SEMO's financeability and each of the components which provides or could provide SEMO with a revenue stream.

A summary of proposals consulted upon is as follows:

- The RAs did not propose a change to the existing approach to SEMO's WACC or PCG at this time.
- While the RAs recognised that a small theoretical risk of disallowance of capital expenditure exists, SEMO provided no convincing evidence of significant cost disallowances in its capital programme to warrant receipt of a guaranteed premium going forward. No additional premium was proposed in respect of asymmetric capex risk.
- SEMO received a margin for collection agent revenues introduced for 2018-21 on the basis it was particular to that price control and the period covered by it and could not be seen as setting a precedent for any future determinations by the SEMC[16]. The RAs proposed to remove this going forward.
- The RAs proposed that SEMO should not be remunerated for operational risk beyond the usual WACC/RAB remuneration as the RAs do not view SEMO as a high-risk business.

[16] Page 35 – SEM-18-003_SEMO_Final_Determination_SEMC_FINAL.pdf (semcommittee.com)

6.2 Responses to consultation

No responses were received about the proposed WACC or approach to the Parent Company Guarantee.

However, in its response, SEMO had a number of concerns with the approach taken by the RAs in SEM-21-046 in relation to the financeability of SEMO. Information about application of 'Demonstrably Inefficient and Wasteful Expenditure' (DIWE) is discussed in Chapter 2; asymmetric risk in respect of capex disallowances and the collection agent activity margin are discussed below.

Asymmetric Risk

SEMO states that it faces a significant degree of asymmetry in respect of cost recovery for predictable capex, since it is impossible to keep any upside benefit from greater efficiencies while only being exposed to downside risk. SEMO further states that, at best, it can recover its costs but at worst would make an uncapped loss. SEMO suggests that applying a premium based upon asymmetric risk would be in line with the CMA determination to remunerate SONI for the asymmetric risk that it faces since the asymmetries are comparable.

Collection Agent Margin

In its response, SEMO states that it manages cashflows covering the Capacity Market, Capacity Socialisation Fund and Residual Error, and it therefore faces significant exposure to cash shortfalls due to the revenue risk. It argues that the nature of these costs is inherently uncertain and outside of SEMO's control and that there is no evidence that these risks and costs have abated as I-SEM has become more established.

SEMO states that the collection agent risks comprise:

- "liquidity risk due to risk in timing of revenues and costs";
- "operational and reputational risk related to the quality of function";
- "legal risks in complying with licence conditions"; and
- "cyber risk due to attacks on the systems";
- "cost risk relating to the opex and capex of running the system"; and
- "cost (and opportunity cost) of maintaining a working capital facility.

SEMO states that the failure to provide a collection agent revenues margin "*would result in these direct risks and costs associated with the working capital facility not being priced, which would not be in line with the principles used in previous SEMO price controls which seek to replicate efficient market costs for the discharge of the activity and associated risks*."

6.3 RAs' comments

Asymmetric Risk

SEMO has not provided any new evidence on asymmetric risk in its consultation response.

The financeability framework adopted by the RAs is designed to offer a fair return for material risks taken on the basis that SEMO is competent in its core functions. The RAs recognise that material asymmetric risk is viewed unfavourably by financiers. That does not mean that the appropriate solution to every potential asymmetric risk, even when it is too small to be quantified, is the payment of an arbitrary allowance. Where risks are unquantifiably small and within SEMO's control, SEMO is expected to satisfy financiers that they are not materially exposed. The risk of disallowance falls clearly within this category. SEMO is an IT operation in which managing IT projects is a core competence, and the ability to avoid disallowance is easily within its power. Since finance is always made on the basis of stringent examination of the company's ability to perform its core competences, this is the kind of check that will inevitably be a prerequisite to any financial investment in an entity engaged in IT operations. On this basis, the RAs believe SEMO should not be exposed to any material asymmetric risk of disallowance.

Collection Agent Margin

At the outset, the RAs note that introduction of the collection agent margin in 2018 was not intended to be treated as precedent for future price controls[17].

