



SINGLE ELECTRICITY MARKET COMMITTEE

DS3 System Services Procurement Design and Emerging Thinking

Decision Paper

SEM-14-108

19 December 2014

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‘The SEM Committee is established in Ireland and Northern Ireland by virtue of section 8A of the Electricity Regulation Act 1999 and Article 6 (1) of the Electricity (Single Wholesale Market) (Northern Ireland) Order 2007 respectively. The SEM Committee is a Committee of both CER and NIAUR (together the Regulatory Authorities) that, on behalf of the Regulatory Authorities, takes any decision as to the exercise of a relevant function of CER or NIAUR in relation to an SEM matter.’

1 EXECUTIVE SUMMARY

System Services is a key work stream within the DS3¹ Programme. The overall aim of the DS3 Programme is to put in place the required changes to system policies, tools and performance to allow the electricity system operate safely with a high penetration of wind. The current operational limit on non-synchronous generation (such as wind) at any given time is 50%. Through the successful completion of the DS3 Programme this limit may be increased to 75%. This metric is known as the System Non-Synchronous Penetration (“SNSP”) limit. The System Services work stream will improve the technical capability of the generation fleet and the system more generally (the provision of system services is not restricted to generation). This will be achieved by defining the capability required by the TSO and appropriately incentivising the delivery of that capability. System services must also be seen in the wider context of the electricity industry which is undergoing significant change. The markets for energy trading (incentivising efficient generation), system services (incentivising generation valuable to the system) and capacity (providing the “missing money”) must interact efficiently to deliver value to consumers and a secure, sustainable power system.

In December 2013 the SEM Committee published its decision on the Technical Definitions for System Services (SEM-13-098). This paper now sets out the SEM Committee’s decision on the Procurement Design for System Services and follows from the SEM Committee’s Consultation Paper SEM-14-059 published on 9th July, 2014.

In the Consultation Paper the SEM Committee expressed its preference for a competitive approach to the procurement of system services and proposed the introduction of a multiple bid auction - Option 5 in the consultation paper - (where there was sufficient competitive pressure), with the possibility of a regulated tariff (Option 1 in the consultation paper) where a competitive process was not possible. Having reviewed the responses to the consultation, the SEM Committee considers that a more phased approach than originally proposed is appropriate, notwithstanding the SEM Committee’s continued preference for a competitive approach.

In this Decision Paper, the SEM Committee sets out a High Level Design for the procurement of system services, as well as its current thinking and guidance on many areas of the detailed design and implementation which will follow this decision. The overall design allows for a phased and fluid transition from regulated tariffs to competitive auctions for those services where the competitive conditions allow. The SEM Committee is of the view that this design strikes the appropriate balance of risks and benefits between the consumer and provider while moving toward a fully competitive process.

¹ Delivering a Secure, Sustainable, Electricity System

- *Expenditure Cap*

The SEM Committee has decided that an expenditure cap of €235m per annum will apply from 2020. The expenditure cap will rise incrementally from its current level (€60m/annum) in the years leading up to 2020. This incremental rise will be linked to the delivered volumes of system services.

- *TSO Incentives*

The SEM Committee has decided that an incentive mechanism will be put in place to ensure the economic procurement of system services by the TSO and delivering the best overall value for the consumer.

- *Volumes*

The SEM Committee has decided that a consultation on the methodology for system services volume requirements will be carried out by the TSOs in 2015. This will include consideration of different scenarios for estimating required volumes. Following this consultation and a decision by the SEM Committee on the methodology for estimating volumes, the TSOs will publish estimated volumes for each service.

- *Interim Tariffs*

An interim set of tariffs will be established for all services to be in place not later than October 2016 to apply until October 2017. This will allow for the early implementation of system services and an increased level of wind penetration, assist the development and operation of the enduring design and will provide information on the existing capability of the system.

- *Regulated Tariffs*

Enduring tariffs for each service will be set for five years, on one-year contracts issued to all providers. These tariffs will apply to all services where it is determined that there is insufficient competition for a competitive auction.

- *Auction*

An auction will be run in 2017 providing for long-term contracts, for those services where there is sufficient competition.

- *Pre-Qualification Process*

All providers will be required to enter a pre-qualification process. This process will select the projects eligible to compete for system services contracts and will allow for an assessment of the competitive conditions for each service. The published tariffs and one-year contracts will apply

to services where there is insufficient competition. Contracts for the other services will be awarded through the auction.

- *Payment Basis*

All payments will be made on the basis of whether the service is technically realisable from that provider by the TSO in a given trading period (i.e. the availability basis set out in the Consultation Paper).

- *Scalars*

Scalars will apply to the unit prices (set in either the auction or by the tariff, as the case may be). The scalars to apply are:

- a performance scalar to incentivise reliability and reduce payments to unreliable providers;
- a volume scalar to protect the consumer from overpayment;
- a scarcity scalar to incentivise availability from providers of most value to the system; and
- product scalars to incentivise enhanced delivery of services from providers.

- *Contractual Arrangements*

Long-term contracts will be issued through the auction for new investment and one-year contracts for existing capability. Contract length will be between 1 – 15 years or, on a case-by-case basis with SEM Committee approval, a maximum of 20 years. Take-or-pay contracts will also be issued through the auction to ensure a stable minimum level of revenue for investors. Provision will be made for investment requiring a lead-time to delivery.

- *Treatment of the East West Interconnector*

The East West Interconnector will be a price-taker in the auction, and will not participate directly in the auction. For those services not procured through the auction it will receive the applicable tariff.

- *TSO Procurement Strategy*

The TSOs are directed to prepare a procurement strategy for system services. This document will set out the TSOs' approach to the implementation of the Procurement Design, the estimation of volumes and its approach to determining the level of volumes to be contracted under long term contracts. The SEM Committee is of the view that this will provide structure and certainty around the TSOs' implementation and on-going procurement of system services.

The auction and pre-qualification processes will be run annually and it is envisaged that over time all services will be procured through a competitive process. Therefore the procurement of system services will transition from regulated to competitive procurement over time within the framework set out in this Decision. The detailed design and implementation phase for system services will commence in 2015. The TSOs will now, working with the Regulatory Authorities, implement the procurement design. This will be a significant project and further consultation with industry will be required in a number of defined areas. The key dates² for delivery of the detailed design are set out in this paper. In summary:

- Q1 2015 Detailed Design Phase Commences
- Q1 2015 TSO Procurement Strategy
- Q2 2016 RoCoF Implementation Project 18 month milestone
- Q4 2016 Interim Tariffs in place
- Q1 2017 First Auction run³
- Q4 2017 Go-Live of first competitively procured services

² Note: Some of these dates may change when a final programme of work is agreed between the RAs and the TSOs in Q1 2015. A final timeline will be published.

³ Interactions between the CRM auction and System Services auction will be considered during the detailed design phase and the respective auction dates will be set accordingly.

2 INTRODUCTION

- 1) On 15th May 2013 EirGrid and SONI (the “TSOs”) formally submitted their Recommendations Paper regarding DS3 System Services to the SEM Committee. This paper was published for information on 24th May 2013. This concluded an extensive period of consultation with industry by the TSOs on their proposals to redesign the Ancillary Services arrangements in order to meet the needs of the system in 2020. The SEM Committee would like to take this opportunity to acknowledge the significant and innovative work by the TSOs in preparing this suite of recommendations. The SEM Committee also acknowledges the significant input from the public and the industry through consultation and public fora to date.
- 2) Following a review of the TSOs’ Recommendations the SEM Committee issued a Consultation Paper ([SEM-13-060](#)) on 3rd September 2013 setting out its view that it was minded to approve the technical definitions of the proposed new system services and that it would be conducting further economic analysis on the commercial recommendations made by the TSOs. On 20th December 2013 the SEM Committee issued its Decision paper ([SEM-13-098](#)) on the technical definitions of the system services. SEM-13-098 also set out the SEM Committee’s approach to its economic analysis. The SEM Committee subsequently, on 22nd January 2014, published for information advice received from Pöyry Management Consulting ([SEM-14-007](#)).
- 3) On 9th July 2014 the SEM Committee published a Consultation Paper ([SEM-14-059](#)) setting out the results of the economic analysis and five options for the design of the System Services procurement mechanism. The Regulatory Authorities held a public forum on SEM-14-059 on the 29th July 2014 and at the request of industry published an information note ([SEM-14-075](#)) which provided examples of the SEM Committee’s preferred option for the procurement design. The consultation period ended on 5th September 2014 after which a series of bilateral meetings were held with all respondents who requested a meeting.
- 4) Having now considered the responses received to the consultation and the messages communicated at the bi-lateral meetings, this paper now sets out the SEM Committee’s decision on the procurement design for system services. The SEM Committee’s responses to the consultation submissions are set out in the Response Paper published alongside this Decision Paper.

2.1 Background

- 5) The TSOs formally commenced the DS3 Project in September 2011, following a review by the Regulatory Authorities of the TSOs’ Report on Ensuring a Secure, Reliable and Efficient Power System in July 2011. This followed a request by the SEM Committee for the TSOs to put in place a programme of work to solve the challenges which would occur with operating the electricity system in a secure manner as levels of wind penetration increase. These issues had

been identified by the TSOs in the Facilitation of Renewables Studies, a large body of work which concluded in 2010.

- 6) One of the key work streams in the DS3 programme is the Review of System Services (or Ancillary Services). The aim of the system services review is to put in place the correct structure, level and type of service in order to ensure that the system can operate securely with higher levels of intermittent wind penetration (up to 75% instantaneous penetration). The TSOs have statutory and licence responsibilities in Ireland and Northern Ireland in relation to the economic purchase of services necessary to support the secure operation of the system. The role of the Regulatory Authorities, as exercised by the SEM Committee where a function is deemed to be a SEM matter, is to approve the revenues and tariffs of the TSOs, which will be recovered from consumers, as well as the methodologies, deployed by the TSOs for procuring energy and related system services.⁴ The Regulatory Authorities must also monitor and may issue directions to the TSO in respect of their statutory functions.

- 7) This Decision Paper follows a number of consultative processes run separately by the TSOs and the SEMC between 2011 and 2014 as well as a number of independent reports. In arriving at this Decision, the SEM Committee is acutely aware of the delays which have occurred in arriving at this key milestone. More significant is the impact which these delays may have in a number of key areas;
 - the ability of the TSOs to operate the system with a higher penetration of non-synchronous power;
 - wind farm investors who rely on a successful outcome to DS3 in order to keep curtailment at a manageable level; and
 - new system service providers (new entrants or retrofitted units) who cannot secure their investment decisions until clarity of the outcome of the DS3 system service review is provided. These delays have knock-on impacts, increasing the risk of Ireland and Northern Ireland not meeting their 2020 renewable targets (or delayed delivery), as well as concerns that the full benefits for consumers of high levels of renewable power (in particular wind) cannot be harnessed in the absence of full delivery of the DS3 programme, including system services.

- 8) In this regard, the SEM Committee notes that consumers in Ireland and Northern Ireland have made and will make significant investments in renewable energy supports (REFIT and ROCs). In order to maximise the return on these support schemes to consumers, through lower electricity prices and a greater proportion of low carbon electricity, it is important that the TSOs can operate the system allowing as high a proportion of renewables to be dispatched as possible.

⁴ SEM Committee paper on HAS and OSC are available [here](#)

9) In arriving at its decision on system services, the SEM Committee has been conscious of each of these key demands. Accordingly, the SEM Committee has built a decision framework which it believes achieves the following:

- Provides a framework for the introduction of a competitive mechanism for procurement of system services;
- Provides certainty for the renewables industry that the regulatory structures and regulatory decisions are in place to secure the procurement of the required volumes of system services;
- Provides certainty to new providers of system services that the procurement framework provides a mechanism against which significant investments can be financed;
- Provides clarity to existing providers of system services that they will receive appropriate remuneration for the services which they provide;
- Provides clarity to the TSOs that the required system services can be procured from 2016 onwards in order to maintain the secure operation of the system as levels of wind increase;
- Provides clarity to the Governments in Ireland and Northern Ireland (and indeed the European Commission) that appropriate structures are in place to assist in the delivery of the 2020 renewables targets;
- Ensures that Article 16 of Directive 2009/EC/28 is being effectively implemented (duty to minimise curtailment of renewable electricity).
- Provides assurance to consumers that savings in the cost of wholesale electricity which can be delivered through higher levels of wind on the electricity system, can be harnessed for the benefit of consumers;
- Provides assurance to consumers that they will not pay more through system services than the benefit in terms of SMP savings which higher levels of wind can deliver.

2.2 Related Documents

SEMC Information Paper	(August 2014)	TSO Recommendations paper	(May 2013)
SEMC Consultation Paper	(July 2014)	Third TSO Consultation paper	(December 2012)
IPA Report	(July 2014)	Second TSO Consultation paper	(June 2012)
TSO Report	(July 2014)	First TSO Consultation paper	(December 2011)
Pöyry Advice on Procurement Options	(January 2014)	Secure, Reliable and Efficient Power System	(July 2011)
SEMC Decision Paper	(December 2013)	Facilitation of Renewables Study	(June 2010)
SEMC Consultation Paper	(September 2013)		

2.3 Structure of this Paper

- 10) Section 3 sets out the context of the System Services Procurement Design such as RoCoF the DS3 programme generally and the responses from the Consultation Paper. Section 4 provides an overview of the volume analysis carried out by the TSOs. Section 5 and 6 present the SEM Committee's decisions on the procurement design while sections 7 and 8 discuss the issues to be progressed in the Detailed Design Phase. Section 9 sets out the next steps and key milestones for the Detailed Design Phase.

