Harmonised
Ancillary Services

Consultation

9th July 2010

1. SUMMARY

The Transmission System Operators (TSOs), EirGrid in Ireland and SONI in Northern Ireland, are charged with providing a secure, reliable and efficient electricity system and, in that context, for ensuring the availability of all necessary Ancillary Services (AS). Ancillary Services are products, other than energy, that are required to ensure the secure operation of the transmission system.

AS payments are made outside the Single Electricity Market (SEM) by the TSOs. These payments have been harmonised between Ireland and Northern Ireland since Ancillary Service Harmonisation "Go-live" on the 1st February 2010. These payments & charges are specified annually in the Statement of Payments and Charges. The arrangements are defined in both jurisdictions through the Regulatory Authority (RA) decision papers, the Statements of Payments and Charges and TSO license conditions. These arrangements are secured through direct contracts between the TSOs and the service providers, through the Ancillary Service agreements.

For the upcoming tariff period running from the 1st October 2010 to the 30th September 2011, the TSOs are proposing not to adjust any of the AS rates that were set by the Regulatory Authority (RAs) decision paper in January 2010[1], other than those which result from changes to the exchange rate. This proposal is being made on the basis that the current arrangements have only recently been implemented, that the current rates and charges are still considered to be valid and that a period of stability in payment and charging rates is required. A more comprehensive review of rates and arrangements will be undertaken over the next year for the 2011/12 tariff period. This is discussed further in the RAs recent Information Note to Service Providers[2].

The TSOs do propose however to make one design refinement to the present Harmonised Ancillary Service (HAS) arrangements. This relates to the reserve charge design. It is felt that the current design discourages generators from providing more than a minimum amount of reserve. The TSOs wish to see generators contract for their full reserve capabilities while maintaining an appropriate incentive against the potentially serious impact of a shortfall in reserve provision. The TSOs propose that this design refinement is implemented for the start of the 2010/2011 tariff period.

The TSOs also propose introducing harmonised arrangements to facilitate the provision of 'synchronous compensation' service from capable generators. This extension of the existing design will not be implemented for the 2010/2011 tariff year and the TSOs propose to implement it instead for the 2011/2012 tariff year.

Responses to the proposals outlined in this paper should be submitted to the TSOs by the 6th July 2010.

Following consultation and consideration of comments received the TSOs will submit their recommendations to the RAs for approval.

1 [SEM-10-001] "Harmonised All-Island Ancillary Services Rates & Other System Charges" Decision Paper 4th January 2010

2 [SEM-10-042] "Ancillary Service Rates and Other System Charges; Information Note to Service Providers" 29th June 2010

2. INTRODUCTION

The purpose of this consultation paper is to obtain views on the TSOs proposed harmonised all-island Ancillary Services (AS) rates for the tariff year 1st October 2010 to 30th September 2011.

The Ireland AS allowance covers reserve, reactive power, black start and synchronous compensation, while the Northern Ireland AS allowance includes reserve and reactive power (including the reactive part of synchronous compensation payments). AS payments to service providers will continue to be funded through Transmission Use of System (TUoS) charges in Ireland and the System Support Services (SSS) tariff in Northern Ireland. The synchronous compensation payments in Ireland are not yet covered by the harmonised arrangements at this time and proposals for this are discussed in section 4.2.

The Harmonised Ancillary Services arrangements (HAS) went live on the 1st February 2010. During the first four months of the Harmonised Ancillary Service arrangements, the payments made to service providers for reserve and reactive power have been in line with the TSOs expectations. Black start payments to date in Ireland are in line with expectations.

The generator portfolio on the island is also in the process of changing which will impact on the level of AS available on the system. Two new large combined cycle gas turbines (CCGTs) and two new open cycle gas turbines (OCGTs) will be in commercial operation for the 2010/2011 tariff period. In addition three units have reached the end of their commercial lives and have been decommissioned, while a further CCGT has been converted to operate as an OCGT. The installed wind capacity on the island is also increasing year-on-year and the number of windfarms eligible to enter into an AS agreement, for the provision of reactive power, is continuing to increase.

