

# **Harmonised Ancillary Services Consultation**

**Tariff Year  
1<sup>st</sup> October 2013 to 30<sup>th</sup> September 2014**

**11<sup>th</sup> April 2013**



## 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 1<sup>st</sup> October 2013 to 30<sup>th</sup> September 2014. The RAs' January 2010 Decision paper<sup>1</sup> requires that the TSOs 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 inflation<sup>2</sup> rate of 2% across the two jurisdictions. No other changes to rates are proposed.

Regarding the Flexibility Services introduced in the 2011-2012 Consultation paper as a mitigation measure for high constraint costs, the TSOs conducted a tender process in 2012-2013 whereby a competitive priced service could be obtained.

Regarding new services, in February 2010 when HAS was introduced, the option to provide more than one value of POR, SOR, TOR for each unit was not offered. The TSOs are currently reviewing the implementation and design to systems that are required to facilitate this option and will propose to introduce this option in subsequent years with all existing AS providers.

The methodology used for the decrement rate applied in the Operating Reserve AS payment is currently under review by the TSOs. In order to provide flexibility for the definition of unit reserve characteristics for units with multiple break points in the reserve curve a system change would be required.

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

<sup>2</sup> Based on a number of sources (e.g. ESRI Quarterly Commentary Winter 2012; published 31st Jan 2013 and HM Treasury compilation of independent forecasts; published February 2013) it is reasonable to assume a forecast blended inflation rate of 2% for the 2013-2014 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

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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 1<sup>st</sup> October 2013 to 30<sup>th</sup> September 2014. The RAs' January 2010 Decision paper<sup>3</sup> requires that the TSOs consult annually on changes to AS rates.

In managing the transmission systems, the TSOs must be able to deal with unexpected changes of generation capacity, 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 provision by service providers of reserve. 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 systems 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 systems. 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 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 station 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 station fails a TSO initiated black start test, then the service provider will receive a charge.

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<sup>3</sup> [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 1<sup>st</sup> February 2010. Details on previous consultations and on the RA decision papers can be found on the TSO's<sup>4</sup> and All-Island Project<sup>5</sup> websites.

### **1.1 System Services Review as part of DS3 Programme**

Separate to the Annual HAS Consultation is the System Services Review, under the DS3 Programme, a programme of work is being carried out which has the objective of reviewing 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.

This separate consultation process is being carried out, in conjunction with the Regulatory Authorities. The TSOs are undertaking a multi-stage consultation process, to incorporate the views of industry on the arrangements for System Services. In addition to the formal consultation stages, there will be a number of industry forums and opportunities for bilateral meetings.

EirGrid and SONI published a third consultation paper on the System Services Review on Wednesday 19<sup>th</sup> December 2012, undertaken as part of the DS3 programme. In addition, the SEM Committee have published an associated cover note to this consultation on the All-Island Project website.

### **1.2 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](mailto:amanda.kelly@eirgrid.com) or [Vivienne.Price@soni.ltd.uk](mailto:Vivienne.Price@soni.ltd.uk)

**Closing date is 5pm Friday, 10<sup>th</sup> May, 2013.**

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.

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<sup>4</sup> [www.eirgrid.com](http://www.eirgrid.com) and [www.soni.ltd.uk](http://www.soni.ltd.uk)  
<sup>5</sup> [www.allislandproject.org](http://www.allislandproject.org)

## 2. AS SERVICES

This section is divided into two parts, the first being the existing AS arrangements and the performance of units during the 2012-2013 tariff year. The second section is a review of the Flexibility Services, introduced during 2011-2012 and a new HAS service called Static Frequency Response which has been introduced since 2012-2013.

In this year's Annual Tariff Consultation the TSOs are proposing the underlying rates should reflect inflation outturn together with assuming a reasonable forecast of inflation for 2013-14 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. 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. Section 2.2 describes the Static Frequency Response service and HAS rate which was introduced during 2012-2013.