3 DS3 WIDER CONTEXT

3.1 DS3 Programme

11) The DS3 programme is a large project that includes eleven work streams; two of the most important of these are RoCoF and System Services. The purpose of the DS3 programme is to change the operation of the electricity system to allow the system operate safely, economically and efficiently with a high penetration of renewable generation. The work streams can be broken into three main strands:

- Enhancing the capability of the system (generators, demand response etc.).
- Enhancing the tools available to the system operator (modelling, real-time information in the control room).
- Enhancing the operational policies of the system operator to actually make use of the enhanced tools and enhanced capability of the system to operate the system at a higher penetration of wind.

12) The goal of the DS3 Programme is to increase the SNSP to 75% from its current limit of 50%. This will:

- significantly lower the levels of curtailment faced by wind;
- increase the volume of consumption met by renewable generation (facilitating meeting the 2020 renewables targets); and
- lower the production cost of the industry (displacing more expensive units and lowering the wholesale market price)

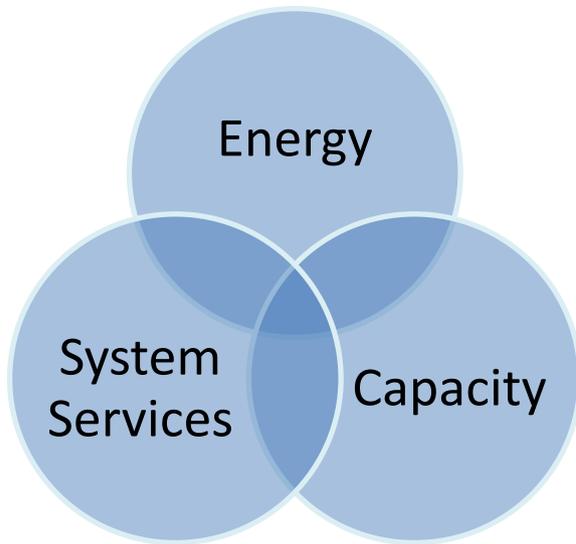
Figure 1: DS3 Programme Overview, source: EirGrid



3.2 The Transition of the Electricity System

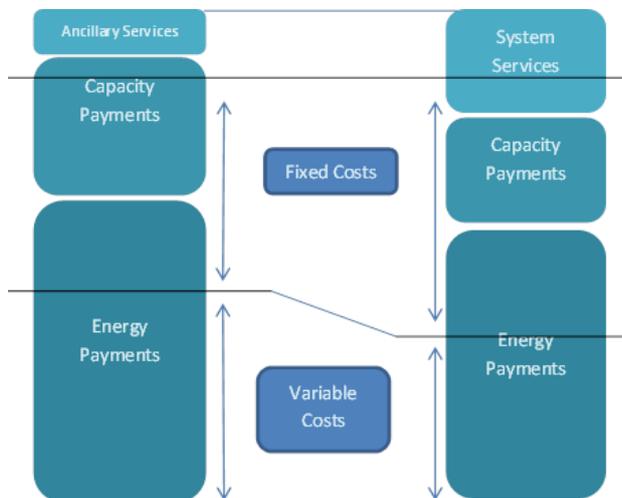
- 13) As discussed above the overall aim of DS3 is to increase the SNSP limit from 50% to 75%. This will be a key part of facilitating the transition of the operation of the electricity system from the traditional model of system operation developed in the 20th Century to one with a large penetration of non-synchronous generation. This transition creates significant technical challenges but also requires changes to the regulatory and market structures. The performance of the system (and the units on it) must be enhanced, new tools and policies of the system operators must be developed and the way electricity is valued must adapt.
- 14) Traditionally electricity markets have valued electricity as a homogenous product and as (generally) having high variable costs (i.e. the cost of burning fuel). Under this model generators differentiated themselves by operational efficiency and fuel type. The market therefore incentivises efficient production of electricity from the most economic fuel source. However, the current transition away from the traditional electricity system to one with a more diverse range of technologies has the potential to undermine these assumptions. A diverse range of technologies results in a more diverse set of technical characteristics and creates different challenges for the TSO in securely operating the system. Therefore it is not appropriate to only incentivise the efficient production of electricity but also to incentivise system support. Renewable electricity tends to have a very low marginal cost which reduces the wholesale price of energy, which is good for consumers, but also reduces the inframarginal rent available to units required to maintain system stability.
- 15) Therefore the SEM Committee considers that a generator's revenue streams should work together to optimise the balance between efficiency, flexibility, and adequacy. This requires a rebalancing of the revenue streams coming from Energy, System Services and Capacity. Accordingly the SEM Committee has designed the System Services Procurement Mechanism to interact with the energy trading arrangements and capacity remuneration mechanism so as to provide the appropriate economic signals to the units which provide the most overall value to the consumer. The two graphics below illustrate how this interaction between energy, capacity and services is changing. In particular, it can be seen that as levels of zero marginal priced generation (e.g. wind) on the system increase, this should result in a lower level of revenue in the energy portion of the system. However, in order to deliver this low marginal cost generation, a higher portion of revenues will need to be allocated to system services provision. This will mean that system services will now become an important aspect of a generator's revenue streams to recover their capital costs.

Figure 2: The Revenue Streams Must Interact Efficiently



All three revenue streams will interact to incentivise the optimal trade-off between efficient production of energy, supporting system security and reliable capacity. Units earning revenues in the system services market should be incentivised to be in merit more often than those that are earning less in system services revenues. And units earning more in the energy and system services markets should require less “missing money” to be recovered in the capacity market.

Figure 3: Rebalancing of Revenue Steams



As illustrated above the SEM Committee considers that the relative value of the revenue streams will change while, broadly speaking, total revenues should not alter significantly. Therefore as shown here lower variable costs and higher fixed costs may result in lower energy payments but higher system service payments, which should also lower capacity payments.

3.3 RoCoF Implementation Project

- 16) The RoCoF⁵ Implementation Project is a key part of the DS3 Programme and the achievement of the increase in the SNSP limit to 75%. This project will implement the new Grid Code standard of 1Hz/s over 500ms in both the Northern Ireland and Ireland Grid Codes. Full

⁵ Rate of Change of Frequency

implementation of the new RoCoF standard will essentially, along with other aspects of DS3⁶ allow for an increase in the SNSP limit of up to 10% from the current limit of 50% SNSP.

- 17) RoCoF is not a SEM matter, as it is a modification to the separate Ireland and Northern Ireland grid codes; however it is being actively progressed by the two Regulatory Authorities, working in close cooperation. The Regulatory Authorities are also ensuring that the SEM Committee is fully informed regarding progress on the RoCoF work stream, given the acceptance by both the Regulatory Authorities and the SEM Committee that successful delivery of the RoCoF modification by a critical mass of generation on the island is a key feature for the delivery of DS3. The UR ([link](#)) and CER ([CER/14/081](#)) Decision papers have established three work streams for the implementation of RoCoF which formally commenced on 21st November 2014:
- Generator Studies
 - Alternative Solutions Project
 - TSO/DSO Implementation Project

3.3.1 Generator Studies

- 18) The Generator Studies is the priority work stream and will confirm whether generators are capable of meeting the new RoCoF standard. Priority generators have 18 months to complete their studies while other units have between 24 to 36 months to complete their studies.
- 19) To date, the TSOs have set out the list of priority generation in both Ireland and Northern Ireland and issued the “RoCoF traces”/ scenarios for study to generators. The generator studies project has formally kicked off on 21st November 2014, with an 18 month timeline for priority generators to declare compliance with the new standard. A series of meetings have been held in both Ireland and Northern Ireland between the TSOs and generators where good progress was made on understanding the RoCoF study scenarios and setting out the next steps in developing the studies. Both CER and UR emphasise the importance of the RoCoF generator studies project to the overall delivery of DS3 and encourage generators and the TSOs to work together in the coming months to prove compliance.
- 20) Those generators identified in the priority list must complete their studies within 18 months. Therefore following the TSOs review of these generator studies, full clarity will be known as to whether each of those generators can comply with the new RoCoF standard. The Regulatory Authorities and the SEM Committee view this date (21st May 2016) as a key milestone for the success of the wider DS3 programme, given the importance of the RoCoF modification as a critical work stream in DS3. Indeed the SEM Committee is of the view that it will be important to “take stock” following the TSOs review of the generator studies of progress on DS3,

⁶ It is noted that DS3 is an integrated programme with each work stream facilitating, in an interrelated manner, the increase in the SNSP

including implementation of its system services framework and the delivery of compliance with the RoCoF standard.

3.3.2 Alternative Solutions Project

- 21) The alternative solutions/ complementary solutions project was required under both the CER and UR decisions on the RoCoF modification. It aims to identify a set of potential solutions to the system inertia requirement as levels of non-synchronous generation increase. This project formally commenced on 21st November with an industry workshop and the TSOs will now proceed to examine a range of options. A report on alternative solutions is due to be provided to the Regulatory Authorities within 18 months (May 2016), which complements the 18 month period for the priority generator studies. The Regulatory Authorities emphasised at the workshop on 21st November 2014 that the RoCoF alternative solutions project does not replace the need for generator compliance with the RoCoF standard; instead it acts as a sensible contingency plan in the event that a number of generators cannot comply with the new RoCoF standard. Even with that, however, there is no commitment from the Regulatory Authorities to implement any solution from the alternative studies project.

3.3.3 TSO/DSO Implementation Project

- 22) There is a significant programme of work required to implement the new RoCoF standard on the distribution system. The Decision papers required the DSOs to work with the TSOs in carrying this out. As part of the project governance of the overall RoCoF implementation project the TSO and DSO will engage regularly to agree and monitor the delivery of the project.
- 23) The potential impact of higher RoCoF events on demand customers was also considered by the Regulatory Authorities. Accordingly the DSO and TSO were directed to monitor the impact of the new RoCoF standard on demand customers and the quality of supply as part of the TSO-DSO Implementation Project.

3.3.4 RoCoF Evaluation

- 24) The TSO/DSO Implementation Project, the Alternative Solutions Project, and the first phase of the Generator Studies project will all conclude within 18 months. Therefore after 18 months the Regulatory Authorities will be in a position to make a holistic assessment of the progress on RoCoF taking into account the capability of the distribution and transmission systems, the priority units, and the options for any alternative or complementary solutions if required. This timeframe also coincides with key milestones in the system services implementation. At this juncture the Regulatory Authorities can assess whether the RoCoF implementation should proceed as planned or if additional action is required. Where such potential action relates to a

SEM matter, such as system services, the Regulatory Authorities shall make proposals to the SEM Committee.

3.4 Responses to SEM-14-059

- 25) There were 27 responses to the consultation and the Regulatory Authorities held bilateral meetings with all parties that requested one. The summary of these responses along with the SEM Committee’s positions is set out in the Response Paper published with this Decision Paper. The SEM Committee would like to take this opportunity to thank respondents for their constructive engagement and informative discussions throughout the process. The procurement mechanism presented in this paper includes several elements arising from the consultation process.
- 26) Responses were received from:
- Activation energy
 - AES
 - Aughinish
 - BGE
 - Bord na Mona
 - Brookfield
 - EAI
 - EirGrid
 - Energia
 - ESAVE
 - ESB GWM
 - ESB Networks
 - Frank Burke
 - Freqcon
 - Gaelectric
 - IWEA
 - IWFA
 - Mitsubishi
 - NIRIG
 - PPB
 - SSE
 - TEL
 - Five Confidential Responses
- 27) The responses (discussed in more detail in the Response Paper) focused mainly on the themes of revenue adequacy and financeability. Respondents were critical of the SEM Committee’s focus on maximising the benefits to the consumer relative to generators (i.e. weighting the consumer interest criterion higher than the investment certainty criterion). Furthermore many respondents were of the view that System Services payments should be based on the value, not on the cost, of provision.
- 28) The SEM Committee has considered the concerns around financial certainty and accordingly has provided for long-term contracts as proposed in the consultation, additionally take-or-pay contracts have been introduced to ensure investors have a level of revenue certainty. However, the SEM Committee remains of the view that its focus should be on maximising the benefits to consumers. In this context paying all of the value to generators, without retaining value for the consumer, is not consistent with the SEM Committee’s principal objective. Therefore the SEM Committee has retained the cost-plus based approach proposed in the Consultation Paper.
- 29) Respondents generally did not favour the “dispatch” payment basis and while there was some support for “availability” based payments most respondents favoured “capability” based payments. The SEM Committee has taken account of these views and has accordingly adopted the “availability” payment basis for all services. Combined with the contractual arrangements

this provides the appropriate balance of risk between the consumer and generator while facilitating an efficient interaction with the I-SEM arrangements.