The rates set out in this paper are intended to supersede the rates set by the Regulatory Authority (RAs) decision paper in January 2010[3] for the initial "Go-live" phase of new HAS which were introduced on the 1st February 2010. The rates for the 2010/2011 tariff period are proposed in section 3.

In addition to proposing rates for the coming tariff year this consultation paper also discusses potential AS developments in section 4. The development reflects comments received from service providers following the initial phase of the harmonised arrangements. The TSOs also wish to obtain views on these potential developments.

Arrangements for submitting responses to this consultation paper are set out in section 6.

3 [SEM-10-001] "Harmonised All-Island Ancillary Services Rates & Other System Charges" Decision Paper 4th January 2010

3. ANCILLARY SERVICES RATES

3.1. AS Introduction

In managing the transmission systems, the TSOs must be able to deal with unexpected losses of generation capacity or unexpected increases in 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 or demand reduction measures) above that required to meet the expected power system demand.

The prudent level of operating margin required for the island is set jointly by the TSOs. Critical factors which input into setting that prudent level 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. If during a frequency event the service provider does not provide the expected level of reserve then the TSOs levy a charge on the service provider for the first three categories of reserve.

Similarly for reactive power, the TSOs must maintain a voltage balance across the transmission systems in order to maintain a secure and stable power systems 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 AS agreement and are paid for leading and lagging reactive power based on their declared 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. 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.

3.2. PROPOSED EXCHANGE RATE

The currency exchange rate used in this consultation uses the same methodology as that used in the TSOs June 2009 rates consultation paper[4] and that which is used in the annual SEM Capacity Pot calculation[5].

The rate used in this paper for the 2010/2011 tariff period is €1/£0.86, which may be amended for the final published rates to reflect the exchange rate calculated at that time. The exchange rate used for the 2009/2010 tariff period was €1/£0.85.

The exchange rates will be reviewed at the end of each tariff year to determine if re-benchmarking the two AS allowances is necessary for the coming year. This will be subject to ex-post review like all other aspects of allowed AS.

3.3. PROPOSED HARMONISED AS RATES

At the time of writing this consultation document harmonised ancillary service arrangements have only been in place for less than five months. Given that the current rates are considered to be still appropriate, the short period of operation and experience with the new arrangements the TSOs propose that the harmonised AS rates should remain the same as those used for the previous 2009/2010 tariff period. These are shown in Table 1. Please note that the reserve charge rates are based on the reserve rates shown in Table 1.

While the proposed AS rates remain unchanged for the 2010/2011 tariff period, the proposed exchange rate has changed and this is described in section 3.2. The rates in Euro are used as the reference rate, as is consistent with the approach used in the Single Electricity Market (SEM), therefore the rates in GBP have changed to reflect this change in the exchange rate.

The proposed AS rates have not changed, therefore the split in the allowance between reserve and reactive power remains at 70/30 for the 2010/2011 tariff period. Furthermore the split between POR, SOR, TOR1, TOR2, RR (Synced) and RR (De-synced) remains at 20/25/25/15/4.5/10.5. The split for leading and lagging reactive power payment rate remains at 50/50.

Black start capabilities are considered by the TSOs to be adequate at this point in time but continue to be under review.

The TSOs are required by licence to operate the transmission systems in a safe, secure, efficient and economic manner. They are obliged to contract for the availability of appropriate AS from service providers to enable them to discharge their obligations taking into account the quantity, nature and cost of the service in question. Taking this into consideration a more detailed review of the AS rates will be carried out by the TSOs for the 2011/2012 tariff period as set out in the RAs Information Note[6] to the industry in June 2010.

4 [AIP-SEM-09-062] "Harmonised Ancillary Services & Other System Charges; Rates Consultation" 8th June 2009

5 [SEM-09-103] "Trading & Settlement Code Annual Parameters; Decision Paper" 4th November 2009

6 [SEM-10-042] "Ancillary Service Rates and Other System Charges; Information Note to Service Providers" 29th June 2010

The proposed AS rates are shown on an hourly basis, however settlement is carried out on a half hour trading period basis.