The RAs acknowledge SEMO's comments that it manages cash flows covering the Capacity Market, Capacity Socialisation Fund and Residual Error, and that it therefore faces exposure to temporary cash shortfalls due to the revenue risk.

As described in the SEMC consultation (SEM-21-046) the TSC requires "reasonable endeavours" to be used to establish a 'Market Working Capital Credit Facility'. SEMO is then required to keep a running check of the 'Available Working Capital Amount' and is not obliged to pay SEM participants more than the Available Working Capital Amount plus receipts from SEM participants will allow. The RAs acknowledged that the Market Working Capital Credit Facility does not cover Difference Payments and Difference Charges, which are instead covered by the Capacity Market Socialisation Fund.

SEMO's price control submission questionnaire provides no detail of the costs associated in managing/using this facility, nor of any costs expected in renewing it or establishing a new facility.

[17] Page 35 and 41 - SEM-18-003_SEMO_Final_Determination_SEMC_FINAL.pdf (semcommittee.com)

When discussing the working capital facility in 2018, the SEMC determined that "*The SEM Committee is of the view that the establishment costs for the facility will be treated in the same manner as the ISEM implementation costs in the TSO's RABs and the ongoing costs will be implemented in line with the specific rules for such cost recovery pertaining in each of the SONI TSO and EirGrid TSO price control*"[18] This followed recognition by the SEMC that *."In SEM, letters were provided by UR and CRU indicating that the costs of providing these standby facilities, the amounts drawn down under these facilities and the financing cost associated with any funds drawn down would be recoverable by adjustments to the EirGrid TUoS and SONI SSS tariffs*[19]*".* In neither instance was there an understanding that the above costs would be recovered via SEMO.

SEMO has referred to "*liquidity risk*", "*working capital risk*" and "*variation risk*". These terms were not defined in SEMO's initial price control submission and do not appear to have been defined in the consultation response. The RAs' financeability framework is designed to compensate SEMO for outcomes in which SEMO may face adverse financial outcomes which either are asymmetric or are symmetric and systematic. The "risks" to which SEMO refer relate only to the timing of cash flows, and are not risks that amounts will be lost without subsequent recovery.

SEMO has asserted that an equity buffer is required to support risk-free working capital borrowings. This appears to be based on a misunderstanding of the nature of risk and return. The question of an equity buffer is irrelevant since a riskless cash flow would not place any burden on equity, regardless of how much equity was in place or its stated purpose.

The RAs also acknowledge SEMO's claims that it is exposed to a number of other risks associated with the collection agent activity, including legal risk, cyber risk, operational/ reputational risk, opex/capex risks. However, SEMO did not provide evidence to demonstrate these:

- *Legal Risk:* SEMO claims that a margin on various TSC cashflows are justified by the "legal risk in complying with licence conditions". SEMO has not explained which conditions and what risks are of concern nor specified what potential adverse consequences might follow to justify compensation. It is the view of the RAs that, for SEMO to comply with its licence conditions, it needs to employ sufficient resources and staff with appropriate expertise, the costs of which the RAs allow in the price control.

[18] Page 42 - SEM-18-003_SEMO_Final Determination_SEMC_FINAL.pdf (semcommittee.com)

[19] Page 35 - SEM-18-003_SEMO_Final Determination_SEMC_FINAL.pdf (semcommittee.com)

- *Cyber Risk:* SEMO is an IT company, whose core competence is to provide cyber-secure IT systems. The RAs believe that the costs of doing this are the opex and capex costs for which the price control is designed to compensate SEMO.
- *Operational and Reputational Risk:* SEMO has not provided evidence to demonstrate this risk. The RAs' view is that future regulatory interventions will be constrained to what is appropriate and will in any case be subject to the duty of ensuring that the licensee can finance its activities. The RAs are therefore of the view that financiers have no cause to fear that future regulatory intervention will render their investment untenable and disagree that a margin is required now in anticipation of such intervention.
- *OpEx and CapEx risks*: SEMO states that collection agent risks include "cost risks relating to the OpEx and CapEx of running the system" and "*Cost (and opportunity cost) of maintaining a working capital facility*". The RAs are of the view that the use of specialist skills does not imply that salaries are unreasonably difficult to forecast over the period of a price control. Moreover, while all companies require some specialist adaptation of their employees' skills, the employment market for IT professionals and for IT services is one of the largest of all sectors, and the sophisticated nature of those skills is already reflected in the level of salaries and fees allowed for in the price control. The RAs do not agree that these issues justify an additional margin on TSC cashflows.