### 2.1 EXISTING AS SERVICES

The TSOs, taking into account our respective statutory obligations and licence conditions<sup>6</sup>, are continuously reviewing AS services to ensure that they deliver efficiency, reliability and value for money to the end user.

Over the last two years, 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. This was particularly important in the context of mitigating the high constraints costs seen during the 2010-2011 tariff year. 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.

On the down side, reserve provision, when triggered by a frequency event, can vary significantly between units contracted to provide reserve. The TSOs are working with the units concerned to understand why this is occurring as reliability in the provision of reserve is an important aspect of the HAS design and mitigating constraints costs. All of the events were followed up directly with the AS provider reminding the generators in question of their Grid Code and AS Agreement obligations. The TSOs continue to work with generators on their reserve performance facilitating Grid Code testing as required.

The TSOs are proposing to continue the AS services and rates for this upcoming tariff year 2013-2014 with the inclusion of the assumed inflation rate.

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<sup>6</sup> 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 Multiple AS Values

In February 2010 when HAS arrangements were introduced, the option to provide more than one value of POR, SOR, TOR1, TOR2 and RR for each unit was not offered. The TSOs will be undertaking an implementation and design review of the systems required to facilitate this change. The change is to permit units that offer more than their original contracted values to be processed and the different values to be selected for settlement within the system. The TSOs propose to introduce this option in subsequent years with all existing AS providers. Participants are requested to provide their views on the proposal.

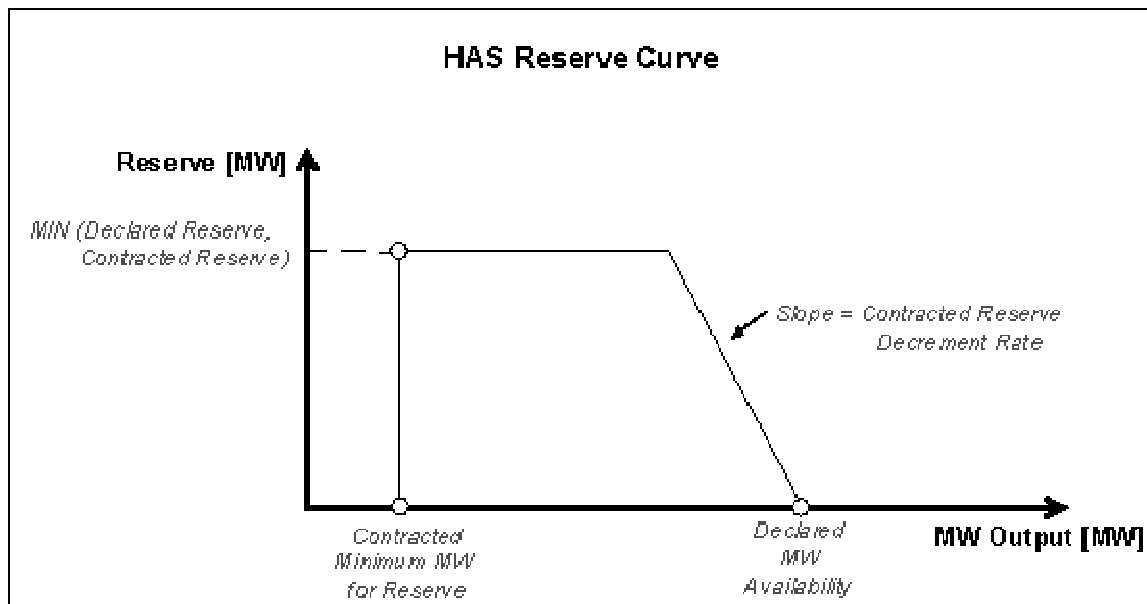
### 2.1.2 Decrement Rates

The methodology used for the decrement rate applied in the HAS settlement system for HAS Reserve Curves is currently under review by the TSOs. In order to provide flexibility for the definition of unit reserve characteristics for units with multiple break points in the reserve curve a system change is required in Ireland. The existing settlement system in Northern Ireland allows this flexibility.

