

Harmonised Ancillary Services Consultation

**Tariff Year
1st October 2014 to 30th September 2015**

2nd April 2014



EXECUTIVE SUMMARY

The purpose of this consultation paper is to obtain views on the proposed harmonised all-island Ancillary Services (AS) and the associated rates for both new and existing services for the tariff year 1st October 2014 to 30th September 2015. The Regulatory Authorities' (RA) January 2010 Decision paper¹ requires that the Transmission System Operators (TSO) consult annually on any future services or rates.

In this year's Annual Tariff Consultation the TSOs are proposing to adjust the rates for an assumed level of inflation. The TSOs have assumed a forecast blended inflation² rate of 1.5% across the two jurisdictions. No other changes to rates are proposed.

The TSOs are also proposing to refine the existing provision of static reserve from the interconnectors to become a dynamic product that would only be delivered after a frequency threshold (high or low) has been breached. The TSOs propose to determine the rate for provision of Dynamic Frequency Response service at a level yet to be decided but at a level in excess of the current 50% given for Static Frequency Response. A charge for non-provision of this service is liable, in line with all other AS categories.

Separate to the Annual Harmonised Ancillary Services (HAS) consultation process, the TSOs' have made proposals to the regulatory authorities regarding enhanced System Services and commercial arrangements.

¹ [SEM-10-001]; Harmonised All-Island Ancillary Services Rates and Other System Charges; Decision Paper; 4 Jan 2010.

² Based on a number of sources (e.g. ESRI forecasts (Ireland) and Office for Budget Responsibility (UK) forecasts for 2014 and 2015) it is reasonable in the view of the TSOs, to assume a forecast blended inflation rate of 1.5% for the 2014-2015 period

ABBREVIATIONS

ASP	Ancillary Service Provider
AS	Ancillary Service
HAS	Harmonised Ancillary Services
TSO	Transmission System Operator
SONI	System Operator Northern Ireland
RA	Regulatory Authority
SEM	Single Electricity Market
TOD	Technical Offer Data
CER	Commission for Energy Regulation
POR	Primary Operating Reserve
SOR	Secondary Operating Reserve
TOR1	Tertiary Operating Reserve 1
TOR2	Tertiary Operating Reserve 2

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1. INTRODUCTION

The purpose of this consultation paper is to obtain views on the TSOs' proposed harmonised all-island Ancillary Services (AS) and the associated rates for both new and existing services for the tariff year 1st October 2014 to 30th September 2015. The RAs' January 2010 Decision paper³ requires that the TSOs consult annually on changes to AS rates.

In managing the transmission system, the TSOs must be able to deal with unexpected changes of generation, interconnector flows or system demand. This is accomplished by maintaining a prudent level of operating margin. The operating margin is the amount of reserve available, provided by additional generation, interconnectors or demand reduction measures, above that required to meet the expected power system demand.

The level of operating margin required for the island is set jointly by the TSOs. Critical factors used to determine the required reserve quantities include the largest in-feed on the island, variability in load and generation in the operational timeframe, generation reliability and the reliability of the provision of reserve by service providers. Service providers are contracted to provide reserve through the AS agreements and are paid for the different categories of reserve (Primary Operating Reserve, Secondary Operating Reserve, Tertiary Operating Reserve 1, Tertiary Operating Reserve 2, Synchronised Replacement Reserve and De-synchronised Replacement Reserve) based on their declared availability when they are generating over a certain MW value. If during a frequency event the service provider does not provide the expected level of Primary Operating Reserve, Secondary Operating Reserve or Tertiary 1 Operating Reserve, a levy is charged to the service provider for the reserve shortfall.

Similarly for reactive power, the TSOs must maintain a voltage balance across the transmission system in order to maintain a secure and stable power system and to avoid damage to connected equipment. To maintain the balance, the appropriate level of reactive power (leading and lagging) is required at appropriate locations on the transmission system. The required level of reactive power varies in the operational timeframe. Reactive power is mainly provided by generator units and transmission assets. Generally, reactive power must be provided close to the location where it is needed. Overall, therefore, the requirement is for the flexible provision of reactive power at appropriate points across the transmission system. Service providers are contracted to provide reactive power through the HAS Agreement and are paid for leading and lagging reactive power based on their declared reactive power availability when they are synchronised to the transmission system.