- 30) While option 5 (multiple bid auction) received support from several respondents many were concerned with the complexity of running a competitive process and whether the conditions for a competitive process were present. The SEM Committee has simplified the high level auction design and for the detailed design to be commenced in 2015 and will favourably consider any simplifications that are in the interests of consumers, particularly in the initial years. In response to requests for a transitional approach and concerns that the level of competition was not sufficient the SEM Committee has adopted a transitional approach from regulated tariffs (largely as proposed in Option 1) to a competitive process (largely as proposed in Option 5). The use of the prequalification process will allow for a fluid transition between regulation and competition for those services where competition is possible, addressing some respondents concerns regarding auction failure and regulatory certainty.
- 31) The level of regulatory uncertainty generally, due to I-SEM, CRM, DS3 and System Services all happening at the same time was raised as a concern by many respondents. The SEM Committee notes these concerns and is aware of the challenge this creates for industry. These changes are being driven in large part by European legal obligations outside the control of the SEM Committee. However, the SEM Committee will, throughout the detailed design phase, co-ordinate the implementation of System Services, CRM and the ETA while remaining cognisant of the need for participants to be able to forecast revenues from each of the associated revenue streams.

4 SYSTEM SERVICES VOLUMES

4.1 Introduction

- 32) Several respondents requested further clarity on the system services volumes required by the TSOs. The SEM Committee acknowledges the inherent complexity, uncertainty and difficulty in estimating volumes. However, notwithstanding this the SEM Committee is of the view that there is a value in providing volume estimates to industry. The Regulatory Authorities requested that the TSOs prepare indicative estimates of volume requirements, and these were published by the TSOs (available [here](#)). **Participants are advised to consider these estimates in the context of the caveats set out in the TSOs' report.** In addition the TSOs published a clarification note in relation to this report on 12th December, 2014 (available [here](#)). For the avoidance of doubt the portfolio assumptions underlying the volume estimates should not be construed as an attempt to in any way predetermine the outcome of the procurement process. The assumed portfolio is one possible portfolio, it should not be considered as the TSOs' nor the SEMC's view of the optimal or preferred portfolio.
- 33) As part of the Detailed Design Phase the TSOs will be required to prepare robust estimates (the assumptions will be consulted upon), therefore the TSOs will be required to provide their forecasts for required volumes based on the information available at the time of the assessment.

4.2 TSOs Publication on Forecast Volumes

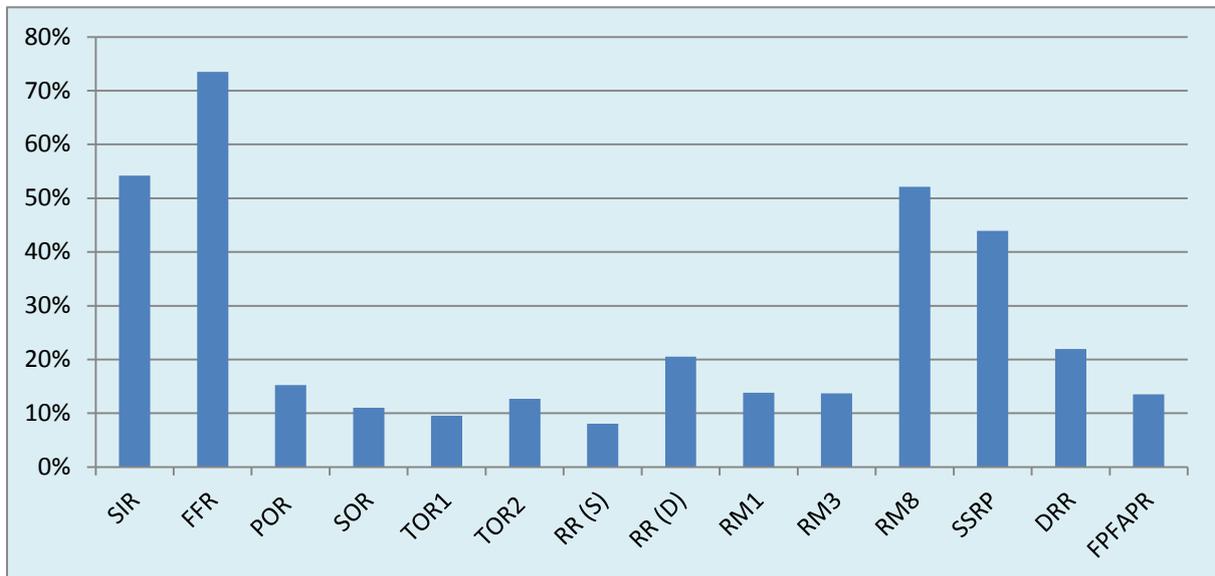
- 34) On 28th November, 2014 the TSOs published a report on analysis carried out into system services volume requirements, entitled *DS3 System Services: Portfolio Capability Analysis*. This report was requested by the SEM Committee as it considered that further indicative information on volume requirements would be useful to the SEM Committee in considering the range of important decisions on system services. Notwithstanding this, the SEM Committee notes the following:
- The TSO report is for information purposes only, it will not be used to set the volumes for procurement.
 - The volumes are on the basis of a single assumed portfolio, readers may form their own view of the validity, or otherwise, of these assumptions and consider the volume requirement in that context.
 - The Detailed Design Phase of System Services will involve a detailed analysis of the volume requirement and consideration of portfolio assumptions, this process will involve industry engagement.

- The SEM Committee remains committed to the implementation of a procurement mechanism that is technology neutral.

4.3 SEM Committee View

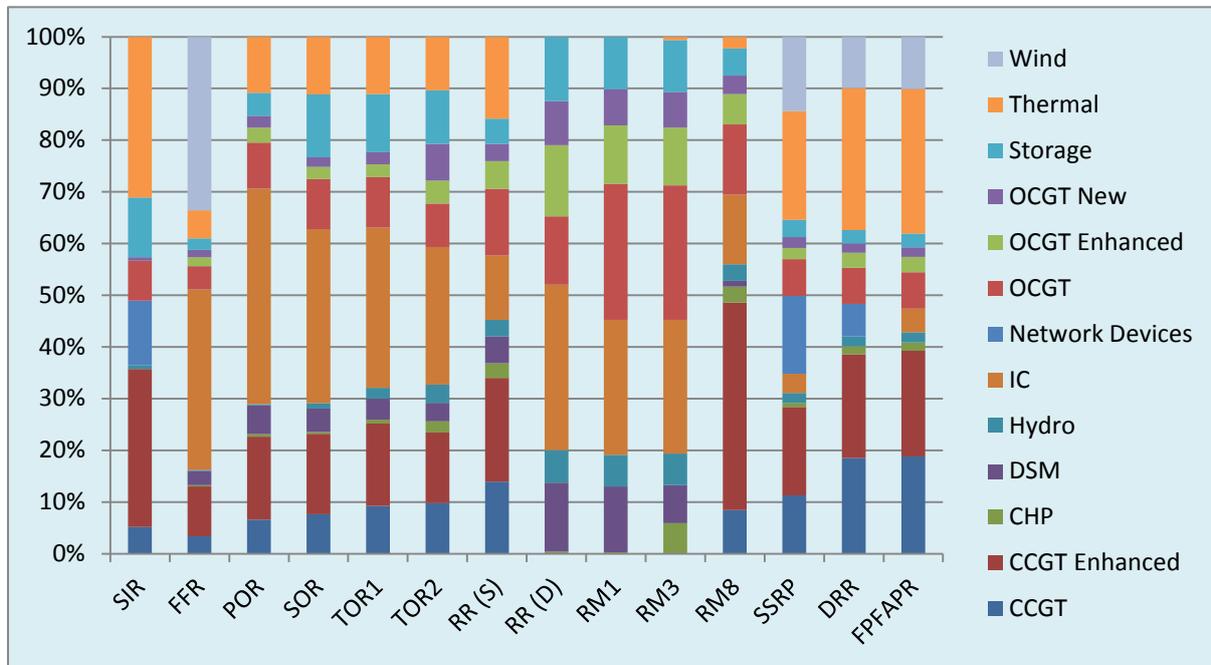
- 35) The TSOs' analysis shows that, under the scenario assumed by the TSOs, there is an increased requirement for all services in order to meet the target of 75% SNSP in 2020. The most notable deficits in the current capability of the all-island portfolio are SIR, FFR, RM8 and SSRP. The figures below illustrate this. However, it should be noted that while this suggests that a significant increase in the capability to provide services of the all-island portfolio is required this does not, necessarily, mean that the real-time requirements are also expected to increase by the same volume. In order to operate the system at 75% SNSP the TSO will require system services from units that will minimise the need to constrain on out-of-merit units or curtail wind. In other words it is possible for a portfolio of generation/providers to be capable of delivering a volume of system services equal, or greater, than the real-time requirements but still not be a portfolio capable of achieving a 75% SNSP.
- 36) In the SEM Committee's view these estimates, while indicative, suggest that significant investment is required and that the procurement design should provide a level of investor certainty in order to realise the required investment. But that also the procurement design must incentivise real-time delivery of system services and work with the energy trading arrangements and capacity remuneration mechanism to ensure that the appropriate entry and exit signals are given. Indeed it is possible that the all-island system requires both the exit of certain capacity and the entry of different capacity over the next ten years.
- 37) The publication of volume estimates will be an important part of the procurement process for system services and the TSOs will develop, through engagement with industry, the assumptions necessary to produce such estimates in the Detailed Design Phase.
- 38) The figures below show some of the key results from the TSOs analysis. The full TSO report was published on 28th November, 2014 and is available [here](#).

Figure 4: Required Increase in Installed Capability to Achieve SNSP of 75% under the Selected Scenario



- 39) Figure 4 is based on figures from the TSO report and shows the increased capability of the assumed 2020 portfolio for each service. Taking SIR as an example the 2020 portfolio has 50% more SIR (in terms of installed volumes) than the current fleet (i.e. if the current fleet had sufficient volumes the y-axis would show a figure close to 0%). This suggests, noting the caveats discussed above, that there is a significant volume requirement for new SIR capability (either from new entrants or improved performance from existing units).

Figure 5: Assumed System Service Capability in 2020 to Achieve 75% SNSP by Technology Type



40) Figure 5 is also based on figures from the TSO report and shows the contribution of each technology type in 2020 to the installed capability of each service. This of course directly relates to the assumptions made in the analysis and so should be read in that context. A different assumed portfolio would obviously show different contributions to the various services. However, this does illustrate the point that each service will be provided by a combination of technologies. This reinforces the argument for a technology neutral approach to the procurement of system services.

5 SEM COMMITTEE'S VISION FOR THE PROCUREMENT OF SYSTEM SERVICES

5.1 Introduction

- 41) The SEM Committee's Consultation Paper (SEM-14-059) had outlined the SEM Committee's clear preference for a competitive approach to the procurement of system services by the TSO. Option 5 as described in the consultation paper and exemplified in the information paper (SEM-14-075) would have put in place an auction mechanism allowing all providers of system services, both existing and potential, to bid competitively to receive system services contracts from the TSO at a clearing price for each service.
- 42) However in reviewing the responses to the consultation, the SEM Committee has come to the view that modifications to the proposed procurement design and a transitional approach are appropriate. This is primarily as a result of concerns around the actual level of competitive pressure which would exist in the multiple bid auctions, the consequent risk of auction failure and the inherent complexity in designing and implementing an auction mechanism for 14 services, each with their own characteristics, volume requirement and scarcity. Accordingly and as a result of these risks, the SEM Committee has decided to modify its approach to the procurement of system services. Also in order to provide clarity to stakeholders that the approach to procurement of system services is a coherent strategy, integrated with the technical characteristics of the services and the ongoing development of the I-SEM trading arrangements and capacity remuneration mechanism, it is necessary to set out the SEM Committee's vision for system services procurement
- 43) This section of the Decision Paper outlines at a high level important considerations when procuring system services and the SEM Committee's vision on the approach to the procurement of system services.

5.2 Procurement of System Services

- 44) Procurement of system services is, in the first instance, a responsibility of the TSOs with the SEM Committee and Regulatory Authorities providing the regulatory framework to ensure that the procurement is done in an efficient manner. The TSOs have a licence responsibility to procure the level of system services required to securely operate the system and a more general licence obligation to operate the system in an economic manner.
- 45) There has been a significant evolution of system services under the DS3 Programme both in terms of the increased revenues envisaged and in the increased importance and interaction of system services relative to the energy and capacity markets. In this context it is appropriate that the SEM Committee prescribe the regulatory framework and the high level design, in

which the TSO shall fulfil its licensed obligations. Therefore, while this paper sets out such a framework it remains the role of the TSOs to implement and administer the procurement of system services.