Table 1 : Proposed AS Rates

		Proposed Rates			
Service	**Categories**	**2009/2010**		**2010/2011**	
Reserve	Primary Operating Reserve	€ 2.22 / MWh	£ 1.88 / MWh	€ 2.22 / MWh	£ 1.91 / MWh
	Secondary Operating Reserve	€ 2.13 / MWh	£ 1.81 / MWh	€ 2.13 / MWh	£ 1.83 / MWh
	Tertiary Operating Reserve 1	€ 1.76 / MWh	£ 1.50 / MWh	€ 1.76 / MWh	£ 1.51 / MWh
	Tertiary Operating Reserve 2	€ 0.88 / MWh	£ 0.75 / MWh	€ 0.88 / MWh	£ 0.76 / MWh
	Replacement Reserve (Synchronised)	€ 0.20 / MWh	£ 0.17 / MWh	€ 0.20 / MWh	£ 0.17 / MWh
	Replacement Reserve (De-Synchronised)	€ 0.51 / MWh	£ 0.44 / MWh	€ 0.51 / MWh	£ 0.44 / MWh
	Primary Operating Reserve Charge Period	30 days	30 days	30 days	30 days
	Secondary Operating Reserve Charge Period	30 days	30 days	30 days	30 days
	Tertiary Operating Reserve 1 Charge Period	30 days	30 days	30 days	30 days
	Event Frequency Threshold	49.5 Hz	49.5 Hz	49.5 Hz	49.5 Hz
	Reserve MW Tolerance[7]	1 MW	1 MW	1 MW	1 MW
	Reserve Percentage Tolerance	10%	10%	10%	10%
Reactive Power	Reactive Power Lagging	€ 0.13 / MVArh	£ 0.11 / MVArh	€ 0.13 / MVArh	£ 0.11 / MVArh
	Reactive Power Leading	€ 0.13 / MVArh	£ 0.11 / MVArh	€ 0.13 / MVArh	£ 0.11 / MVArh
Black Start	Black Start (Aghada)	€ 64.71 / h	n/a	€ 64.71 / h	n/a
	Black Start (Ardnacrusha)	€ 22.84 / h		€ 22.84 / h	
	Black Start (Erne)	€ 22.04 / h		€ 22.04 / h	
	Black Start (Lee)	€ 9.82 / h		€ 9.82 / h	
	Black Start (Liffey)	€ 8.02 / h		€ 8.02 / h	
	Black Start (Turlough Hill)	€ 81.63 / h		€ 81.63 / h	
	Black Start Charge Period (Partial Fail)	30 days		30 days	
	Black Start Charge Period (Total Fail)	90 days		90 days	

7 The Applicable Tolerance in the AS agreement for POR, SOR and TOR1 reserve categories tolerance will be the greater of the Reserve Percentage Tolerance of the expected Reserve provision or the Reserve MW Tolerance when a charge is applicable.

4. PROPOSED ANCILLARY SERVICE DEVELOPMENTS

The proposal set out in this section relates to the refinement of an existing design. If this proposal is approved it will be implemented by the TSOs for the start of the new tariff period.

4.1. Reserve Charges

Under HAS, service providers are paid for the provision of six categories of reserve and are exposed to charges for the first three categories of reserve – Primary, Secondary and Tertiary 1 operating reserves. These charges are calculated based on the level of under provision and the hourly payment rate.

Service providers have highlighted a concern with this reserve charge design and the TSOs believe that the current design may have the effect of discouraging generators from providing more than a minimum amount of reserve. The TSOs wish to see generators contract for their full reserve capabilities while maintaining an appropriate incentive against the potentially serious impact of a shortfall in reserve provision. The TSOs are therefore proposing a refinement to the HAS design for the reserve charge whereby, considering each category separately, the maximum reserve charge which a service provider is exposed to is capped at the maximum of its reserve payments each month for that category.

Table 2 shows an example of the existing reserve payment and charge design whereby a generator can incur an overall charge within a month (i.e. overall reserve charge for a category is greater than overall reserve payments for that category) if they do not provide their expected reserve response to a frequency event(s). An example of the proposed redesign for the reserve charge is also shown in Table 2, whereby the payments and charges for the various categories of reserve are the same, however the total overall payment cannot be negative so is therefore capped at zero.