Black start is the ability of a generating unit or interconnectors to start up and provide electricity to the transmission system without an external power supply. Specific service providers are contracted to provide black start services through the AS Agreements in Ireland and Connection Agreements in Northern Ireland. Depending on the service provider they are paid an hourly availability rate to recover costs associated with capital, maintenance, TSO initiated testing and usage costs for the provision of this service. In the event that a service provider fails a TSO initiated black start test, then the service provider will be levied a charge.

³ [SEM-10-001]; Harmonised All-Island Ancillary Services Rates and Other System Charges; Decision Paper; 4 Jan 2010

The Harmonised Ancillary Services (HAS) went live on the 1st February 2010. Details on previous consultations and on the RA decision papers can be found on the TSOs⁴ and All-Island Project⁵ websites.

1.1 DS3 System Services Review

Separate to the Annual HAS Consultation is the System Services Review, which is being carried out as part of the DS3 Programme. This objective of the review is to propose System Services arrangements that facilitate the efficient procurement of sufficient services for the secure operation of the power system both in the short-term and long-term, while complementing the other aspects of the wholesale electricity market.

The first phase of the review involved three industry consultation papers, bilateral meetings and industry forums⁶. It culminated in a set of recommendations that were presented by EirGrid and SONI to the SEM Committee in May 2013. In consideration of the TSOs' recommendations, the SEM Committee published a consultation and decision on the technical definitions of the proposed services. A further SEM Committee consultation paper, on the overall system services framework, is expected to be published in May 2014.

1.2 AS Policy

It is anticipated that a decision on the financial arrangements for DS3 System Services will be made by the SEM Committee before the end of 2014. This will provide regulatory clarity to the TSOs to allow policy to be developed and implemented.

1.3 Instructions for Response

Respondents to this consultation paper are kindly requested to provide responses, views and comments on the proposals in this document. Responses should be sent to Amanda.Kelly@eirgrid.com or Vivienne.Price@soni.ltd.uk

Closing date is 5pm Wednesday, 7th May, 2014.

It would be helpful if comments were aligned with the sections and sub-sections of this consultation document. It would also be helpful if responses were not confidential. If confidentiality is required, this should be made clear in the response. Please note that, in any event, all responses will be provided to the Regulatory Authorities.

⁴ www.eirgrid.com and www.soni.ltd.uk

⁵ www.allislandproject.org

⁶ <http://www.eirgrid.com/operations/ds3/communications/consultations/>

2. AS SERVICES

This section is divided into three parts, the first being the existing AS arrangements and the performance of units during the 2012-2013 tariff year. The second and third sections are an update on the status of the Flexibility Services and the proposed introduction of a Dynamic Frequency Response from an interconnector.

In this year's Annual Tariff Consultation the TSOs are proposing the underlying rates should reflect inflation outturn for 2013 together with assuming a reasonable forecast of inflation for 2014-15 tariff year. As mentioned in Section 1.1, there is a wide-ranging review of System Services being undertaken by the TSOs and it is expected that changes to services and rates will be proposed in due course as part of this review.

Flexibility Services were introduced in the 2011-2012 Consultation paper as a mitigation measure for high constraints costs. At that time, the TSOs stated that Flexibility Service contracts would be entered into on a limited basis and where there is a value to the system. The Flexibility Services were Open Cycle Mode, Reduced Time to Synchronise, Lower Minimum Generation or Parking and Synchronous Compensation.

Further to this, in the 2012-2013 HAS Consultation paper, the TSOs stated that were they are not in a position to propose a standard service rate, however the TSOs would consider an annual tender process whereby a competitively priced service could be obtained. On the 20th December 2012, the TSOs issued a tender proposal to all AS providers who would be connected as of October 2013. The tender invited proposals on two flexibility services, namely Reduced Time to Synchronise Service and Multi-Mode Operation (i.e. Open Cycle Mode). Section 2.2 provides an update on this process.

2.1 EXISTING AS SERVICES

The TSOs, taking into account their respective statutory obligations and licence conditions⁷, continuously review AS services to ensure that they deliver efficiency, reliability and value for money to the end user.

The TSOs have seen a notable improvement in the contracting for reserve in excess of minimum Grid Code Requirements by a number of generating units. Improvements have also been seen in the additional reactive power provision from some units either to comply with Grid Code or to provide in excess of Grid Code. This has been a very welcome development.