- 46) Expenditure on system services is an important component of the annual revenue requirements of the TSOs. These revenues are reviewed and approved by CER in Ireland and UR in Northern Ireland. It is the responsibility separately of the CER and UR to ensure that the TSOs carry out their functions in an efficient and customer-focussed manner. The CER and UR only allow recovery of efficiently incurred costs through the respective price controls for EirGrid and SONI. Where a function of CER or UR is determined to be a SEM matter, then appropriate decisions on this matter are taken by the SEM Committee. Since the establishment of the Harmonised Ancillary Services ([SEM-10-001](#)) regime, the approval of revenues for ancillary services (system services) has been a function of the SEM Committee.
- 47) It is important that the SEM Committee's decision on the procurement approach for system services is structured to be cognisant of the differing roles of the SEM Committee and the TSOs in system services procurement. The Decision must allow the TSOs the required flexibility in approach to procure the appropriate services to meet their requirements. Notwithstanding this however, the SEM Committee's decision must be clear on the level of exposure to system services for the all-island consumer, the benefits that the consumer will get from the services being procured and the optimal manner of achieving efficiency and deliverability in system services procurement.
- 48) For these reasons the SEM Committee has decided that the procurement of system services should adopt the following approach:
 - The SEM Committee's Decision on the Procurement Design
 - The TSOs should develop a Procurement Strategy for the RA's review;
 - The RA's should advance a detailed design and implementation phase to fully implement the SEM Committee's decision
 - The TSOs should administer and procure system services
- 49) In the Consultation Paper the SEM Committee set out the criteria it believed captured the objectives of the System Services work stream they were:
 - Consumer interest
 - Investment
 - Curtailment
 - Renewables targets
- 50) Protecting the consumer interest is the SEM Committee's principal objective under legislation. The costs imposed on consumers, the protection from costs arising from unexpected events

and the extent to which minimising curtailment provides a consumer benefit are therefore important criteria. In this context, the SEM Committee has been conscious of the modelled benefits associated with the full delivery of the DS3 programme, both in relation to total production cost savings and in relation to actual reduced wholesale market prices (consumer savings). It is important therefore that the SEM Committee’s decision puts in place the appropriate structures in order to realise these modelled consumer benefits and the cost to the consumer in obtaining the benefit does not outweigh the realised benefit. This examination of costs and benefits undertaken by the SEM Committee in the supply and demand analysis outlines the critical interactions between the energy trading arrangements and the DS3 programme. In short, facilitating increased renewable penetration on the system can deliver significant savings for consumers but only when the required investment to facilitate this renewable penetration has been delivered.

- 51) Under Article 16 of Directive 2009/28/EC there is a responsibility to “ensure that appropriate grid and market-related operational measures are taken in order to minimize the curtailment of electricity produced from renewable energy sources”. The SEM Committee considers that System Services represents such measures and that it is therefore appropriate to include this as a criterion when considering the procurement design. However, the appropriateness of such measures must be balanced against the interests of consumers (the SEM Committee’s principal objective).
- 52) In arriving at its decision on the procurement of system services, the SEM Committee has remained conscious of these interacting and competing variables. The section below sets out the SEM Committee’s vision for system services procurement, aimed at delivering a mechanism to balance the needs of the consumer with the wider needs of the system (including service providers).

5.3 SEM Committee’s Vision for System Services Procurement

- 53) The SEM Committee has decided that it is important to set out its vision for the procurement of system services. This will allow for the measurable assessment of the procurement of services and an understanding amongst the Industry and the TSOs as to what the SEM Committee regards as success. Taking into account the criteria for evaluating the procurement design set out in the previous section the SEM Committee’s vision for system services procurement design is that it will:
 - encourage the development of competitive markets for all system services, ensuring best outcomes for consumers;
 - attract new investment, enhancing the performance of the system; and
 - facilitate the increase in the SNSP to 75%.

- 54) The SEM Committee, in line with its primary responsibility to protect the interests of consumers, favours a competitive approach to the procurement of system services. This position has not changed from the consultation paper. Competition is favoured as it allows for price discovery for each individual system service. This affords greater protection for the consumer ensuring that prices are efficient and sustainable. Competition will also facilitate the efficient optimisation with the energy and capacity markets.
- 55) However the SEM Committee is conscious that where sufficient competition does not exist, it is not possible for consumers to gain the benefits of competition. Indeed insufficient competition may lead to significantly worse outcomes for consumers than otherwise and may lead to consumers paying more for services than they should pay or for the required level of services to not be procured. Accordingly and where sufficient competition does not exist, it is appropriate and in the consumer's interest to place regulatory controls on the procurement of system services. This approach is aimed at obtaining the benefits of competition to the extent possible and paving the way towards a fully competitive approach in the future.
- 56) In summary, the SEM Committee's vision for system services procurement in order to achieve the best outcomes for consumers can be described as competition where possible, regulation where necessary, with a transition towards full competition for all services.

6 SEM COMMITTEE DECISION

57) Section 5 above outlined the SEM Committee's vision for system services procurement. This section now sets out the SEM Committee's decision on the system services procurement design. There are 12 separate decisions, which when combined deliver an integrated framework for system services procurement to meet the SEM Committee's vision. Each aspect of this decision framework will be further developed and built upon in the Detailed Design and Implementation Phase. Accordingly this decision section should also be read in conjunction with Section 7 which outlines the SEM Committee's emerging thinking on many of the detailed design aspects associated with this decision.

6.1 Overview the SEM Committee Decision

58) The SEM Committee's decision is outlined in high level below, with details provided in the following sub-sections on each aspect of the decision:

- *Expenditure Cap*

59) The SEM Committee has decided that an expenditure cap of €235m per annum will apply from 2020. The expenditure cap will rise incrementally from its current level (€60m per annum) in the years leading up to 2020, this incremental rise will be linked to the delivered volumes of system services.

- *TSO Incentives*

60) The SEM Committee has decided that an incentive mechanism will be put in place to ensure the economic procurement of system services by the TSO, delivery of an increased level of wind penetration and/or delivering the best overall value for the consumer.

- *Volumes*

61) The SEM Committee has decided that a consultation on the methodology for system services volume requirements will be carried out by the TSOs in 2015. This will include consideration of different scenarios for estimating required volumes. Following this consultation and a decision by the SEM Committee on the methodology for estimating volumes, the TSOs will publish estimated volumes for each service.

- *Interim Tariffs*

62) An interim set of tariffs will be established for all services to be in place not later than October 2016 to apply until October 2017. This will allow for the early implementation of system services by establishing payment levels and volumes for all 14 of the identified system

services, assist the development and operation of the enduring design and will provide information on the existing capability of the system.

- *Pre-Qualification Process*

63) All providers will be required to enter a pre-qualification process. This process will filter out speculative projects and will allow for an assessment of the competitive conditions for each service. On foot of the information obtained in the pre-qualification process, the SEM Committee will decide which services should be procured competitively and which should be procured in a regulated manner. Where competition is deemed to be sufficient, a competitive auction will be held; where competition is deemed to be insufficient, services will be procured through a regulated tariff.

- *Auction*

64) An auction will be run in 2017 and in each subsequent year providing for long-term contracts, for those services where there is sufficient competition.

- *Regulated Tariffs*

65) Enduring tariffs for each service will be set for five years, on one-year contracts issued to all providers. These tariffs will apply to all services where it is determined that there is insufficient competition for a competitive auction.

- *Payment Basis*

66) All payments will be made on the basis of whether the service is technically realisable from that provider by the TSO in a given trading period (i.e. the availability basis set out in the Consultation Paper).

- *Scalars*

67) Scalars will apply to the unit prices (set in either the auction or by the tariff, as the case may be). The scalars to apply are, a performance scalar to incentivise reliability and reduce payments to unreliable providers; a volume scalar to protect the consumer from overpayment; a scarcity scalar to incentivise availability from providers of most value to the system; and product scalars to incentivise enhanced delivery of services from providers.

- *Contractual Arrangements*

68) Long-term contracts will be issued through the auction for new investment (whether greenfield investment or retro-fitting of existing capacity subject to meeting requirements to be considered as new investment) and one-year contracts for existing capacity. Contract length will be between 1 – 15 years or, on a case-by-case basis with SEM Committee approval,

a maximum of 20 years. Take-or-pay contracts will also be issued through the auction to ensure a stable minimum level of revenue for investors. Provision will be made for investment requiring a lead-time to delivery.

- *Treatment of East West Interconnector.*

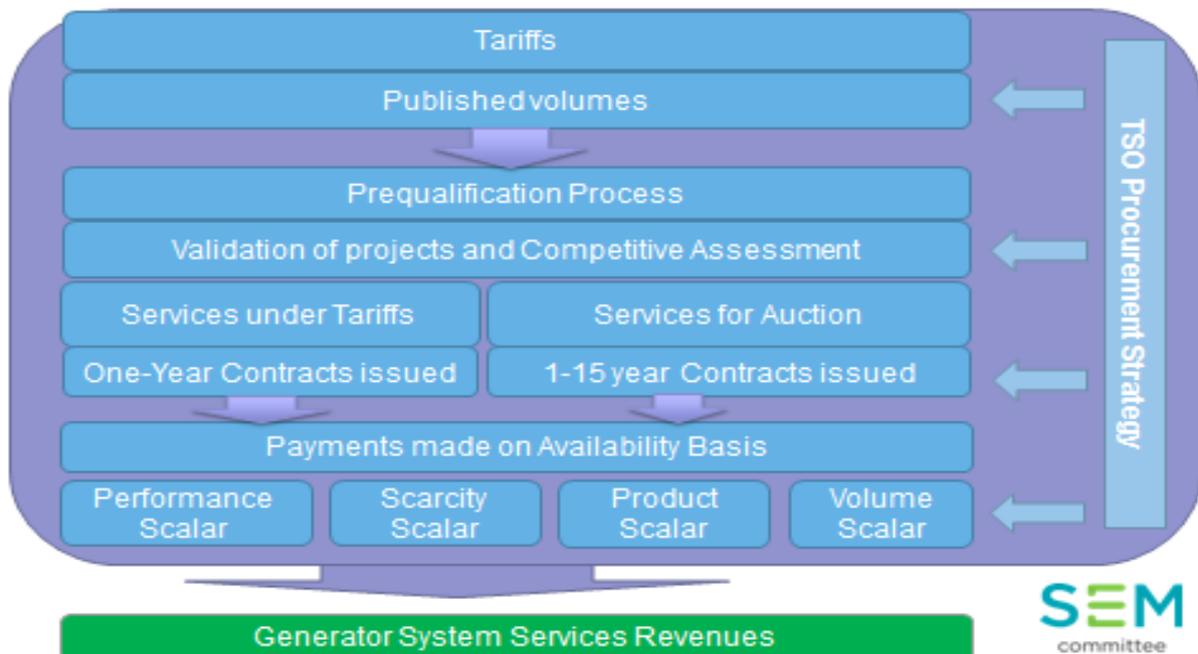
69) The East West Interconnector will be a price-taker in the auction process, and will not participate by bidding directly in the auction. The volumes available in the auction will be reduced by the volumes of services capable of being provided by EWIC. For any of the services to be paid under a tariff, EWIC will be paid the appropriate tariff for the annual contract volumes. However, the SEMC is of the view that this decision relating to the treatment of EWIC under DS3 may be reconsidered if any inconsistencies relating to the implementation of future decisions on the I-SEM trading arrangements arise as a result of this decision.

- *TSO Procurement Strategy*

70) The TSO is directed to prepare a procurement strategy for system services. This document will set out the TSO's approach to the implementation of the Procurement Design, the estimation of required volumes and its approach to determining the level of volumes to be contracted under long term contracts. The SEM Committee is of the view that this will provide structure and certainty around the TSOs' implementation and on-going procurement of system services.

71) The graphic below outlines how each aspect of the SEM Committee's decisions fit together into one integrated procurement framework.

System Services Procurement Framework



- 72) Sub-sections 6.2 to 6.13 now set out these decisions in more detail and the SEM Committee’s rationale for each decision.

6.2 Expenditure Cap

- 73) The SEM Committee has decided that an annual expenditure cap of €235m will apply in 2020. In the preceding years, the annual cap will increase incrementally from its current level (€60 million) in line with the delivered volume of system services and increased SNSP.
- 74) The purpose of setting an expenditure cap is to limit the exposure of consumers to costs associated with system services. It is important to note that the cap is not a pot i.e. the cap limits expenditure to a maximum level but does not guarantee that this level of monies will be spent. Procurement of system services should allow for competitive forces to set prices where possible, therefore the introduction of a pot for system services would not be appropriate. It is also acknowledged that system services should not be procured at any cost, particularly where this could be detrimental to the consumer, therefore System Services expenditure should be capped. In defining a cap on total expenditure the SEM Committee acknowledges the significant work that has been undertaken by the TSOs to quantify the production cost saving and reduction in SMP as a result of facilitating additional wind on the system.
- 75) It is the SEM Committee’s view that an expenditure cap for system services should be set broadly against the value to consumers of system services being provided. This is effectively

the reduction in SMP as a result of having the full suite of necessary system services available to the TSOs. The modelling conducted by the TSOs indicates that by 2020 the benefit to consumers will be €177m per annum. This is essentially the benefit to consumers of moving the 50% SNSP limit to 75% by 2020. In addition to this, however, the SEM Committee notes that the TSO's currently spend approx. €60 million per annum on Harmonised Ancillary services (HAS); the level of system services monies required to operate the system securely at a 50% SNSP limit. Accordingly the SEM Committee is of the view that it is appropriate that the current €60 million of HAS expenditure is added to the €177 million additional benefit from further expansion of the SNSP limit. This would equate to an expenditure cap of €237 million, which the SEM Committee has rounded down to €235 million per annum. In other words, €60m is required for the current 50% SNSP limit, ROCOF compliance (which is not paid for by consumers), (primarily,) moves it from 50 up to a limit of 60%, and then consumers should only contribute an equivalent sum to the value they are earning for the move from 60-75% (i.e. €177m). The SEM Committee considers that a cap ensures the consumer benefits from the increase in the SNSP without necessarily committing the consumer to spending the full value of the cap.