The RAs and their consultants invited SEMO to provide evidence that errors in its cost forecasts are asymmetric or systematic, and thus warrant provision of a margin. SEMO has not provided any meaningful evidence in response. Furthermore, SEMO is well placed to understand and control its costs.

The RAs have concerns about the continuation of the collection agent margin as is for the following reasons:

- the previous SEMC statements in the 2018-21 price control decision (SEM-18-003) mentioned above about recovery of costs via TSO tariffs for the working capital facility;
- lack of evidence provided by SEMO to multiple questions raised by the RAs and their consultants about the risks involved to warrant receipt of a margin; and
- lack of recognition of the costs of having the facility in place/costs of drawing down monies from it in the price control questionnaire submitted by SEMO.

The SEMC has decided to 'phase down' the collection agent margin. Rather than continue to allow a margin equating to 0.25% of revenues during 2021-24, a collection agent margin will be provided using the following rates: Year 1: 0.15%, Year 2: 0.125%, Year 3: 0.1%.

This equates to recovery of c.€1.3M over 3 years.

SEMO's return, PCG, margin and rewards available from KPIs is depicted below.

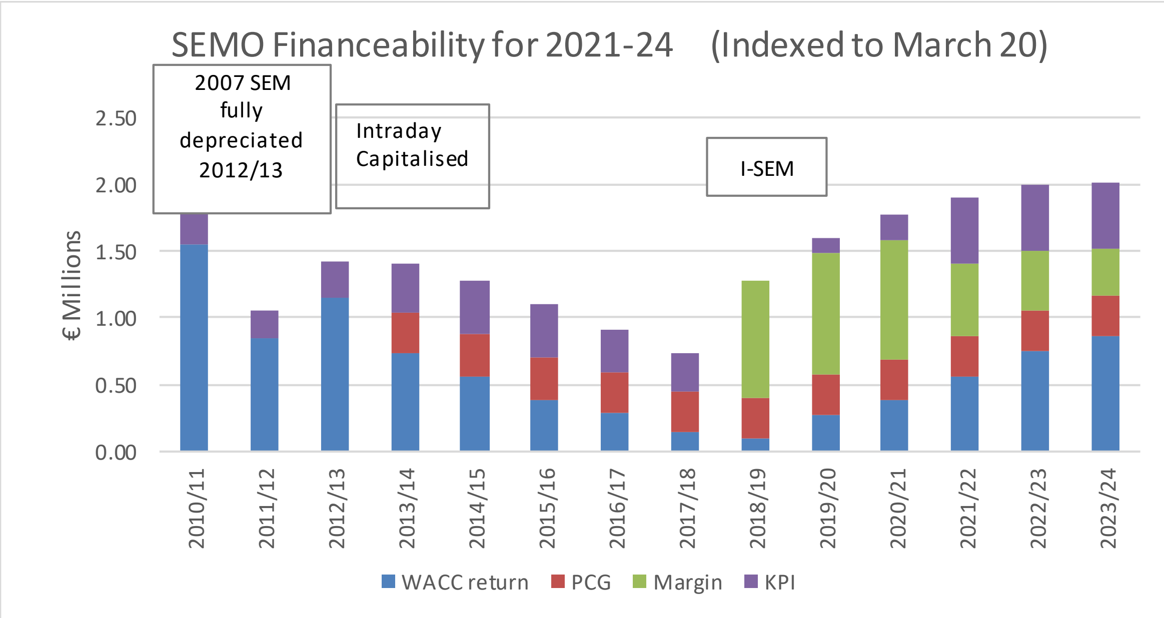


Figure 6.3: SEMO financeability 2021-24

6.4 SEM Committee decision

Consideration of SEMO's financeability has led the SEMC to determine that:

