

Harmonised Ancillary Services Consultation

**Tariff Year
1st October 2012 to 30th September 2013**

3rd April 2012



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 2012 to 30th September 2013. The RAs' January 2010 Decision paper¹ requires that the TSOs consult annually on any future services or rates.

In this year's Annual Tariff Consultation the TSOs are proposing to retain the existing AS services and rates for the tariff year October 2012 – September 2013. 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 as part of this review.

Regarding new services, flexibility services were introduced in the 2011-2012 Consultation paper as 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 included Open Cycle Mode, Reduced Time to Synchronise, Lower Minimum Generation or Parking and Synchronous Compensation. A harmonised rate was investigated for each of the four services however in the case of Reduced Time to Synchronise and Lower Minimum Generation and Open Cycle Mode, the TSOs do not consider a HAS rate appropriate.

Where the TSOs are not in a position to propose a standard service rate, the TSO's would consider an annual tender process whereby a competitively priced service could be obtained. The TSOs would welcome participant's views on the merits of this proposal. The tender would be conducted jointly by EirGrid and SONI.

The Synchronous Compensation service is proposed to have a harmonised rate of €2.88/hr when operating in synchronous compensation mode in addition to payments for reactive power, start costs and import energy. A new service called Static Frequency Service is proposed to be introduced and a HAS rate of €3.50/MWhr equivalent to 50% of the POR, SOR and TOR categories is recommended.

Reporting of HAS payments is now published on a monthly basis on the EirGrid and SONI websites.

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

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 1st October 2012 to 30th September 2013. The RAs' January 2010 Decision paper² 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 in 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.

² [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 TSOs³ and All-Island Project⁴ 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, 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 over the next 12 months, in conjunction with the Regulatory Authorities. The TSOs will be 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.

A preliminary consultation was published by the TSOs in December 2011. The purpose of this document was to present the background and context, the proposed approach to the System Services review and to seek the views of the industry on the scope and nature of the review. In particular, the TSOs are seeking views on the approach to remuneration, the contractual arrangements and the eligibility of providers of System Services. The responses to this preliminary consultation will then inform the development of options for products, which will be presented in a second consultation expected to be published in Q2 of 2012. The TSOs are currently investigating the specific definitions of System Services and the required quantities over the medium to long term and it is expected that this will form a key input to the second consultation.

1.2 Instruction 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 david.carroll@eirgrid.com or mark.gormley@soni.ltd.uk

Closing date is 5pm Friday, 4th May 2012.

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.

³ www.eirgrid.com and www.soni.ltd.uk

⁴ www.allislandproject.org

2. AS SERVICES

This section is divided into two sections, the first being the existing AS arrangements and the performance of units during the 2011-2012 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 is described.

In this year's Annual Tariff Consultation the TSOs are proposing to retain the existing AS services and rates for the next tariff year 2012/13. 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 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 proposals for this years' consultation and in section 2.3 a new HAS service, the Static Frequency Response service is described.

2.1 EXISTING AS SERVICES

The TSOs, taking into account our respective statutory obligations and licence conditions⁵, are continuously reviewing system services to ensure that they deliver efficiency, reliability and value for money to the end user.

Over the last 12-18 months 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 as 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 2012-2013.

⁵ 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.

2.2 FLEXIBILITY SERVICES

Significant Dispatch Balancing Costs during the Tariff Year 2010-2011 resulted in the TSO's 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 of CCGTs;
3. Lower minimum generation with/with-out reserve; and
4. Synchronous Compensation

As set out in 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 be 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 TSO's for the tariff year 2012/2013. The section explore the feasibility and appropriateness of a HAS rate is each case.

Where the TSOs are not in a position to propose a standard service rate, the TSO's would consider an annual tender process whereby a competitively priced service could be obtained. The TSOs would welcome participant's views on the merits of this proposal. The tender would be conducted jointly by EirGrid and SONI.

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 with the a resulting decrease in constraints costs.

The TSOs believe that there are two options to incentivise shorter synchronising times

1. The SEM could include a synchronising time in the market schedule
2. A specific payment through HAS could be made for a reduction in time to synchronise.

The TSO's recognise that there is a wide variation in costs between generators in terms of changing plant or procedures to reduce synchronising time. This makes a single HAS rate for the service difficult to obtain. In addition, the TSO would favour Option 1 which provides for the inclusion of synchronising times in the SEM market schedule and are currently investigating how this change can be brought forward for consideration. The TSOs are

interested in participant's views on the options proposed above and the preference to include synchronising times in the SEM market schedule.