The TSOs are proposing to continue the AS services and rates for this upcoming tariff year 2014-2015 with the inclusion of the assumed inflation rate.

⁷ On June 20th 2001, the Commission for Energy Regulation (CER) issued a Transmission System Operator (TSO) Licence to EirGrid plc. pursuant to Section 14 (1) (e) of the Electricity Regulation Act, 1999, as inserted by Regulation 32 of Statutory Instrument (SI) No. 445 of 2000 - European Communities (Internal Market in Electricity) Regulations 2001
On July 3rd 2007, The Department of Enterprise, Trade and Investment, in exercise of the powers conferred by Article 10(1) (b) of the Electricity (Northern Ireland) Order 1992 granted SONI Limited a TSO licence.

2.1.1 Static Frequency Service

Static frequency response is included in the overall reserve provision on the island and is provided by interconnectors. The service is designed to respond to high and low frequency events by altering the interconnector flow, initiated by at present frequency trigger values. The interconnectors are facilitating reserve exchange between power systems and the reserve provided is non-regulating. Consequently the TSOs consider the value to the system to be less than reserve provided by a dynamically regulating conventional source.

The rate for Provision of Static Frequency Service was set for 2012-2013 at 50% of the dynamic rates for service provision of the POR, SOR, TOR1 and TOR2. A charge for non-provision of this service is liable, in line with all other AS categories. The 2013-2014 rate for static reserve is unchanged for 2014-2015 except for an inflationary rate increase.

2.1.2 Ramping during and after an Under Frequency event

For clarification, it is the TSOs expectation that during an under frequency event the Generating Unit is expected to provide MW output to restore the system frequency shortfall, however when the system frequency recovers, the output of the Generating Unit is expected to respond in line with the frequency governor droop set out in the technical parameters as agreed in the HAS agreement and not to continue ramping. The TSOs have observed in some cases the Generating Unit continues to ramp (MW output increases) instead of reacting in line with the system frequency. The TSOs will continue to monitor and discuss with generators where necessary

2.1.3 Ramping before an Under Frequency event - Pre-Event Assessment

It has been raised with the TSOs' that the existing reserve provision calculation has a limitation whereby if a unit is ramping up or down pre-event then the calculation may incorrectly calculate the expected output of the unit. The existing design analyses the pre-event output and frequency in the period 30 to 60 seconds before the event start time. The TSOs are currently investigating an alternative design whereby if the unit is ramping pre-event then the pre-event output and frequency is analysed closer to the event start time and is averaged over a shorter timeframe. The TSOs are proposing that if a unit is ramping pre-event or if the event was caused by the wind down of a unit then the pre-event output and frequency is the average from 3 to 5 seconds before the event start time. The TSOs are investigating this as part of the Enhanced Performance Monitoring work stream under the DS3 project. The output of this project will help determine the outcome of this design refinement.

2.1.4 Refinement to Operating Reserve Calculation (Multiple AS Values & Decrement Rates)

As part of last year's Annual Tariff Consultation the TSOs endeavoured to implement a design refinement to the settlement systems in Ireland to allow for more complex reserve curves, in line with the capabilities in the Reserve Constraint Unit Commitment (RCUC) applications used in the control rooms. The settlement systems in Northern Ireland already allow for this capability. An example of the new curve is shown in Figure 1 below. The system change required to introduce these modifications to the HAS settlement system in Ireland is on schedule to be complete for the start of the tariff year 2014-2015. The TSOs request that the Service Providers who believe they would benefit from this change to their unit's existing contract values to reflect their true capabilities should contact the TSO in Ireland where their request will be assessed.