- the pre-determined approach to SEMO's WACC (in SEM-17-44) is approved. A blended WACC will be used (based on that calculated for the EirGrid TSO/SONI TSO price controls and apportioned 75:25);
- provision of an amount for the cost to EirGrid Group in providing SONI a PCG through its Market Operator licence is approved. The continuation of an allowance at €300K p.a. will apply for the duration of the 2021-24 price control as a means of capturing any perceived [low] risks which may transpire during 2021-24.
- there will be no introduction of premium for asymmetric capex risk. No additional margin will be introduced for other operational risk.
- A collection agent margin will be provided using the following rates:
    - Year 1: 0.15%
    - Year 2: 0.125%
    - Year 3: 0.1%

This 'phased down' approach appreciates that the WACC return continues to increase and rewards available to SEMO via KPIs in Year 3 should be easier to achieve.

- As noted in Chapter 2, DIWE guidelines in respect of capex recovery will not be introduced.

7. Summary of Decision

7.1 Summary of SEM Committee decision

Underpinning the RAs' proposals for the SEMO 2021-24 price control was a backdrop of views and feedback provided by the Participant Consultative Forum (PCF)[20] which was established in March 2021. The RAs and SEMC have taken into account stakeholder feedback to the consultation in compiling this decision, shown in the table below:

	SEMO		RAs' consultation	Decision
	2018-21 Best Estimates	2021-24 Forecast	2021-24	
Opex	€30.7M	€44.9M	€32.7M	**Increase to €37M**
Capex	€16.9M	€29.3M	€28.1M	**Increase to €28.9M**
Capex framework	-	Agile & flexible framework	Agile & flexible framework + enhanced reporting with market participant involvement	Agile & flexible framework+ enhanced reporting with market participant involvement
	No DIWE guidelines	New DIWE guidelines	No DIWE guidelines	No DIWE guidelines
KPIs	6 KPIs introduced 2019	Retain existing suite	Amend existing suite (4 of 6)	**Amend existing suite (4 of 6) + 2 new**
	-	Amend upper and lower bounds	Retain upper and lower bounds	Retain upper and lower bounds
	-		2 conditions included	**No conditions**

[20] The Forum was represented by The Electricity Association of Ireland, Wind Energy Ireland, Renewables NI, Irish Solar Energy Association, Demand Response Association of Ireland, Federation of Energy Response Aggregators, Mutual Energy Ltd/ Moyle Interconnector Ltd, Electricity Storage Ireland and University College Dublin Energy Institute.

	€0.8M	**€1.8M**	**Max. €1.3M available**	**Max. €1.5M available**
Financeability	Blended WACC	Retain approach to WACC (€2.2M)	Retain approach to WACC (€2.2M)	Retain approach to WACC **(€2.2M)**
	Receipt of PCG (€0.9M)	Retain receipt of PCG (€0.9M)	Retain receipt of PCG (€0.9M)	Retain receipt of PCG **(€0.9M)**
	Intro. of margin for collection agent activity(€2.4M)	Retain margin for collection agent activity (€2.4M)	No margin for collection agent activity (€0)	**Margin allowed for collection agent activity but phased-down (c.€1.3M)**
	-	Additional premium for asymmetric capex risk (€0.8M)	No premium for asymmetric capex risk (€0)	No premium for asymmetric capex risk **(€0)**
	-	Additional premium for opex risk (no value)	No premium for opex risk (€0)	No premium for opex risk **(€0)**

Table 7.1: Summary of 2021-24 SEMO price control decisions

8. Next Steps

8.1 Regulatory reporting and involvement of market participants going forward

The RAs have proposed enhancements to SEMO's reporting regime to include (but not limited to) capital projects, market system release vendor hours, and KPIs; we envisage that this will include more involvement from and engagement with market participants as appropriate. It is the RAs' preference to streamline reporting (ie. reduce rather than add to); this should help with considerations around resource allocation also.

This proposal was welcomed by respondents to the consultation.

The RAs will engage with SEMO over the coming months to review the current suite of reporting arrangements and discuss what changes can be implemented. We expect that, in advance of any change, participants will be asked for views.