- 76) A glide path (with an annual expenditure cap) to the cap of €235m in 2020 will be established in the detailed design and implementation phase. This will be based upon the required volumes of system services for each of the years 2016 – 2020, which will be developed by the TSOs including public consultation and aligned to delivery of the 75% SNSP.

6.3 TSO Incentives

- 77) The SEM Committee has decided that the TSOs should be incentivised to ensure the consumer is getting value for money when paying for system services. The detail of this incentive mechanism will be developed by the SEM Committee in the detailed design and implementation phase. At a high level the incentive mechanism will require key performance indicators against which performance should be measured and should ensure that the procurement of system services is carried out by the TSOs in a cost-effective manner incentivising delivery of an increased level of wind penetration and does not create any perverse incentives for the TSOs.

6.4 System Services Volumes

- 78) The SEM Committee recognises the importance for system service providers of clarity around the volume of each service which will be procured. Concern around lack of volume data was a consistent theme in the responses to the consultation with respondents indicating the difficulty that they had in finalising plant specifications and investment strategies in the absence of reliable data on the level of each service that the TSOs need to procure as well as data around the scarcity or the excess of existing capability for each service.

- 79) In order to address this concern, the SEM Committee has decided to direct the TSOs to develop reliable system services volume requirements, in consultation with industry. These volumes are both a key aspect of the system services procurement framework and the TSO's procurement strategy (outlined in Section 6.13).
- 80) The SEM Committee has been working with the TSOs to put in place the appropriate mechanism by which agreed clarity can be provided to the industry around the level of services which the TSO will procure. The TSOs point out that there is an inherent difficulty in providing accurate volume information for each service, essentially as a result of a "feedback loop" associated with the assumptions made in the process of modelling volume forecasts. By making assumptions around the portfolio of plant in any forecast year which is available to provide system services, this portfolio assumption has a significant influence on the volume of each service required. If the portfolio assumption is changed, then this will result in a change to the volume of each service required.
- 81) Notwithstanding this difficulty, the SEM Committee believes the provision of reliable forecast data for the volume of each service which will be procured and will be contracted for, is a key component of the overall solution for the procurement of system services. Published alongside this paper is a TSO report outlining indicative volumes modelled by the TSO in November 2014. This is the first step in providing clarity around system services volumes but should not be read as the final decision on the required system services volumes. In addition to this, the SEM Committee requires the TSOs to put in place a work stream for the development and publication of reliable forecast data for system services volumes, as a key aspect of the TSO's procurement strategy.
- 82) However it should be noted that while the TSOs will be required to produce volume data, the final volumes to be procured may be adjusted slightly by the TSOs in advance of the procurement process after the TSO's assessment at the pre-qualification stage. However, volumes to be procured will be fixed before the auction and published in advance.
- 83) A full consultation on the TSO's proposed methodology for developing system service volume requirements will be carried out in the detailed design and implementation phase.

6.5 Interim Regulated Tariff 2016/17

- 84) The SEM Committee has decided that an interim regulated tariff will be set for each service for the year from 1st October 2016 to 30th September 2017. This regulated tariff will serve the purpose of allowing the TSOs to procure system services for the year 2016/17 until the enduring competitive process has been fully designed and implemented.
- 85) The regulated tariff will be developed on the following basis:

- The TSOs will prepare a BNE model (or similar) and submit it to the SEM Committee for approval following consultation with the industry.
- The TSOs will then prepare cost-plus tariffs using the approved BNE (or similar) model.
- The SEM Committee will review the TSOs submission and will publish approved tariffs for all services.

- 86) The purpose of this tariff is threefold. Firstly it will allow the participation of existing units in the provision of new services earlier than otherwise might be the case. This will provide the TSO, and the market, with greater information regarding the capability of the existing portfolio. Secondly, it will facilitate the transition to a competitive process by incentivising enhancements and operational changes not requiring significant investment and by establishing a reference price around which a competitive process can operate. Thirdly, this will provide guideline clarity on the prices for those services for which a competitive process is not possible.
- 87) A full consultation on the methodology for developing regulated tariffs for system services and the resultant tariffs will be carried out in the detailed design and implementation phase.

6.6 Pre-Qualification Process

- 88) The SEM Committee has decided that a pre-qualification process will be established for the procurement of system services.

The pre-qualification process will be a key aspect of the overall design and its purpose is proposed to be three-fold:

- 1) To act as the basis and the mechanism through which the TSOs will advise the SEM Committee of the individual services where there is sufficient competition to warrant the auction approach for service procurement and the individual services where there is insufficient competition and accordingly where a regulated tariff approach should be taken. The final decision on which services are to be procured competitively and which should be procured through a regulated approach will be taken by the SEM Committee;
 - 2) To establish the current system services capability on the island of Ireland, the potential capability of proposed investments and the technical characteristics which bidders would bid into any procurement auction;
 - 3) To act as a filtering process to ensure that speculative projects with a low chance of delivery do not participate in the auction process and secure system services contracts. Such speculative projects risk distorting the clearing price and the ability of the TSO to procure adequate volumes of services to meet the SNSP target of 75%.
- 89) A full consultation on the requirements of the pre-qualification phase will be held during the detailed design and implementation phase. The SEM Committee will also prepare guidance

for the TSOs in relation to competition metrics which will be used by the TSOs to assess the levels of competition in each service, noting the required volumes to be procured of each service. This competitive assessment will be required to be included in the TSO recommendation. It will be the TSOs' responsibility to make the recommendation to the SEM Committee as to which services should be procured competitively. The SEM Committee will use this information when evaluating the TSOs' proposal on the procurement process for each service.

- 90) For those services that the SEM Committee decides there is sufficient competition, the TSOs will then be required to run the competitive auction as described in this paper (Section 6.7). For those services where the SEM Committee decides there is insufficient competition, a regulated tariff will be applied (Section 6.8). It is intended that all providers of system services and all potential providers would have full sight of the regulated tariff for each service, at the pre-qualification stage. The TSO may also in its recommendation request the SEM Committee's approval to procure certain services bilaterally where a specific and identifiable need exists that is unlikely to be met by the existing capability of the system and where neither the tariff nor the auction process is viable for that service.
- 91) Therefore before the auction is run providers will know which services will have prices set in the auction and will know the prices of the regulated services.

6.7 Competitive Procurement of System Services

- 92) As described above, for services where there is considered to be sufficient levels of competition, the SEM Committee has decided that there will be a competitive approach to the procurement of services.
- 93) The SEM Committee has decided its preferred mechanism for procuring services competitively is to hold multiple bid auctions for that group of services where competition is sufficient. This approach is similar in design to option 5, as proposed in the SEM Committee's consultation paper (SEM-14-059); however some simplifications and modifications have been made following consideration of the points raised by respondents to the consultation.
- 94) The high level auction design framework decided upon by the SEM Committee is described below:
 - Mandatory, sealed-bid, pay-as-cleared, instantaneous auction
 - Multiple, mutually exclusive bids permitted
 - Each bid includes price and capability for each service, provides a set of mutually exclusive outcomes for the auction
 - Bids may include a minimum annual revenue requirement, if successful the TSO will guarantee to pay at least that revenue regardless of the provider's actual dispatch

- Required volume for each service fixed in advance
 - Least-cost outcome is selected, results in individual uniform prices for each service
 - Units decide contract length when bidding, existing capability of unit must be included as a bid with a fixed one-year contract.
- 95) It should be noted that the design of the auction set out in this paper is essentially a framework. Changes may be required to the auction design during the detailed design phase. In particular certain elements may be altered to allow for greater simplification of the process in the initial years of operation of the auction.
- 96) Only those services where there is deemed to be sufficient competition will be included in the auction. The prices of remaining services will be set through the tariff process (published before the auction) – see section 6.8 below.
- 97) The design of the multiple-bid auction is intended to provide price discovery for each service and allow for the efficient allocation of long term contracts. The SEM Committee is of the view that this competitive process best deals with the inherent complexity and uncertainty of system services in the current environment. Indeed a superficially simpler design does not avoid the inherent complexities in determining the appropriate price for each individual service and may expose the consumer to greater risks.
- 98) Potential providers are able to offer different investment options, representing different capabilities and different viable prices for the services. This allows the market to choose the most efficient investments to make and the appropriate price for each service. Procuring the services in this way facilitates assessing all potential providers on an equal and objective basis. As it is the bidders who set the combination of services to be provided, and the minimum prices required to recover the investment, it is a more flexible and technology neutral process than selecting individual projects to receive system services contracts based on criteria that, by necessity, would be less objective than a competitive process.
- 99) It is the SEM Committee's view that the developers of individual projects are in a better position to weigh the trade-offs of prices and contract duration than the Regulatory Authorities or the TSOs would be. Contracts for longer than one year will only be allocated to service providers who need to make a material investment in their plant in order to provide services or indeed where a new plant is being developed. As part of the detailed design phase the SEM Committee will set out the criteria such investment must meet in order to be considered for a long-term contract e.g. minimum investment levels. Notwithstanding this further work to be undertaken the SEM Committee has decided that any investment made after the publication of this Decision Paper will be eligible for consideration against these criteria.

- 100) The SEM Committee will initiate a work stream in conjunction with the TSOs in January 2015 to carry out the detailed design of the auction mechanism, with the SEM Committee retaining responsibility for all key decisions regarding auction design. Following completion of this detailed design, it will be the responsibility of the TSOs to procure the auction platform systems, in line with the SEM Committee’s detailed design. A full consultation on the detailed design of the auction mechanism will be carried out in the detailed design and implementation phase. The SEM Committee’s current thinking on the design of the auction which will feed into the consultation, is set in more detail in Section 7.

6.8 Regulated Tariff for Insufficient Competition

- 101) For services where it is considered that there is not sufficient competition to warrant a competitive approach, the SEM Committee has decided that a regulated tariff will be set for each of these services. The competitive conditions will be assessed in the prequalification process.
- 102) As set out earlier, an interim regulated tariff will be set for the year 1 October 2016 – 30 September 2017 (i.e. the tariff year 2016/17). This will be reviewed and revised the following year and will apply for five years. For services where there is insufficient competition, this tariff will apply, and a one-year contract will be issued to all providers of those services. The SEM Committee intends that an enduring five-year tariff will be published for the years 2017/18 to 2021/22, for those services where there is insufficient competition. The potential for a competitive process will be reviewed each year, accordingly it is appropriate to issue one-year contracts under the regulated tariff. The setting of the tariff for a five-year period is intended to provide greater certainty to the industry in terms of the likely price to apply to those services where there is insufficient competition and to provide guidance on the prices that may result from the competitive process.
- 103) The tariff will be developed on the following basis:
- The regulated tariff for each service will be on the basis of a “cost-plus” methodology.
 - The TSOs will be required to develop this methodology and propose it to the SEM Committee following public consultation (the same methodology will be used for the development of the interim tariff). The approach should be set to reflect the estimated cost of the incremental investment required to provide the service plus a regulated rate of return.
 - In order to estimate this cost, the SEM Committee requires the TSOs to establish a Best New Entrant (BNE) methodology or similar. It is noted that the BNE may not be a single provider but possibly made up of several technologies each providing different services.
 - A regulated tariff for each service where sufficient competition does not exist will be published.

- The regulated tariff will be paid to all providers of the service to which it applies;
- The individual rates for each service may be scaled back in order to maintain the budget cap (if necessary). However, the tariff will not be reduced to a level lower than at least the marginal cost of providing that service.

104) A full consultation on the methodology for the regulated tariff for system services will be carried out in the detailed design and implementation phase.

6.9 Payment Basis

105) The SEM Committee has decided that the payment basis for all services will be on an “availability” basis, as defined in the Consultation paper.

106) The SEM Committee notes the views of respondents regarding the revenue uncertainty provided by the availability and dispatch definitions and the certainty associated with the capability definition. However, the SEM Committee is of the view that capability payments do not represent adequate value to the consumer and will not interact with the energy market in a way that will incentivise the types of unit that are providing the greatest value to the consumer. However, the SEM Committee does acknowledge the concerns in relation to the dispatch payment basis. This definition, by design, provides very little revenue or volume certainty to investors. While this may be a suitable approach where there is excess supply relative to demand for a service, the SEM Committee does not consider that these conditions currently hold. The SEM Committee has come to this view having reviewed the TSO volume analysis discussed in Section 4 and the responses to the Consultation Paper.

107) The SEM Committee has decided that a provider with a system services contract will be paid for the volume of the service that has actually provided or made available in that trading period to the TSO regardless of the TSO’s real-time requirement for that service. The higher of a unit’s market position or physical dispatch will be used to determine the available volume. Where a provider does not need to be physically exporting to provide a service it is considered available even when not exporting.

108) In most cases this will mean that a provider must be in the market (or constrained on by the TSO) to receive system service revenues. Therefore units must bid into the energy market in such a way so as to ensure they are in the market schedule. Energy costs (whether in-merit or constrained on) will be paid separately to system service payments and these arrangements are being dealt with under the I-SEM detailed design. The system service payments themselves will be set according to the auction rate or the regulated tariff rate (depending on whether the service has been procured through an auction or a regulated tariff). Any applicable scalars, as discussed in the following section, will be applied to the unit rate due to the relevant provider.