The HAS Reserve Curves define the relationship between the unit output and its reserve capability. The curves are defined for Primary Operating Reserve (POR), Secondary Operating Reserve (SOR), Tertiary Operating Reserve 1 (TOR1), Tertiary Operating Reserve 2 (TOR2) and Replacement Reserve (RR).

The existing decrement rate is the slope of Contracted Reserve Decrement Rate as shown in the diagram below.

It is the TSOs' intention to introduce this arrangement for all existing AS providers from October subject to settlement system design review. Participants are requested to provide their views on the proposal.





## **2.2 FLEXIBILITY SERVICES**

Significant Dispatch Balancing Costs during the Tariff Year 2010-2011 resulted in the TSOs' focus 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 TSOs endeavoured to include these services in the 2011/2012 tariff year consultation paper with a view to implementing them as harmonised services for the 2012/2013 tariff year.

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.

As set out in the Consultation Paper for last year, the services would be contracted on a unit specific basis i.e. not all units which provide existing AS services will qualify. The services must provide an overall system benefit and must provide value for money for the consumer. In terms of payment, the services will be paid for based on their utilisation and will 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. This section explores the feasibility and appropriateness of a HAS rate in each case.

In the 2012-2013 HAS Consultation paper, the TSOs stated that where they are not in a position to propose a standard service rate, the TSOs would consider an annual tender process whereby a competitively priced service could be obtained. On the 20<sup>th</sup> of December, 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 closing date for tender responses was 18<sup>th</sup> February 2013.

### **2.2.1 Reduced Time to Synchronise**

Operationally it would be beneficial to reduce the synchronising timeframe as much as technically possible in order to have greater flexibility, to reduce the potential of carrying unnecessary generation and in order to reduce constraints costs. Currently certain units have long notification times and thus must be dispatched in advance of real time in anticipation of wind, demand and interconnector changes. This leads to higher costs on the system. As forecasting errors reduce closer to real time shorter notification times would allow a more accurate unit commitment resulting in a decrease in constraints costs.

The TSOs received 5 tender applications for the provision of Reduced Time to synchronise for the 2013-14 tariff year; these are currently under evaluation by the TSOs.

### **2.2.2 Flexible multimode operation**

This service provides for a combined cycle unit to switch to open cycle or to start in open cycle when called by the TSO. There is a number of Combined Cycle Gas Turbine (CCGT) generating units on the island which have the technical capability of operating in Open Cycle

Gas Turbine (OCGT) mode. Operating in CCGT mode is much more efficient compared with operating in OCGT mode as the waste heat from the gas turbine is passed through a heat exchanger and used to produce steam, which in turn is used to generate additional energy. However, CCGTs typically offer less operational flexibility than an OCGT, especially when required to respond quickly to changes in system events at short notice. The TSOs consider it prudent to have the flexibility to request a unit to switch mode where there is a system benefit to do so.<sup>7</sup>

The TSOs have investigated a harmonised rate for this service but have found it difficult to recommend a rate that is not dynamically changing in line with fuel costs. The proposed structure of remuneration provides for payments for actual fuel price which would result in a two-part rate whereby the maintenance and incentive would be fixed while the fuel costs would dynamically change in line with fuel cost movement.

The TSOs received 3 tender applications for the provision of flexible multi mode operation for the 2013-14 tariff year; these are currently under evaluation by the TSOs.

### **2.2.3 Parking or Lower Min Gens**

In the 2011-2012 consultation paper, the TSOs asked for participants' opinions on the need to incentivise the lowering of Minimum Generation and described the number of units which already reduced their minimum generation in the SEM for commercial reasons as the market schedule takes account of minimum generation in the optimisation algorithm. Given the majority of the respondents to previous consultations agreed that it should not be incentivised through HAS and the TSOs agree in principle with this view, the TSOs' preference is to only contract in specific circumstances. These circumstances would be where the TSOs consider it worthwhile to contract for a lower minimum generation or parking services where there is a benefit to the power system in doing so and the cost of providing a reduction in minimum load or minimum generation would not be recovered by the SEM.

