



Single Electricity Market
DS3: System Services
Consultation Paper SEM-13-060
Response

on behalf of

AES Kilroot Power Ltd and AES Ballylumford Ltd

20th September 2013

1. Introduction

AES Kilroot Power Limited (“AES Kilroot”) and AES Ballylumford Limited (“AES Ballylumford”) (collectively “AES”) welcomes the opportunity to comment on the SEM Committee consultation paper (SEM-13-060) on DS3 System Services.

AES has 10 merchant generating units registered within SEM which are currently subject to Harmonised Ancillary Service (HAS) Agreements. In addition we have a further three units which are contracted to NIE Energy - Power Procurement Business (PPB) via Generator Unit Agreements (GUAs).

AES believes that the DS3 work stream is timely and crucial in ensuring that the correct balance is struck between facilitating government renewable policy, maintaining security of supply and ensuring appropriate commercial incentives are provided to system service providers. We have taken the opportunity to participate in the Joint Grid Code DS3 working group on RoCoF and have responded to the extensive consultation process carried out by the TSOs in relation to system services. In general we welcome the structure of the proposed DS3 system services but do however have some concerns in relation to the definition and design of some of the proposed products.

Our understanding is also that the Regulatory Authorities (RAs) have mandated the Transmission System Operators (TSOs) to explore new technologies for the provision of DS3 system services and we have presented to the TSO a new Energy Storage device that can provide a component of all of the existing and proposed DS3 system services. We would encourage the TSOs to engage with AES to investigate the full potential of this new technology in the provision of system services.

AES welcomes the SEM Committee’s view that there is a need for new system services, in particular services that will reward flexibility however AES is also concerned that the proposed product definitions and remuneration proposals recommended by the TSO will not provide the ability to reward flexibility nor the incentive necessary to invest in existing plant to provide the new system services required.

We strongly believe that the most effective way to deliver such flexibility is through a separate, robust and transparent system services payment which provides strong and clear commercial incentives to service providers. Remuneration for system services must not only reflect the value of these services to the system but also ensure that providers can finance any investments required in relation to the services and also recover related fixed and increment costs.

AES welcomes the SEM Committee’s view that it will give consideration to other mechanisms including market based instruments for the delivery of required services as this may be influenced by the regional integration program and the implementation of the EU Target Model

Our response follows the question structure set out in the SEM – 13 – 060 consultation paper.

Services - Proposed Decision

Do you agree that enhanced system services are required?

Yes - AES understands the argument put forward by the TSO in the system services consultation process that to increase SNSP and reduce wind curtailment, increased flexibility is required from all generators, conventional and renewable. Due to the historical operation of Northern Ireland as a small island system and at the request of the TSO, the plant owned and operated by AES in NI was designed with a high degree of flexibility. This was commercially incentivised within the GUAs in Northern Ireland and resulted in high levels of not only system service delivery but also performance against reserve, reactive power and other Grid Code requirements.

Do you agree with the proposed definition of the services?

In defining the enhanced system services they should be defined in relation to a grid code minimum

standard required for each service in order to establish the minimum required for plant connecting to the system, i.e. plant must meet this standard service level to be eligible for remuneration. As stated in the TSOs recommendation paper the TSO is obliged to contract for the provision of standard system services but has the option to contract for services above the standard level and may choose not to do so. AES believes that the standard system services requirements need to be clearly defined in a way that is transparent and applicable to all forms of generation. Plant that can provide better than this level of service should be rewarded for that service.

Bearing in mind the above comments AES agrees in general with the proposed definition of the services with some specific exceptions which will be identified under the relevant product responses. Although this consultation paper does not cover the financial aspects of the system services AES believes that in general the design of the products and the structure of the associated payments, i.e. the number and type of products rewarded for capability against dispatch, is attempting to incentivise a small number of large inflexible generators to provide greater flexibility. This approach appears to offer little incentive for other generators who, as a benefit of plant design can provide significant flexibility at present but due to the resulting reduced efficiency will not benefit financially due to reduced dispatch.

Synchronous Inertial Response

Do you agree with the proposed service definition?