We consider that there is merit in conducting a review with the assistance of a market participant focus group for the unpredictable/uncertain/unknown projects in each year of the price control period since many of SEMO's proposals are insufficiently well-developed and thought out at this stage. Further development of proposals would improve reliability of SEMO's costings and ensure value-add for consumers. This will be considered further by the RAs.

8.2 Licence modifications

The RAs will review the need for modifications to the Market Operator licences. We have discussed the potential to review the format of the Market System Development Plan (MSDP) with SEMO over recent months; the RAs agreed that no MSDP would be published by SEMO this year while the content is being considered. We will also carry out a review of all licence conditions in general. Any modifications will be subject to statutory consultation.

8.3 Future price control reviews

SEMO is reminded that price control submissions are expected to be of a high quality for review by the RAs.

Going forward, the RAs will consider introducing scoring for any MO business cases.

Appendix A: 2021/2024 SEMO KPIs

This appendix sets out the final KPIs in more detail which will be measured on a quarterly basis.

Invoicing KPI

This Invoicing KPI will continue to apply and is consistent with that made in the SEMO KPI Decision (SEM-19-033). Table A1 below summarised the final Invoicing KPI.

KPI	Definition	Lower Bound	Upper Bound	Weighting
Invoicing	The percentage of occurrences where invoices to participants are published on time. • The target for the weekly energy markets and **Variable Market Operator Charge** invoices is 12:00 each Friday. • The target for **Capacity settlement documents** is 12:00 seven working days after the end of each month. • The target for the **Fixed Market Operator Charge** settlement documents is the first Friday after the end of the month at 12:00.	97%	100%	2021/22 - 15% 2022/23 - 15% 2023/24 - 25%

Table A1: SEMO's Final Invoicing KPI

The invoicing assumptions to be applied are:

i. System Operator system failovers and issues outside of SEMO's control are to be excluded from the KPI measurement.
ii. Planned outages, planned releases and ad hoc releases that have an impact on measurement of this KPI are excluded.

Resettlement Queries KPI

This Resettlement Queries KPI will continue to apply and is consistent with that made in the SEMO KPI Decision (SEM-19-033). Table A2 below summarises the final Resettlement Queries KPI.

KPI	Definition	Proposed Lower Bound	Proposed Upper Bound	Proposed Weighting
SEMO Resettlement Queries	The number of upheld formal queries from market participants which have identified errors in settling the market which are attributed to SEMO's operations and processes, including defects and pricing issues. Correction of such errors is completed in either scheduled Resettlement (M+4 and M+13) or in an ad hoc Resettlement. Measurement of this KPI is related to the number of SEMO upheld query incidents and Resettlements per Quarter. Multiple Upheld Queries for one incident shall be classified as one Upheld Query Incident. A Formal Query referencing a number of days shall be classified as Multiple Upheld Queries Incidents.	<15 incidents per quarter	<5 incidents per quarter	2021/22 - 20% 2022/23 - 20% 2023/24 - 30%

Table A2: SEMO's Final Resettlement Queries KPI

The resettlement queries assumptions to be applied are:

i. Multiple Upheld Queries for one incident shall be classified as one Upheld Query Incident.
ii. Planned outages, planned releases and ad hoc releases that have an impact on measurement of this KPI are excluded.

General Queries KPI

This General Queries KPI will continue to apply and aims to improve the timelines for resolution of general queries over the three year period. Table A3 below summarises the final General Queries KPI.

KPI	Definition	Proposed Lower Bound	Proposed Upper Bound	Proposed Weighting
General Queries	The percentage of occurrences where a General Query is not **resolved** within: 20 business days during 2021/22; 17 business days during 2022/23; and 15 business days during 2023/24 A General Query is defined within this metric as any request logged at the SEMO helpdesk.	95% resolved	99% resolved	2021/22 - 5% 2022/23 - 10% 2023/24 - 15%

Table A3: SEMO's Final General Queries KPI

The general queries assumptions to be applied are:

i. Queries unresolved for more than the specified number of business days [20, 17 or 15] are only counted once against the metric per quarter and not on a rolling basis.

ii. If further information is requested following resolution of a query this can be counted as a new query.
iii. If information requested is dependent on third parties and is outside of SEMO's control this does not impact on the calculation of the metric.