### **2.2.4 Synchronous Compensation**

Synchronous Compensation is a service whereby a generating unit can declare itself available to provide reactive power (MVar) and Automatic Voltage Regulation<sup>8</sup> (AVR) services to the TSOs while not generating active power (MW). The generating unit will need to import power from the transmission system in order to provide this service. This service offers the TSOs increased operational flexibility as in many instances a generating unit may be dispatched on to provide this service to provide local voltage support, whilst not necessarily requiring the active power, which results in increased constraints costs.

In addition to the payments made for reactive power when dispatched in synchronous compensation mode, the 2012-2013 rate for Synchronous Compensation is unchanged for 2013-2014 however does include an inflationary rate increase..

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<sup>7</sup> Further information on the design can be found in the 2011-2012 Consultation paper.

<sup>8</sup> Automatic maintenance of a **Generation Unit's** terminal voltage at a desired set point. See relevant Grid Codes for further information. Grid Codes are available at [www.eirgrid.com](http://www.eirgrid.com) and [www.soni.itd.uk](http://www.soni.itd.uk).

### **2.2.5 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 passing through frequency trigger values. The interconnector is 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 would be liable, in line with all other AS categories. The 2012-2013 rate for static reserve is unchanged for 2013-2014 however does include an inflationary rate increase.

### 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 final exchange rate used for the HAS and OSC was based on the 5-day average rate for the period 25 August 2011 to 29 August 2011, one month before the tariff year starts). The TSOs will use the same methodology for 2013-14 but propose that the 5-day average rate is based on the last five working days of July in order that the HAS & OSC GBP rates are available sooner to the Northern Ireland generating companies.

All rates and charges increase with assumed forecast blended inflation rate of 2%<sup>9</sup>

Table 3.1 and 3.2 provides the following rates:

Service	Categories	2012/13	2013/14
Reserve	Primary Operating Reserve	€ 2.22 / MWh	€ 2.26 / MWh
	Secondary Operating Reserve	€ 2.13 / MWh	€ 2.17 / MWh
	Tertiary Operating Reserve 1	€ 1.76 / MWh	€ 1.79 / MWh
	Tertiary Operating Reserve 2	€ 0.88 / MWh	€ 0.90 / MWh
	Replacement Reserve (Synchronised)	€ 0.20 / MWh	€ 0.20 / MWh
	Replacement Reserve (De-Synchronised)	€ 0.51 / MWh	€ 0.52 / 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 2013/2014 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 <sup>10</sup>	1 MW
Reserve Percentage Tolerance	10 %

**Table 3.2: Charges for non-provision of all reserve categories for 2013-2014 tariff year**

<sup>9</sup> Based on a number of sources (e.g. ESRI Quarterly Commentary Winter 2012; published 31st Jan 2013 and HM Treasury compilation of independent forecasts; published February 2013) it is reasonable to assume a forecast blended inflation rate of 2% for the 2013-2014 period.

<sup>10</sup> 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.

<b>Services</b>	<b>Categories</b>	<b>2012/13</b>	<b>2013/14</b>
Flexibility Services	Synchronous Compensation	€2.88 / hr	€2.93 / hr
Reserve	Static Frequency Service	€3.50 / MWhr	€3.57 / MWhr

**Table 3.3: Proposed HAS rates for Synchronous Compensation and Static Frequency service for 2013-2014 tariff year**

## 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' websites<sup>11</sup>. Please note that, in any event, all responses will be provided to the RAs. The closing date for comments is **5pm Friday, 10<sup>th</sup> May, 2013**.

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<sup>11</sup> [www.eirgrid.com](http://www.eirgrid.com) and [www.soni.ltd.uk](http://www.soni.ltd.uk)