Although this product is based on inherent design characteristics of the individual generating unit AES welcomes the proposed SIR product although we have some concerns that the SIRF thresholds proposed may not be appropriate for such heavily constrained transmission systems. We believe that a lower or no lower SIRF threshold would be appropriate for NI particularly given the specific plant mix and the security and flexibility issues facing NI. AES would support the premise that levels of SIR should be rewarded on a sliding scale such that higher SIR performance payments have a higher weighting.

We note that the TSOs believe that this product will also incentivise lower minimum generation levels. This may be true for single fuel units but for AES's dual rated units at Kilroot this is not the case as the lower generation is achieved using HFO not coal.

To be clear, Kilroot units K1 and K2 can offer substantially reduced minimum generation levels (down to 60MW generated per unit) but this would need to be remunerated via a separate ancillary service mechanism as it entirely relates to the costs and risks of burning HFO at low loads. SEM bidding rules in relation to monotonically increasing bids prevent AES from offering this lower minimum generation figure to the market. AES would welcome analysis from the TSOs as to how much such a lower minimum generation figure would save in terms of cost to the system and would welcome an opportunity to offer a lower minimum generation figure once that analysis is available.

At Ballylumford AES have been in discussion with the C Station OEM to investigate the feasibility of reducing minimum generation levels. However as the C Station Block 2 unit is operating as nominal virtual 2 x 250 MW machines, it is not clear how multi-shaft units will be treated and how any potential benefit to either the system or AES would be realised if the lower SIRF threshold is not reduced.

AES have also been in discussions with SONI in relation to the economic deployment of energy storage. We believe that this technology offers a virtual inertia product and interconnected with existing thermal plant could present a unique SIR product. Consequently it should be eligible to qualify as a SIR product.

Do you agree with the proposed method of calculating SIR Volume?

As mentioned above AES understands the method of calculation of the SIR volume but would seek to clarify how multi shaft units would be treated under this proposal. AES would be concerned that the lower SIRF threshold is too high and that some units would not be eligible for payment for provision of this service.

Do you agree with the proposed service definition of the additional variant of SIR?

AES understands that there are significant additional benefits to the TSO if units can provide frequency response at lower minimum generation levels. Due to the impact on control systems, Nox emissions, and back end steam conditions etc the level of investment required to provide this additional functionality could be considerable and as such the provision of response at the lower minimum generation loads should be an optional addition to the SIR product with additional remuneration.

Fast Frequency Response

Do you agree with the proposed service definition?

Yes - AES understands the requirement for this service and welcomes the proposed FFR product. Although confident that our units can provide some element of fast frequency response AES will have to complete some tests to determine the actual performance of the units in the period 0 to 5 seconds. Historical analysis of previous transients would indicate that AES units can and do provide FFR performance however and this will provide initial information to be confirmed by testing data.

As with SIR, an energy storage product will also offer FFR response on a highly reliable basis. The actual level of FFR performance would depend on the size of the storage installation and the extent to which it is operated and how the control logic is configured.

Do you agree with the proposed approach to calculating the FFR volume ?

Yes - AES understands the principle that any energy provided in the 2 second time interval must be sustained into the POR period for it to benefit the system and would agree with the proposed approach to calculating the FFR Volume. AES would argue that as this is an automatic response from the units, the payment for the proposed service should have an element of capability based payment and not a dispatch payment product only

Post Fault Active Power Recovery

Do you agree with the proposed service definition?

Yes - Although designed primarily as an incentive for WFPS generators to improve their recovery from system faults AES welcomes this proposed product and again would draw TSO attention to the potential benefits that energy storage could offer in relation to this service.

AES' existing conventional generators can provide this service already with existing generator control systems and provide a positive contribution to system security.

Do you agree with the proposed approach to calculating the FPFAPR Volume?

Yes, however as the payment for this product is a capability based payment, the product volume should be based on the capability to provide the service at maximum MW output and recovering to 90% of the maximum output even if the unit was dispatched to a lower load prior to the fault occurring.