System Availability KPI

This System Availability KPI will continue to apply and is consistent with that made in the SEMO KPI Decision (SEM-19-033). Table A4 below summarises the final System Availability KPI.

KPI	Definition	Proposed Lower Bound	Proposed Upper Bound	Proposed Weighting
System Availability	Availability of central market systems which the Market Operator has responsibility for according to their required availability. This is the ratio of the time systems are said to be in a functioning condition to the total time they are required to be available and covers the following; 1. Balancing Market systems on a 24-hour basis Monday to Sunday. 2. Settlement and Credit Clearing system between 9am - 5pm Monday to Friday. 3. Market Participant Interface on a 24-hour basis Monday to Sunday. 4. Registration system between 9am-5pm Monday to Friday. 5. Website availability between 8am-6pm Monday to Friday.	99%	99.9%	2021/22 - 15% 2022/23 - 15% 2023/24 - 25%

Table A4: SEMO's Final System Availability KPI

The system availability assumptions to be applied are:

i. Planned outages, planned releases and ad hoc releases that have an impact on measurement of this KPI are excluded.
ii. System Operator events beyond the control of the Market Operator are excluded from the metric.
iii. Reporting and Market Monitoring system is not yet operational and therefore the Market Participant Interface will be monitored in its place until it is built and implemented.
iv. The overall calculation of system availability is based on the average of the measured availability of systems 1-5 in the KPI, however when reporting on this KPI the system availability should be provided for each of the 5 systems.

Storage Technology Facilitation KPI

This Storage Technology Facilitation KPI is new and targeted specifically for this price control period. Table A5 below summarises the Storage Technology Facilitation KPI.

KPI	Definition	Proposed Lower Bound	Proposed Upper Bound	Proposed Weighting
Storage Technology Facilitation	Successful Implementation of enduring solution enabling full participation in the Balancing Market including: • Registration difficulties resolved; • Negative PNs can be accepted and processed; • Overall level playing field for storage technology providers	99%	99.9%	2021/22 - 25% 2022/23 - 20% 2023/24 - 5%

Table A5: SEMO's Final Storage Technology Facilitation KPI

The storage technology assumption to be applied is:

i. Assessment of this KPI will include RAs engagement with SEMO and industry.

Ad hoc Resettlement Process Rate KPI

This Ad hoc Resettlement Process Rate KPI is new and targeted specifically for this price control period. Table A6 below summarises the Ad hoc Resettlement Process Rate KPI.

KPI	Definition	Proposed Lower Bound	Proposed Upper Bound	Proposed Weighting
Ad hoc Resettlement Process Rate KPI	Accelerated approach to known backlog of ad hoc resettlement existing since SEM Go Live in October 2018.	6 weeks ad hoc completed in 4 week period	8 weeks ad hoc completed in 4 week period	2021/22 - 20% 2022/23 - 20% 2023/24 - 0%

Table A6: SEMO's Final Ad hoc Resettlement Process Rate KPI

The ad hoc resettlement process rate assumptions to be applied are:

i. Known backlog refers to information provided in SEMO's response and repeated in table below.

Adhoc (AH) Run Type	Resettlement Period	Formal query count	Billing periods	Ad hoc status July 2021
AH Sequential (1st Iteration)	Oct-2018 to May-2020	Multiple: Settlements & pricing manifest errors	~ 85	In progress, 16 weeks completed out to Jan 2019
AH Targeted	Oct-2018 to May-2020	10	~ 15	M13 will resolve, potential AH solution & timing in review
AH Sequential (2nd Iteration)	Oct-2018 to Jan-2020	19	~ 27	AH solution & timing in review, **pending** defect fixes & testing
AH Targeted	June-2020 - today	4	~ 2	AH solution & timing in review, **pending** defect fixes & testing

Table 9 – Ad hoc processes

Table A7: Extract Table from SEMO's Response