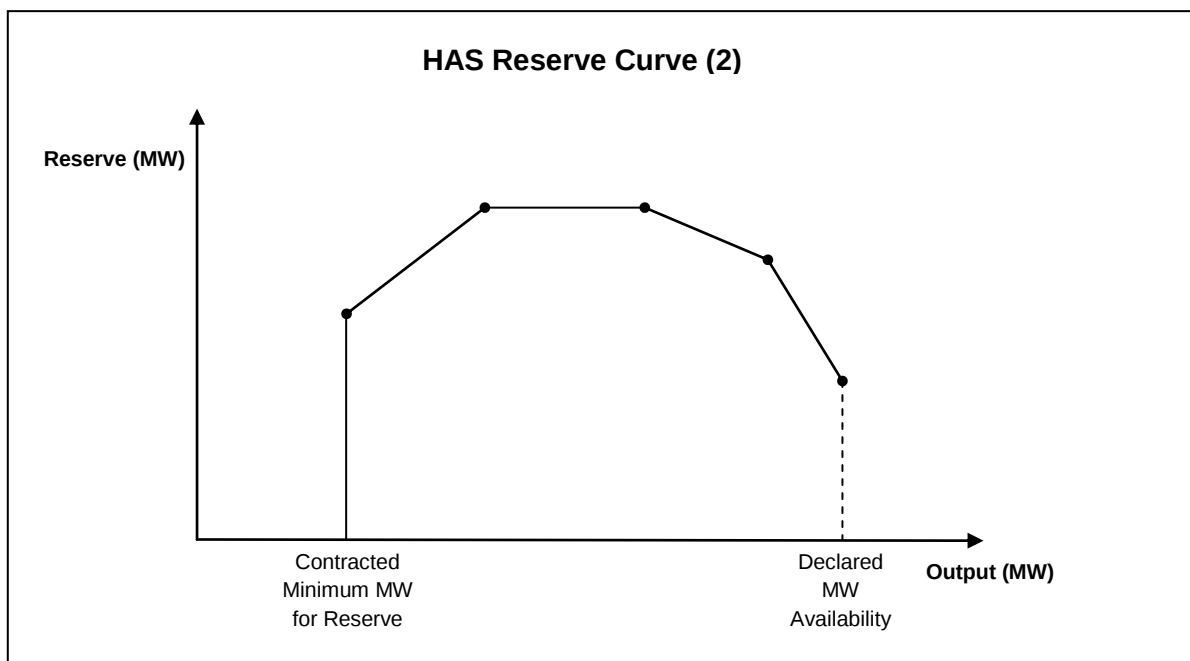


Figure 1

2.2 FLEXIBILITY SERVICES

Significant Dispatch Balancing Costs during the Tariff Year 2010-2011 resulted in the TSOs' focusing on procuring additional services which would assist with mitigation of these costs. It was decided to explore a number of short term AS services which would offer improvements to the operational flexibility of the power system and mitigate high constraint costs. The services were as follows:

1. Reduced Time to Synchronisation from Instruction (also referred to as 'warming');
2. Flexible multimode operation;
3. Lower minimum generation with/without reserve; and
4. Synchronous Compensation.

Full details on each of these services can be found in last year's consultation, SEM-13-020⁸.

As set out in the Consultation Paper for 2011-2012, the services would be contracted on a unit specific basis. The services must provide an overall system benefit and must provide value for money for the consumer. In terms of payment, the services would be paid for based on their utilisation and would not be availability based payments. The SEM Committee decision for Tariff year 2011/2012 requested HAS rates to be proposed by the TSOs for the tariff year 2012/2013, however, in the HAS Consultation paper for that tariff year, the TSOs stated that were they are not in a position to propose a standard service rate. Instead, the TSOs would consider an annual tender process whereby a competitively priced service could be obtained. On the 20th of December 2012, the TSOs issued a tender proposal to all AS providers who would be connected as of October 2013. The tender invited proposals on two flexibility services, namely Reduced Time to Synchronise Service and Multi-Mode Operation (i.e. Open Cycle Mode).

The TSOs received five tender applications for the provision of Reduced Time to synchronise for the 2013-14 tariff year. Two tender applications were notified and omitted from further participation. The remaining three are currently under evaluation by the TSOs in conjunction with the service provider. These are expected to be finally agreed or rejected by October 2014.

The TSOs received three tender applications for the provision of flexible multi-mode operation for the 2013-14 tariff year. Two tender applications were notified and omitted from further participation. The remaining one is currently under evaluation by the TSOs in conjunction with the service provider. It is expected to be finally agreed or rejected by October 2014.