- 109) Where a provider has been unsuccessful in the competitive process for a service that is mandated by Grid Code the provider will still be required to comply with its Grid Code obligations. However, the provider will not be paid on the same basis as those providers that were successful in the competitive process. These providers will receive the market price (i.e. the clearing price in the auction) for any volume of services provided while constrained on by the TSO, energy payments and any applicable dispatch costs will be paid separately paid. However, such providers will not receive a system services payment if they are not constrained on by the TSO. It is noted that this eventuality will not arise for services whose price is set by the tariff.
- 110) The detail of how payments will be made and what can be defined as available (for system services) under various circumstances for different types of provider will be progressed in the Detailed Design Phase. However, such detailed arrangements should be consistent with the principle that providers (having been successfully awarded a system services contract) should be paid for all services that have been made available to the TSO in a given trading period.

6.10 Scalars

- 111) The SEM Committee has decided that scalars will be applied to the unit price of a given service received by a given provider. The purpose of providing for scalars is to increase the efficiency and reliability of the procurement design ensuring that the correct signals are provided for system services providers. The methodology for the scalars will be developed as part of the Detailed Design and Implementation Phase. Scalars will reduce the level of payment to service providers where value is not being delivered to the consumer and may increase the level of payment to those services providers delivering additional value to the consumer. The scalars to be developed are:

- a performance scalar;
- a scarcity scalar;
- a product scalar; and
- a volume scalar.

Performance Scalar

- 112) In the Consultation Paper the SEM Committee proposed introducing a performance scalar, and following a review of the responses remains of the view that it is important on the one hand to reward and incentivise high levels of performance and on the other to ensure lower payments from the consumer for a lower level of performance.

Scarcity Scalar

- 113) In the Consultation Paper the SEM Committee set out its view that it is not considered practical to procure services on a locational or real-time basis. However, the SEM Committee proposed that the provision of services in locations and at times of persistent scarcity should be incentivised.
- 114) The SEM Committee has decided a scarcity scalar will be implemented. Similar to the performance scalar, this scalar will be applied to the price set by the procurement mechanism. The purpose of this scalar is to create marginal incentives for providers to make themselves available during periods or in locations of scarcity, therefore enhancing the performance of the system where it is most needed.

Volume Scalar

- 115) The SEM Committee has included several features in the procurement design that provide certainty for investors, such as the take-or-pay contracts, and encourage new entry, such as the allocation of long term contracts in the auction. However, a consequence of allowing new entrants compete with existing ones on an equal basis without discounting for the lead time or contract length is that the consumer is potentially exposed to a high clearing price, required to deliver investment, set by a provider who does not build. The SEM Committee is of the view that the consumer should be protected from such a possibility. It is also noted that as the tariff will be paid to all providers it is possible that the aggregate payments could exceed the expenditure cap and/or overly reduce the revenues available for competitive procurement. The SEM Committee is of the view that the hybrid structure of the procurement design set out in this paper requires a volume scalar to ensure consumers are protected from unnecessarily high prices and maintain the integrity of the overall procurement process.

Product Scalar

- 116) As discussed in the Consultation paper, and as proposed by the TSOs in their Recommendations Paper, there is scope for a Product Scalar for some services. Certain services can be delivered in a more effective manner, an issue that was noted in the SEM Committee's Decision Paper on the Technical Definitions. Furthermore, in the responses to the Consultation Paper several respondents argued that providers who can deliver services within a shorter timeframe than required by a service's definition should be incentivised above those that simply meet the response threshold. Having reviewed the responses the SEM Committee is of the view that there is merit in incentivising both the more effective delivery of a service and for faster response times for certain services. It is possible that such enhanced provision of system services could lower the total volumes required lowering the aggregate costs for consumers.

6.11 Allocation of Contracts

- 117) The SEM Committee has decided that long term contracts will be made available for new investment in system services. This section sets out various aspects of the SEM Committee's decision with regard to contractual arrangements.
- 118) The SEM Committee has also decided that to provide a level of investor certainty for new projects take or pay contracts should be made available where capital investment is required. Take or pay contracts will not be available for existing capability.
- 119) Additionally the SEM committee acknowledge that any new investment may require a lead-in period, therefore contracts should be made available taking into account the potential lead-in period.

6.11.1 Long Term Contracts

- 120) The SEM Committee has decided that contracts ranging from 1- 15 years will be available for new investments in system services procured on a competitive basis. The SEM Committee has decided that contracts should not exceed 20 years, however any contract over 15 years will only be approved by the SEM Committee where it can be demonstrated there is significant public interest for the project. In such cases the proposal should demonstrate the capital-intensive nature of the project, and expected asset life. Such projects will be considered on a case by case basis by the SEM Committee. The SEM Committee considers that in all other circumstances that up to 15 years should provide sufficient certainty for investors. For the avoidance of doubt contracts in excess of one year will only be issued in relation to new investment (either retrofits or new entry). The exact requirements to be considered as new investment will be set out in the detailed design and implementation phase.
- 121) The SEM Committee proposed in the Consultation Paper the ability for the TSOs to issue long-term contracts for new investment, where necessary. In the Consultation Paper it was proposed that providers should determine the required contract length and associated prices within a competitive process. This was considered appropriate on the basis that investors are best placed to evaluate the optimal financing arrangements. However, in providing for long-term contracts the SEM Committee is cognisant of the potential risks associated with locking the consumer into long term commitments. Such long term contracts also risk locking out new entry and innovation in subsequent years. Furthermore long-term contracts reduce the competitive pressures faced by providers and so potentially act against the long term interests on consumers.
- 122) Notwithstanding these concerns the SEM Committee remains of the view that long-term contracts should be provided for. Firstly, there is an acknowledged need for new investment and it is considered necessary to provide a level of certainty to investors in order to facilitate

new investment and realise the estimated consumer savings that will arise from the introduction of system services. Secondly, because the contracts are being issued through a competitive process this reduces the risks associated with a regulated approach where the number of contracts, their duration, and their prices would be determined by the Regulatory Authorities or the TSO on the basis of extremely limited information and significant uncertainty regarding the conditions required for sufficient financing.

- 123) The eligibility of providers to bid in long-term contracts will be assessed at the pre-qualification stage. The detailed design will develop the criteria that a provider must meet in order to be considered as “new investment”. Subject to meeting these criteria no investment made after the publication of this decision will be excluded from consideration as new investment.

6.11.2 Take or Pay Contracts

- 124) The SEM Committee has decided that system services contracts should be designed on a “take or pay” basis in order to provide certainty to contractual parties around the level of revenues which they can earn from fulfilling their contractual obligations.
- 125) Several respondents to the consultation paper welcomed the provision of long-term contracts under the SEM Committee’s preferred option. However, they raised concerns that while these contracts provided price certainty investors still faced volume uncertainty due to the proposed payment basis. The SEM Committee’s position on the payment basis is set out above. While the SEM Committee acknowledges the need to provide investment certainty this must be balanced against the consumer interest and in this regard it is appropriate that investors accept a level of risk. Therefore fixed payments are not appropriate. However, a minimum level of revenue certainty is considered appropriate. Therefore the SEM Committee has decided that providers of new investment can include a minimum annual revenue requirement, from all system services revenues, as part of their bid. If successful in the auction the provider will be guaranteed an annual payment of least that amount from all system services. The take-or-pay contracts will be developed as part of the detailed design phase and the SEM Committee’s current thinking in this regard is discussed in Section 7.

6.11.3 Lead Time for Investment

- 126) The SEM Committee acknowledges that new investment will require some period of lead time after securing a system services contract to allow for construction etc. Indeed this is implicit in the procurement design proposed in the Consultation Paper. An obvious consequence of permitting providers to bid in multiple capability options is that the successful capability will not be put in place until some period after the conclusion of the auction.

127) As outlined in Section 6.6, the pre-qualification process is central to determining the levels of competition which exist for each service. An important part of the pre-qualification process will be to determine that dates (including key milestones to achieve these dates) by which the enhanced capability will be operational. Contractual arrangements will ensure that failure to meet these dates may result in financial penalties or even the withdrawal of the system services contract. These arrangements will be established between the pre-qualification design work stream and the contractual arrangements work stream of the Detailed Design and Implementation Phase.

6.12 Treatment of the East West Interconnector

128) Several respondents to the Consultation Paper raised concerns regarding the role of EirGrid as both the party procuring system services and as a potential provider of system services (as the owner of the East West Interconnector – “EWIC”). Some remedies advanced to this potential or perceived conflict of interest were ring-fencing of EWIC or divestment.

129) The SEM Committee notes that EWIC must undergo the Certification process as required by Directive 2009/72/EC.

130) Notwithstanding this the role of EWIC in the procurement process for system services must be addressed. Aside from this potential conflict of interest the SEM Committee notes that EWIC is financed by the Irish energy consumer and that therefore its use should be maximised where this is of value to the consumer. The more this commercial use (e.g. provision of system services) is maximised, the less recourse there is to the general TUoS⁷ customer to underpin the public investment in the interconnector.

131) Therefore the SEM Committee has decided that the volumes of system services to be procured by the TSOs must be net of any services provided by EWIC. Accordingly EWIC will not participate directly in the auction and will be treated as a price taker for their volumes. This approach provides several benefits to consumers. Firstly the TSOs will be incentivised to maximise the economic use of the interconnectors for system stability and security as this should lower the TSOs’ demand for system services which must be procured. This should reduce the overall cost of system services to the consumer. Secondly, this approach mitigates any potential or perceived conflict of interest in terms of either EirGrid’s administration of the auction or in its definition of services themselves. Thirdly, this approach does not introduce market distortions whereas including EWIC in the volumes to be procured could potentially, as argued by respondents, introduce market distortions.

⁷ Transmission Use of System

- 132) The TSOs will be required to ensure and demonstrate that the volumes of services from EWIC utilised represent the optimum use of the publicly funded interconnector i.e. that the TSOs do not act in a perverse manner in order to uneconomically maximise volumes of services being delivered by the interconnector. For the avoidance of doubt merchant interconnectors will participate in the process on the same basis as other providers.
- 133) Responses to the consultation requested that the SEM Committee address a potential conflict of interest between EirGrid as the procurer of system services and EirGrid as the owner of East-West Interconnector (EWIC) which can provide system services. The SEM Committee has decided that the best way to deal with any potential conflict of interest in the price setting mechanism for system services is to treat the East West Interconnector as a price-taker in any auction, and it will not participate directly in the auction. This will resolve any potential conflicts of interest. For those services not procured through the auction it will receive the applicable tariff.
- 134) Notwithstanding this, the SEM Committee is cognisant of the ongoing development of the I-SEM energy trading arrangements. The SEMC has been clear throughout both work streams of the importance of consistent decision making on each work stream. Therefore, the SEMC is of the view that this decision relating to the treatment of EWIC under DS3 may be reconsidered if any inconsistencies relating to the implementation of future decisions on the I-SEM trading arrangements arise as a result of this decision.
- 135) The SEM Committee do not consider there to be a conflict of interest with Moyle Interconnector Limited (Moyle). However, noting again the ongoing work on the I-SEM trading arrangements, the SEM Committee is of the view that the treatment of Moyle under DS3 may be reconsidered if there are any inconsistencies relating to the implementation of future decisions on the I-SEM trading arrangements.

6.13 TSO Procurement Strategy

- 136) The SEM Committee has decided that the TSOs will be required to develop a procurement strategy for system services on foot of this decision framework and addressing some of the key aspects of the decision framework. This strategy should be submitted to the SEM Committee by the end of Q1 2015 and should specifically cover the following:
- The TSOs' plan for developing and publishing the volumes of each system service. This plan should include proposed engagement with stakeholders in the development of the required level of volumes. Volumes should be forecast for a minimum of a five year period (e.g. 2016 – 2020);
 - The TSOs' proposed methodology for determining the level of volumes to procure under long-term contracts up to a 15 year period;

- The TSOs' proposed methodology for determining the scarcity (or indeed excess) of system service volume for each service (consistent with the pre-qualification process outlined in Section 6.6 above). It is important that the TSOs' procurement strategy has a consistent and robust methodology for verifying the level of service available to the TSOs from the current existing portfolio and the potential volume of services which may be made available following new investment;
 - A proposed plan for working with the SEM Committee to implement the SEM Committee's competitive approach. . The SEM Committee will work with the TSOs in developing the detailed design, in line with the SEM Committee's decision in this paper and emerging thinking/ expectations set out in section 7;
 - The TSOs' proposed plan to implement the SEM Committee's regulated approach as outlined in this paper;
 - The TSOs' methodology for determining the level of system services volumes to be covered by long-term contracts.
- 137) In tandem with this the TSOs should produce a revised plan to increase the SNSP from 50% to 75%. This is to include a methodology for reporting and monitoring delivery of volumes of system services procured alongside increasing levels of SNSP and saving for consumers. This programme is to include delivery of all aspects of DS3 including RoCoF and associated increases in SNSP. While system services will be only one aspect of this overall plan, this should be informed by the TSO's procurement strategy.