Table 1: Existing Reserve Payment and Charge Example

	POR [€]	SOR [€]	TOR1 [€]	TOR2 [€]	RR (synced) [€]	RR (de-synced) [€]	Total [€]
Payment	2,220	2,130	1,760	880	350	150	7,490
Charge	3,330	1,000	2,640	n/a	n/a	n/a	6,970
Total (existing design)	-1,110	1,130	-880	880	350	150	520
Total (proposed design)	0	1,130	0	880	350	150	2,510

The TSOs propose that this design refinement is implemented for the 1st October 2010.

5. POTENTIAL NEW ANCILLARY SERVICES

This section sets out proposals for future potential Ancillary Services.

5.1. Synchronous Compensation

Certain generators, once synchronised to the power system, can provide reactive power without producing any active power. This mode of operation is called Synchronous Compensation. The ability of a generator to provide reactive power in this manner is an economic source of providing this service and offers increased operational flexibility. This can be advantageous when a generator is required to be dispatched out of merit, for example to provided voltage support in an area, and this facility allows the generator with synchronisation compensation capability to be dispatched on, at no load, rather than being operated at its minimum generation.

The synchronous compensation arrangements are operating in Northern Ireland. The TSOs are proposing to put in place arrangements to allow this service to be open to all potential providers on the island through a new service schedule in the HAS agreement. It is proposed that the design would reimburse the following costs incurred by the service provider based on the current arrangements in Northern Ireland:

1. Energy costs (energy imported to run generator in sync compensation mode); and
2. A payment for reactive power capability range in line with the relevant AS Reactive Power rates.

To carry out a full technical appraisal for the harmonised synchronous compensation design could take some time and this proposal is included to obtain views on extending the existing arrangements and on whether these arrangements appropriately remunerate the service providers. The TSOs propose that this design refinement is implemented for the start of the 2011/2012 tariff period, to prevent the introduction of the design refinement intra tariff year.

5.2. Other Potential Ancillary Services

The development of the generator portfolio consistent with the needs of the power system and the renewable policy objectives is likely to result in an increasingly important role for AS. This is because the needs of the power system with significant non-synchronous generation will change. The EirGrid-SONI Facilitation of Renewables studies[8] provides a comprehensive technical assessment of these challenges and can be used as the benchmark for evaluating the level and nature of these new or augmented AS as a consideration of investment signals.

To facilitate the changing portfolio new AS may be required to help maintain a safe, secure, efficient and reliable system. Examples of potential new services and enabling arrangements include:

- Low minimum generation levels;
- Inertia;

8 These studies are available to download at http://www.eirgrid.com/renewables/facilitationofrenewables/

- Ramping (e.g. fast start capability, warming contracts, CCGTs operating in OCGT mode); and
- Further reactive power services.

None of these services mentioned in section 5.2 will be introduced in the forthcoming 2010/2011 tariff period which commences on 1st October 2010 and are included for information purposes only. The TSOs will be carrying out further work on these potential new AS and will engage with the industry in due course.

6. INSTRUCTION FOR RESPONSES

In order to focus the responses, views and comments are invited on the following sections:

Section #	Proposal
3.2	Proposed Exchange Rate
3.3	Proposed Harmonised AS Rates
4.1	Reserve Charges
5.1	Synchronous Compensation

Responses should be sent to:

David.Carroll@EirGrid.com and Michael.Preston@SONI.ltd.uk by Friday, 6th August 2010.

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 shared with the RAs.

7. NEXT STEPS

The rates setting process will follow a slightly different process to that followed for the first year of the Harmonised AS arrangements. The process for setting the AS rates will be as follows:

- The consultation process on the AS rates and proposed design refinements will end on the 6th August 2010;
- The TSOs will consider the comments received on the consultation paper and make recommendations to the RAs based on these;
- The RAs will approve/reject the recommendations proposed by the TSOs in light of the responses received; and
- The TSOs will publish a summary of the approved recommendations and the AS Statement of Payments and Charges on the TSOs' websites in advance of the 1st October 2010.