⁸ www.allislandproject.org

2.3 Dynamic Frequency Response from an Interconnector

The TSOs have been investigating recent low frequency transients where the frequency has recovered rapidly and to a value above 50 Hz within the POR timeframes partly due to the influence of fixed amounts of static reserve. To provide an improvement in frequency control during transients the TSOs are therefore proposing to refine the existing provision of static reserve from the interconnectors to become a dynamic product that would only be delivered after a frequency threshold (high or low) has been breached. This Frequency Response would be provided in the same manner as a turbo-generator response having a settable governor droop (potentially 4%) and, similar to a machine, there would be a cap on the quantity of reserve that would be provided. This would enable the interconnector reserve to be utilised in a much more intelligent manner and would therefore provide enhanced benefits to both the TSOs and the consumer. The TSOs consider the value to the system to be less than that provided by a dynamically regulating conventional source as a significant threshold must be breached, either above or below the nominal 50 Hz, before any triggering of the reserve actually takes place.

The TSOs propose to determine the rate for provision of Dynamic Frequency Response service at a level yet to be decided but at a level in excess of the current 50% given for Static Frequency Response. A charge for non-provision of this service is liable, in line with all other AS categories.

The TSOs expect to replace the Static Frequency Response service with the Dynamic Frequency Response service over a period of time.

The TSOs would welcome participants' views on the merits of this proposal.

3. PROPOSED RATES AND CHARGES

The rates and charges for HAS are proposed in Tables 3.1 and Table 3.2 below. Table 3.3 provides the HAS rate for the associated costs for Synchronous Compensation service and Static Frequency Service.

In the Harmonised Ancillary Services Rates and Other System Charges Decision paper for 2011-12, the SEM Committee was satisfied that the exchange rate methodology is aligned to that utilised in the SEM. The TSOs will use the same methodology for 2014-15 but propose that the 5-day average rate is based on the last five working days of July in order that the Harmonised Ancillary Services & Other System Charges GBP rates are available sooner. All rates and charges increase with assumed forecast blended inflation rate of 1.5%⁹.

Service	Categories	2013/14	2014/15
Reserve	Primary Operating Reserve	€ 2.31 / MWh	€ 2.34 / MWh
	Secondary Operating Reserve	€ 2.21 / MWh	€ 2.24 / MWh
	Tertiary Operating Reserve 1	€ 1.84 / MWh	€ 1.87 / MWh
	Tertiary Operating Reserve 2	€ 0.92 / MWh	€ 0.93 / MWh
	Replacement Reserve (Synchronised)	€ 0.20 / MWh	€ 0.20 / MWh
	Replacement Reserve (De-Synchronised)	€ 0.53 / MWh	€ 0.54 / MWh
Reactive Power	Reactive Power Lagging	€ 0.13 / MVarh	€ 0.13 / MVarh
	Reactive Power Leading	€ 0.13 / MVarh	€ 0.13 / MVarh

Table 3.1: Proposed Harmonised Ancillary Service Rates for 2014-2015 tariff year

Reserve Parameter	Rate
Primary Operating Reserve Charge Period	30 days
Secondary Operating Reserve Charge Period	30 days
Tertiary Operating Reserve 1 Charge Period	30 days
Static Frequency Charge Period	30 days
Event Frequency Threshold	49.5 Hz
Reserve MW Tolerance ¹⁰	1 MW
Reserve Percentage Tolerance	10 %

Table 3.2: Charges for non-provision of all reserve categories for 2014-2015 tariff year

Services	Categories	2013/14	2014/15
Flexibility Services	Synchronous Compensation	€2.94 / hr	€2.98 / hr
Reserve	Static Frequency Service	€3.64 / MWhr	€3.69 / MWhr

Table 3.3: Proposed HAS rates for Synchronous Compensation and Static Frequency service for 2014-2015 tariff year

⁹ Based on a number of sources (e.g. ESRI forecasts (Ireland) and Office for Budget Responsibility (UK) forecasts for 2014 and 2015) it is reasonable in the view of the TSOs, to assume a forecast blended inflation rate of 1.5% for the 2014-2015 period.

¹⁰ The Reserve tolerance will be greater of the Reserve Percentage Tolerance of the expected Reserve provision or the Reserve MW Tolerance when a charge is applicable.

4. SUMMARY AND NEXT STEPS

Comments are invited from interested parties on this consultation paper and should be aligned with the sections and sub-sections of this document. If confidentiality is required, this should be made clear in the response as the comments will be published on the TSOs' websites¹¹. Please note that, in any event, all responses will be provided to the RAs. The closing date for comments is **5pm Wednesday, 7th May, 2014**.

¹¹ www.eirgrid.com and www.soni.ltd.uk