7 SEM COMMITTEE VIEWS ON ISSUES TO BE PROGRESSED IN THE DETAILED DESIGN PHASE

- 138) As outlined in Section 6 of this paper the SEM Committee favours a competitive process for the procurement of system services and that where sufficient competition exists, a multiple bid auction similar to that proposed in the consultation paper SEM-14-059, is favoured. This section of the decision paper outlines in more detail the SEM Committee's current thinking on the detailed design, how the auction process will work, how bids will be evaluated, how the outcome of the auction will be decided and contracts allocated. However, it should be noted that the detailed design phase will establish the final auction design, which will include a full consultation on the auction design. In particular the SEM Committee considers that simplifications to the auction process, at least in the initial stages, may be required in order to facilitate a timely implementation of the competitive process. Nonetheless the SEM Committee is of the view that it is appropriate to provide as much detail as possible to the industry and TSOs in this paper in order to provide the framework and guidance for the work to be carried out in the detailed design phase.
- 139) This section of the decision paper sets out the SEM Committee's current thinking on aspects of the detailed design and acts as guidance/ expectations for the detailed design and implementation phase.

7.1 Auction Design and Bidding Process

- 140) The bidding process will be a sealed-bid process and will be mandatory for all providers. All providers must submit a bid for at least their existing capability. Bidders may also submit separate bids for enhanced capability and alternative prices. Each bid shall contain a price, volume, and contract length for each service⁸. These bids will be mutually exclusive of each other and will either be accepted or rejected in their entirety. Therefore if the price of one service is out of merit the entire bid will be rejected. This is an important feature of the auction design; it allows bidders to construct a bid that represents their investment case without having to guess the outcome of individual auctions for each service. This should remove the possibility that a provider will be committed to a loss-making investment due to being successful in only some services but not in others. By permitting multiple bids providers are able to propose a range of capability options to the TSO and can submit a range of prices necessary to recover the investment. This allows for the most cost-effective combination of investment to meet the requirements of the TSO and provides price discovery for each service.

⁸ Where a provider is unable to provide a given service the volume for that service in the bid will equal zero.

141) The SEM Committee has considered the issue of market power in the design of the bidding process and notes that this was a key issue raised by respondents to the consultation. The use of a sealed-bid process reduces the potential for gaming the auction. Mandatory bidding removes the ability of providers to withhold existing capability from the market and the requirement to bid in existing capability as one of the bids further mitigates this risk. The multiple bid nature of the auction will make it difficult for providers to predict how their competitors will bid for a given service. The SEM Committee is of the view that this will reinforce a bidding strategy that focuses on the provider's minimum required revenue as opposed to a strategy that focuses on pricing relative to the marginal unit. By only allowing those services where there is sufficient competitive pressure the ability of providers to exercise coordinated effects in the auction is eliminated. To further mitigate market power being exercised market power mitigation measures will be developed as part of the detailed rules for the auction and considered in the wider context of the energy trading arrangements and capacity remuneration mechanism. Local market power will need to be addressed in the detailed design phase and remedies may need to be considered holistically across energy, system services, and capacity. It is anticipated that local market power issues would be identified by the TSOs in the pre-qualification stage.

7.2 Evaluation Process and Auction Outcome

142) The process for the evaluation of the bids is central to the operation of the auction. As such, it is important that the detail of the process is developed in context of the overall design, set out in this paper. It is noted that several respondents to the consultation requested more detail on how bids would be compared and selected. Several respondents were also concerned with the complexity and lack of visibility in the TSO's evaluation process. It should be noted that due to the nature of the process (the use of a sealed-bid process and a holistic assessment of all services, the commercial sensitivity of the bids, market power issues, etc.) a completely transparent evaluation process is not appropriate.

143) The optimisation of volumes which was proposed in the consultation paper has been removed from the auction design in the SEM Committee's current thinking. Accordingly the volumes for each service would be fixed in advance of the auction and not optimised (i.e. allowing a higher price (and volume) in one service in order to procure less of another service). This simplification should allow for an automation of the clearing price calculation for each service permitting the computation of a very large volume of bids. It is necessary that the evaluation process can be automated as the number of possible outcomes is expected to be very high. This automation is a key requirement of the detailed design of the evaluation process and therefore the SEM Committee considers that where further simplification of the process is required to automate the process this should be implemented.

144) It is envisaged that the evaluation of a given outcome would proceed as follows.

- 145) The supply curve for each service would be established (i.e. the bids stacked in order of ascending unit price), the published volumes would set the clearing price for each service. For each service this will provide a set of units that are in-merit and out-of-merit. Some providers will be out-of-merit for all services and some will be in-merit for some services but out-of-merit for others. All providers that are out-of-merit for all services will be eliminated. Then each provider is removed in turn. If the resulting clearing prices reduce the total cost of that outcome thus the provider is eliminated. If, however, removing that provider increases the total cost, that provider is retained. The detailed rules for the selection of the marginal provider and tie-break situations will be developed in the detailed design. This is repeated until the least-cost outcome that satisfies the volume requirements has been found. This then provides the total cost for that outcome. The outcome with the lowest total cost will be selected and contracts awarded to the in-merit providers in that outcome.
- 146) Several respondents to the consultation had suggested that energy production costs should be used as criteria in the evaluation process. The rationale for this is that the consumer cost will not be limited to the system service cost but will also include the energy cost of dispatch. Therefore a provider that is relatively expensive in terms of system services but has very low production costs could result in lower overall costs to consumers than if a provider with low system services prices, but high production costs, was issued a system services contract. The SEM Committee is of the view that there is considerable merit to this proposal. While this does create some additional complexity the SEM Committee believes that it will be possible to incorporate an assessment of production costs into the evaluation. This should be considered as part of the detailed design.

7.3 Interaction with Capacity Auction

- 147) The SEM Committee acknowledges that there is an interdependency between the system services auction and the capacity auction, in terms of a generator's total revenue requirement. For example, were a generator to be successful in one auction but unsuccessful in the other this could result in that generator not having sufficiently adequate revenues in aggregate. Therefore fulfilling any obligations arising from the auction in which it was successful may be problematic under such circumstances. In the detailed design phase of system services, and the development of the CRM arrangements, the Regulatory Authorities will consider the interactions between the auctions and will put in place provisions to account for any issues that may arise as a result of those interactions.

7.4 Requirements of the Pre-Qualification Process

- 148) In order to deliver upon the three objectives set out in Section 6.6 for the pre-qualification process, the SEM Committee considers that it is necessary that the following information be provided by system service providers and potential providers. The SEM Committee's current thinking on the required information is outlined below:

Existing Capability

149) Existing plant should be required to submit their current technical capability for provision of each individual system service to the TSO, if they wish to be eligible to receive payments for service provision in 2016/17 (under the one-year interim tariff arrangement). Over the course of 2016/17, the TSO will verify the performance of these plant against the technical capability submitted.

Potential new providers

150) Potential new providers of system services including new proposed generation plant, retrofitting/ investments in existing plant and other potential service providers such as demand or network devices will be required to submit the following information to the TSOs:

- Their proposed technical capability for the provision of each individual system service. While it is accepted that plant specification may not be entirely finalised and investors may wish to amend their investment plans when greater knowledge of the level of volumes required for each service/ scarcity of each service is known, it is nonetheless considered that plant specification should not change materially between the pre-qualification phase and any competitive auctions which are held;
- The proposed operational date of the plant and the lead time between receipt of a system services contract and full operation of the plant/ service provider;
- The status of the plant/ service provider regarding the necessary consents, including planning permission, environmental and licensing requirements;
- The current situation of the investment with regard to financing. Evidence of finance agreements from banks or other investors will be required in order to provide confidence to the SEM Committee that any plant wishing to be considered as part of the competitive process for system service procurement is a genuine project and not speculative.
- Evidence of “available” grid capacity at the node at which the generator plans to connect may also be considered.

151) It should be noted that the SEM Committee’s current thinking is that further financial security will be required from all new investments who receive system services contracts to ensure that they deliver the level and type of services in the timeframe agreed in the contract. This security will be aimed at ensuring there is a financial imperative on the contracted parties. The requirements for financial security will be considered and outlined in the detailed design and implementation phase, where there will be a work stream on contract design.

7.4.1 Determining whether there is sufficient competition

152) It will be the role of the TSOs to advise the SEM Committee regarding whether or not, in the TSOs view, there is sufficient competition for the provision of each individual service. This

advice will be considered by the SEM Committee who will make a decision on the TSOs' proposal as to which services should be procured on a competitive basis and which services should be procured on a regulated tariff basis.

153) The SEM Committee will carry out a consultation on its guidance to the TSOs in this area. This will take place as part of the detailed design and implementation phase. However the SEM Committee's emerging thinking is that the TSOs recommendation to the SEM Committee with regard to the level of competition for each individual service should take the following into consideration:

- The estimated required volumes of each service to meet the system needs for at least the following five years, beginning with the period from 2016 – 2021;
- The volumes to be covered under long-term contracts as set out in the TSO Procurement Strategy;
- Assessment of the current capability of the existing portfolio of plant to meet or exceed this volume requirement. This will allow the TSO to determine whether there is a scarcity or an excess of plant capability to meet the volume requirement;
- Assessment of the verified⁹ potential capability of new investment to meet the volume scarcity or contribute to a further volume excess;
- Evidence on the number and profile of independent undertaking offering to provide individual services.
- Other relevant factors such as the technical nature of products, providers or concerns around local needs and an assessment of market power;
- The TSOs advice to the SEM Committee should outline the rationale for proposing a competitive approach or a regulated approach for each individual service.

154) The prequalification stage is an important component of the overall framework. It is at this stage that providers declare their intention to participate in the auction, that the TSO refines its volume assumptions and procurement strategy, that speculative projects are screened out, viable projects confirmed, and that the viability of a competitive process for each service is assessed.

155) The pre-qualification phase will be further developed as part of the detailed design and implementation phase of system services.

⁹ Taken to mean verified in the pre-qualification process to be the technical capability of the proposed new investment and its expected delivery date (subject to receiving a contract)

7.5 Allocation of contracts

7.5.1 Long Term Contracts

156) As discussed in Section 6, the SEM Committee has decided that long term contracts will be available for new investment where they are allocated through a competitive process. It is considered appropriate, as proposed in the Consultation Paper, that the contract duration should not be a determining factor in the evaluation of bids. Although it may be appropriate in the future to take account of this in the evaluation process.¹⁰ This facilitates new investment and may help lower total costs if lower financing costs are passed onto the consumer. However, there must be a limit on the total volume of system services covered by long term contracts. Without such a limit the volumes open to competition each year could fall to very low levels limiting market entry. Therefore the SEM Committee considers that aggregate limits should be imposed on the proportion of volumes covered by contracts of longer than one year. As noted in Section 6.13, the TSOs Procurement Strategy will include, inter alia, the volumes to be covered by long-term contracts in any given year.

7.5.2 Take or Pay Contracts

157) Several respondents to the consultation paper welcomed the provision of long-term contracts under the SEM Committee's preferred option. However, they raised concerns that while these contracts provided price certainty investors still faced volume uncertainty due to the proposed payment basis. The SEM Committee's decision on the payment basis for system services was set out in Section 6.9. While the SEM Committee acknowledges the need to provide investment certainty this must be balanced against the consumer interest and in this regard it is appropriate that investors accept a level of risk. Therefore fixed payments are not appropriate. However, a minimum level of revenue certainty is considered appropriate.

158) Therefore the SEM Committee's view is that providers of new investment can include a minimum annual revenue requirement, from all system services revenues, as part of their bid. If successful in the auction the provider will be guaranteed an annual payment of least that amount from all system services. Where system services revenues over the year exceed the minimum revenue requirement no annual payment would be made. Where system services revenues over the year were less than the minimum revenue requirement a payment would be paid for the difference. The SEM Committee is of the view that the revenue requirement should be considered over the life of the contract and that therefore the contractual arrangements should ensure that providers do not retain such payments were all system services revenues over the life of the contract have exceeded the aggregate minimum revenue requirement. In other words higher revenues in one year may be offset against low revenues

¹⁰ The approach taken in the Great Britain capacity auction is noted in this regard.

in other years. The detailed design of the take or pay contracts will set established in the detailed design and implementation phase.

7.5.3 Lead-time

- 159) It is important that the appropriate design for system services procurement makes allowance for the lead time associated with new developments where these new developments have been successful in obtaining a system services contract from the TSOs. The SEM Committee's current thinking on the lead time for new investment is outlined below but will be considered in more detail during the detailed design and implementation phase for system services.
- 160) It is the SEM Committee's view that the maximum limit on the permissible lead-time should be of the order of five years. It is envisaged that the bidder would specify the operational date and that this would be declared at the pre-qualification stage. It will be necessary, during the detailed design phase, to put in place contractual obligations in the form of longstop dates and commitments around key milestones to ensure projects deliver within their agreed lead time. It is also noted that formal commitments of deliver will be required of new entrants, these arrangements will be developed in the detailed design but may entail financial obligations and bonding arrangements.

7.6 Scalars

- 161) The SEM Committee has decided that various scalars should apply to the unit rates for system services as set out in Section 6.10. The purpose of the scalars set out below is to reflect the variations between providers where they provide greater value to the consumer and to ensure that the consumer is not over-paying where a provider is providing less value to the consumer.
- 162) As set out in Section 6.10, four scalars will be developed as part of the Detailed Design. These scalars will incentivise a high level of performance, greater levels of availability from the units most needed by the system, reward enhanced capability and service delivery and protect the consumer from high prices where expected new capability fails to be delivered.
- 163) The scalars, where applicable, will be applied to the established unit price for a given service (i.e. either the published tariff or the clearing price in the auction).