2.2.2 Open Cycle Service

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.⁶

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 costs that would be remunerated include fuel, maintenance and an incentive. The fuel costs are associated with the decrease in efficiency between the closed cycle and open cycle mode of operation. The following options for payment of this service are:

1. Annually fixed fuel price i.e. a modelled view of fuel costs proposed with the annual consultation resulting in a fixed HAS rate
2. 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.

Regarding Option 2, this service could be designed where a daily cost is submitted to the TSO for the open cycle costs. To recommend a fixed rate which is set in advance of the trading day could introduce commercial risk and could result in lack of interest in this service should the costs not be recoverable.

The TSOs would prefer Option 2 as this minimises the commercial risk to parties and are thus proposing the rate would be the additional running costs for the period of running (i.e. fuel costs and maintenance) in open cycle plus an incentive. The TSOs are interested in participant's views of these options and the feasibility of a tender process to obtain a standard rate.

2.2.3 Parking or Lower Min Gens

In the 2011-2012 consultation paper, the TSOs asked for participants' opinion 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. The options for a HAS rate are as follows:

⁶ Further information on the design can be found in the 2011-2012 Consultation paper.

1. Maintain the status quo with the SEM incentivising lower minimum generations in the market schedule
2. Provide a HAS rate for this service which could be generation-type dependent e.g. a separate HAS rate for coal and gas plant

Given the majority of the respondents agreed that it should not be incentivised through HAS and the TSOs agree in principle with this view, the TSOs preference is for Option 1. In specific circumstances, the TSOs do 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. The TSOs interested in participants' views of the options proposed.

2.2.4 Synchronous Compensation

Synchronous Compensation is a service whereby a generating unit can declare themselves available to provide reactive power (MVar) and Automatic Voltage Regulation⁷ (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.

This proposed design is as follows:

- If after successful testing the generating unit it is established that they can provide this service then the generating unit can contract to provide this service through the HAS Agreement;
- The TSOs can dispatch a unit to generate 0 MW and to a MVar leading or MVar lagging set point;
- The unit will be synchronised with the transmission system, will be paid a start cost through HAS if started for Synchronisation Compensation only and will import active power to provide this service from the transmission system;
- If dispatched to provide this service the generating unit will be remunerated for the imported energy used to provide this service, will be paid the harmonised reactive power rate and will be paid twice the harmonised reactive power rate if the unit provides AVR.

The TSOs propose that this service is remunerated for additional maintenance costs incurred by the generating unit through providing this service.

The TSOs have been working on the design and implementation of the Synchronous Compensation service. There are two options for a HAS rate:

1. Fixed price per kWh for import energy and HAS a rate for associated costs such as maintenance.

⁷ 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 and www.soni.ltd.uk.

2. Pay import energy costs on a pass-through basis and a HAS rate paid for associated costs.

In both options a start cost would be paid through HAS in line with SEM start costs. The TSOs prefer option 2 and are thus recommending the following HAS rate for associated costs.

HAS Rate	Cost €/hr
Synchronous Compensation	€2.88

2.3 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 TSO's consider the value to the system to be less than reserve provided by a dynamically regulating conventional source. It is proposed that this service be harmonised and a rate to be proposed and approved by the RAs.

The TSOs are proposing a rate which is 50% of the POR, SOR, TOR1 and TOR2 categories as a means of remunerating the service provider for facilitation static response. A charge for non-provision of this service would be liable, in line with all other AS categories

HAS Rate	Cost €/MWhr
Static Interconnector Frequency Response	€3.50

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.

Table 3.1 and 3.2 provides the following rates:

Service	Categories	
Reserve	Primary Operating Reserve	€ 2.22 / MWh
	Secondary Operating Reserve	€ 2.13 / MWh
	Tertiary Operating Reserve 1	€ 1.76 / MWh
	Tertiary Operating Reserve 2	€ 0.88 / MWh
	Replacement Reserve (Synchronised)	€ 0.20 / MWh
	Replacement Reserve (De-Synchronised)	€ 0.51 / MWh
Reactive Power	Reactive Power Lagging	€ 0.13 / MVAh
	Reactive Power Leading	€ 0.13 / MVAh

Table 3.1: Proposed Harmonised Ancillary Service Rates for 2012/2013 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 ⁸	1 MW
Reserve Percentage Tolerance	10 %

Table 3.2 Charges for non-provision of all reserve categories for 2012-2013 tariff year

Services	Categories	
Flexibility Services	Synchronous Compensation	€2.88/hr
Reserve	Static Frequency Service	€3.50/MWhr

Table 3.3 Proposed HAS rates for Synchronous Compensation and Static Frequency service for 2012-2013 tariff year

⁸ 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' websites⁹. Please note that, in any event, all responses will be provided to the RAs. The closing date for comments is **Friday 4th May 2012**.

⁹ www.eirgrid.com and www.soni.ltd.uk