7.6.1 Performance Scalar

- 164) In the Consultation Paper the SEM Committee proposed introducing a performance scalar, and following a review of the responses remains of the view that it is important on the one hand to reward and incentivise high levels of performance and on the other to ensure lower payments from the consumer for a lower level of performance. The performance scalar will be developed in the Detailed Design Phase within the following framework.

165) The scalar may be set equal to one for reliability equal to or above 90% reducing to zero for reliability below 50%. The sliding scale between these two points will be developed in the Detailed Design Stage as will the process for monitoring and determining a provider's reliability. It will apply to all services and all providers. The effect of this scalar is to reduce system service payments to unreliable units and to stop paying providers who are unacceptably unreliable.

7.6.2 Scarcity Scalar

166) The SEM Committee has decided a scarcity scalar will be implemented. In the Consultation Paper the SEM Committee set out its view that it is not considered practical to procure services on a locational or real-time basis. However, the SEM Committee proposed that the provision of services in locations and at times of persistent scarcity should be incentivised.

167) Similar to the performance scalar, this scalar will be applied to the price set by the procurement mechanism. The purpose of this scalar is to create marginal incentives for providers to make themselves available during periods or in locations of scarcity, therefore enhancing the performance of the system where it is most needed. It is not intended that this scalar itself will incentivise investment in a particular area – procurement will not be on a locational basis – rather its purpose is to incentivise behaviour in order to make the most efficient use of the system. The scalar will be developed in the Detailed Design Phase within the following framework.

168) It is envisaged that the scalar would have a minimum value of one in areas where there was no scarcity but would be greater than one, but less than two, in areas/times of scarcity. The scalar for each service will be calculated with reference to the requirement and the availability of a given service. The methodology developed in the Detailed Design Phase. The TSO will set the requirement volume and will define the relevant locations and times within which the scarcity will be calculated. When developing the scalar the TSO will consider the merits of defining the requirement in terms of the real-time need for a service plus the volume of the single largest provider. The TSO will provide for periodic revisions to this scalar's inputs.

7.6.3 Volume Scalar

169) The SEM Committee has included several features in the procurement design that provide certainty for investors, such as the take-or-pay contracts, and encourage new entry, such as the allocation of long term contracts in the auction. However, a consequence of allowing new entrants compete with existing ones on an equal basis without discounting for the lead time or contract length is that the consumer is potentially exposed to a high clearing price, required to deliver investment, set by a provider who does not build. The SEM Committee is of the view that the consumer should be protected from such a possibility. It is also noted that as the

tariff will be paid to all providers it is possible that the aggregate payments could exceed the expenditure cap and/or overly reduce the revenues available for competitive procurement.

- 170) The volume scalar will be developed in the Detailed Design Phase within the following framework. The scalar will apply to all providers and will be applied to services where the volume procured under the competitive process is not all operational. For such services a scalar will be applied to reduce the unit price proportionate to the volume that is actually operational. The scalar will not result in a price lower than the price of the marginal operational provider. The scalar will be recalculated each year and will apply only to prices set in that year. Therefore those units that have been awarded long term contracts will not have their payments reduced by this scalar. In the case of services that are priced through the tariff methodology, those services will have a scalar applied to them where, notwithstanding the lack of sufficient competition, there is a surplus volume of the service.

7.6.4 Product Scalar

- 171) As discussed in the Consultation paper, and as proposed by the TSOs in their Recommendations Paper, there is scope for a Product Scalar for some services. Certain services can be delivered in a more effective manner, an issue that was noted in the SEM Committee's Decision Paper on the Technical Definitions. Furthermore, in the responses to the Consultation Paper several respondents argued that providers who can deliver services within a shorter timeframe than required by a service's definition should be incentivised above those that simply meet the response threshold. Having reviewed the responses the SEM Committee is of the view that there is merit in incentivising both the more effective delivery of a service and for faster response times. It is possible that such enhanced provision of system services could lower the total volumes required lowering the aggregate costs for consumers.
- 172) However, the nature of the scalar may be different depending on the nature of the service itself. It may be appropriate for some services that a scalar either applies or does not, where the enhancement relates to a fixed capability of the provider for example. In other cases it may be appropriate for some services that a scalar is applied on a sliding scale, where the enhancement relates to an incremental improvement in response time for example. The Product Scalars will be developed as part of the Detailed Design.

8 KEY FORECAST TIMELINES

- 173) The paper has set out the SEM Committee's high level design decision on system services procurement (Section 6) and in many areas the SEM Committee's emerging thinking on aspects of the detailed design (Section 7). The SEM Committee believes there is a requirement for a number of different work streams to be put in place by the TSOs and the Regulatory Authorities in order to deliver and implement the SEM Committee's Decision on the procurement of system services. Accordingly, the SEM Committee has decided that a detailed design and implementation phase will commence following publication of this decision paper and is expected to run until October 2017, when the first competitively procured system services will be delivered by the relevant contracted service providers to the TSOs. This detailed design and implementation phase will include a number of different consultations on a range of important components of the overall design for system services procurement e.g. volume requirements, tariff methodology, auction design, pre-qualification criteria, contractual design, scalars and payments basis methodology.
- 174) This section of the decision paper sets out the SEM Committee's high level thinking on the required work streams in the detailed design and implementation phase and a number of key milestone dates associated with this plan. It should be noted that these dates have not been formally agreed with the TSOs and therefore are subject to change; however the SEM Committee is of the view that it is important at this point to provide an indicative timetable to the industry. A final timetable will be published in Q1 2015, following discussion between the RAs and TSOs with regard to the detailed design and implementation phase. Notwithstanding this, the SEM Committee expects that detailed design work will commence in January 2015.

8.1 Detailed Design and Implementation Phase – Key Work streams

- 175) The first significant deliverable will be the submission to the Regulatory Authorities of the TSOs' Procurement Strategy (Q1 2015). This will set the context within which the TSO's work in the detailed design phase will progress and will therefore be an important document for the overall programme. The following are the key work streams (WS) which the SEM Committee envisages will be required in the detailed design and implementation phase of DS3 System Services:
- **WS1 - Regulated Tariffs:** A work stream led by the TSOs to develop the "BNE" methodology (or similar) for a regulated tariff for each service and propose the resultant tariffs to the SEM Committee for approval. This work stream will involve a public consultation on both the methodology for development of the tariff and the actual tariffs themselves.

- **WS2 - System Services Volumes:** A work stream led by the TSOs to develop the assumptions and the methodology for the calculation of forecast system services volumes. This work stream will involve a public consultation on the methodology for calculation of volumes and approval by the SEM Committee of the approach, post consultation.
 - **WS3 – Pre-Qualification Process Design:** A work stream to develop the required data from system services providers when entering the pre-qualification process and the guidelines to the TSOs in assessing this data and arriving at their position on the level of competitive pressure for the procurement of each service. A public consultation on the pre-qualification requirements will be held.
 - **WS4 – Auction Design:** A work stream to design the detail around the operation of the competitive auctions. This includes details on the bidding process, the evaluation of bids, the resolution of the auction and the approach to dealing with market power concerns. This design phase will involve a consultation on the detailed design. The SEM Committee will retain final responsibility for detailed design decisions with the TSO and RAs working together to build the design in line with the decisions in this paper. It is envisaged that the SEM Committee’s decision on detailed design will be followed by a procurement phase carried out the TSOs, which will be followed by an IT build and test phase for the actual auction platform.
 - **WS5 – Contract Design:** A work stream to put in place the contractual arrangements and terms and conditions associated with system services contracts. The SEM Committee will set out guidelines to the TSOs on the development of the contractual arrangements, while the TSOs should then develop and consult on the contracts.
 - **WS6 – Product Design and I-SEM:** A work stream led by the TSOs to develop proposals for monitoring of service delivery, development and implementation of scalars attached to the products and any relevant interactions with the I-SEM trading arrangements or capacity mechanism as these emerge. This work stream will involve close cooperation of the relevant TSO and Regulatory Authority teams and may involve engagement with the industry on discrete aspects of the overall system services design which are not covered by the other work streams.
- 176) Note: the SEM Committee will also carry out a consultation on developing and implementing appropriate incentives on the TSOs associated with system services and the delivery of an SNSP of 75%. This will be carried out after further detail has emerged (through the consultation and decision process) on system services, volumes, levels of competition and the competitive outcome.

8.2 Indicative Programme Plan

177) A programme plan will be published in Q1 2015, however the SEM Committee envisages the following milestones:

- Q1 2015 Detailed Design Phase Commences
- Q1 2015 TSO Procurement Strategy
- Q2 2016 RoCoF Implementation Project 18 month milestone
- Q4 2016 Interim Tariffs in place
- Q1 2017 First Auction run¹¹
- Q4 2017 Go-Live of first competitively procured services

¹¹ Interactions between the CRM auction and System Services auction will be considered during the detailed design phase and the respective auction dates will be set accordingly.

9 SUMMARY, CONCLUSIONS AND NEXT STEPS

- 178) This paper has set out the SEM Committee's high level design on the procurement of system services following the SEM Committee's consultation of July 2014. It represents a framework against which a detailed procurement strategy will be developed by the TSOs and a detailed design of a system services procurement methodology will be developed in 2015 and 2016.
- 179) The SEM Committee acknowledges the significant input and constructive engagement from both the industry and the TSOs in arriving at this decision. The Committee acknowledges that there remains significant work to be delivered over the coming years to fully implement the framework outlined in this paper and looks forward to working its stakeholders in this regard.
- 180) The SEM Committee views this decision paper as a significant milestone in the transition of the SEM to a low carbon model. The decision paper sets out a vision for the practical delivery of a higher penetration of renewable energy, focused on the benefits to consumers that this higher renewable penetration can bring. The decision paper aims to ensure, as soon as possible, that a framework to facilitate greater wind penetration and the certainty to deliver new investment in a manner complementary to the new I-SEM design is put in place. The SEM Committee is of the view that this will deliver a net benefit to electricity consumers, beyond the environmental benefits associated with low carbon electricity generation.
- 181) An increase in wind penetration will be facilitated by the early introduction of tariffs in 2016 which will incentivise performance from the existing fleet, provide the TSOs with additional operational experience and allow a smooth transition into the enduring regime. In tandem with this early phase in the system services programme, the Regulatory Authorities will continue to progress and monitor the RoCoF implementation project, with the key 18-month milestone being in advance of the introduction of the tariffs. Therefore by the end of 2016 wind farms will have significantly greater certainty on RoCoF implementation, the capability of the existing fleet and the new system services framework.
- 182) The introduction of auctions in 2017, and the associated contractual arrangements, will provide substantial financial certainty for new investment. This will coincide with greater certainty on the nature of the interactions between system services and the revenue streams from the energy trading arrangements and the capacity remuneration mechanism.
- 183) All of this is being progressed in order to unlock the consumer benefits associated with DS3 and the wider penetration of renewables, as outlined through the demand side analysis carried out for the SEM Committee and published alongside the consultation paper. Indeed the SEM Committee's decision paper also builds in additional safeguards for consumers aimed at ensuring these benefits are released. In addition this decision establishes interactions between the I-SEM and CRM arrangements that ensures no double payments and incentivises

those generators and technologies that sustainably deliver the greatest value to the consumer. Service providers are also incentivised to deliver the contractually committed levels of services while an incentive mechanism will be placed on the TSO aimed at ensuring the optimal outcome for consumers from the DS3 process.

184) The key components of the SEM Committee's decision are outlined below:

- There should be a total expenditure cap on TSO annual spending on system services. The cap is linked to the economic analysis carried out by the TSOs for the SEM Committee in 2014 and serves to limit the exposure of the TUoS customer to align with the benefits to the customer of implementing system services;
- An incentive mechanism will be developed to ensure that the TSOs are appropriately incentivised to minimise system services costs;
- A regulated tariff will be set for all services as an interim measure on a one year basis from 1 October 2016 to 30 September 2017. The purpose of this tariff will be to allow the TSOs to procure system services from existing plant in the year 2016/17 in advance of full transition to the enduring approach for the procurement of system services;
- The TSOs will develop a methodology for determining system services volume requirements. This will be publicly consulted upon with industry;
- A pre-qualification exercise will be carried out by the TSOs to assess the level of competition for each service. This process will select the projects eligible to compete for system services contracts and will allow for an assessment of the competitive conditions for each service;
- For services where there is sufficient competition, a competitive approach to the procurement of system services will be implemented;
- For services where the level of competition is deemed to be insufficient, a regulated tariff will be approved by the SEM Committee and published. Tariffs will be set for a five year period;
- System services providers will be paid on the principle that they should receive payment for the for the level of service which they are making available to the TSO in a given trading period;
- Different contract lengths for new investment will be made available, up to a maximum contract length of 15 years, or in exceptional cases, with SEM Committee approval, 20 years;
- A number of scalars will be applied to system services to incentivise best outcomes and performance in service provision;



- A detailed design and implementation phase will be put in place following publication of this decision, with a number of consultations to take place over 2015 and 2016.

9.1 Next Steps

- 185) The SEM Committee will now engage with the TSOs to put in place the programme plan and final timelines for the detailed design and implementation phase. This will be published in Q1 2015.
- 186) At the same time the TSOs are required by the SEM Committee to develop a procurement strategy for SEM Committee approval based on the framework outlined in this paper. This should be proposed to the SEM Committee by the end of Q1 2015 and will be considered by the SEM Committee. An approved version of this procurement strategy will be published in 2015.