Reserve

No change in proposed to POR, SOR TOR 1 and TOR 2.

Ramping/Reserve

Do you agree with the proposed modification to this service? (RRD)

Yes - AES agrees with the proposal to avoid overlap with the 1 hour ramping product by redefining the timings associated with the replacement reserve (de-synchronised) (RRD) to the additional MW output which is available from 20 minutes to 1 hour following an event.

Do you agree with the proposed modification to this service (RRS)

Yes - AES also agrees with the proposal to avoid the 1 hour ramping product overlap by redefining the timings associated with the replacement reserve (synchronised) to the additional MW output which is available from 20 minutes to 1 hour following an event.

Ramping Margin (1Hour, 3 Hour, 8 Hour)

AES agrees in principle with the definitions of these products which are designed to incentivise a reduction in the hot, warm and cold start up time periods, to distinguish it from shorter term replacement reserve performance and the requirement to hold the output for a specified duration. AES agrees that both synchronised and desynchronised plant should be included.

In designing this product AES noted that the ramping performance would be mapped against a plants current technical offer data submitted to the SEM, AES believes that performance should be compared to a specified grid code common minimum standard which the TSO is obliged to contract for and any improved performance above this standard should be eligible for these new ramping products. By inherent design some plants have greater ramping capability in their current technical offer data than others and therefore offer greater flexibility to the system. AES is concerned that under the proposed ramping product design this flexibility would not be rewarded as current technical offer data would have to be improved on further to qualify for payment under this service.

AES is currently exploring its opportunities under this product and is of the opinion that some plant investment will be required to reduce the existing ramping times. This product is a proposed dispatch based payment and revenue gained will therefore depend on the amount of ramping dispatched by the TSO. The uncertainty of the dispatch his makes the any decision to invest more difficult and unlikely due to the unpredictability of return.

We note that the TSOs are referring to a ramp up product only. Given the challenges associated with escalating wind output, we would have thought there is value to the system in relation to a ramp down product. As proposed, a provider will be offering an enhanced ramp up rate(s) but only the Grid Code minimum in terms of a ramp down product.

In relation to the ramping products we would suggest that there is merit in considering warming contracts in parallel with these products. With warming contracts, thermal units could be kept in a warm heat state so as to shorten the time to synchronisation and offer significant levels of ramping product even though not initially synchronised. Similarly, CCGTs which are available in an open cycle dispatch mode should be able to be eligible for these products even when not synchronised.

As with the other proposed frequency control products, energy storage offers significant and reliable flexibility with respect to ramping up and down with almost instantaneous response provided.

Voltage Control

Dynamic Reactive Response

Do you agree with the proposed definition?

Yes - The product has been defined as the ability of a unit to deliver a reactive current response for voltage dips greater than 30% that would achieve at least a reactive power in Mvar of 31% of the registered capacity at nominal voltage with a rise time of 40 milliseconds and a settling time of 300 milliseconds. Conventional generators with AVRs can provide this service.

Although primarily aimed at the response of wind farms and during periods of high levels of system non synchronous penetration this product is also provided by the inherent response of a synchronous generator by their AVR action. AES therefore agrees with the product definition.

Do you agree with the proposed method of determining the volume?

Yes - Dynamic reactive response has been designated as a capability based product with the product volume defined by the MW capacity of the unit reflecting the quantity of reactive response which can be provided by each unit. AES agrees with the method of determining the product volume.

Steady State Reactive Power

Do you agree with the proposed definition?

Yes - AES has noted the modification made to the existing static reactive power product to pay for the range of reactive power that can be provided over the whole active power operating range i.e. from minimum generation to maximum generation. AES has no objection to the change in product definition.

Do you agree with the proposed method of determining the volume?

Yes - AES agrees with the formula for determining the product volume and understand the incentive to improve performance by reducing minimum generation levels and increasing the range of capability. AES welcomes the fact that this is a capability payment and is reflective of the contribution made by individual generators due to quantity of service provision.

Next Steps

AES welcome's the SEM committees phased approach to the decision making process on system services and it's reservations on the economic rationale put forward in the TSO's recommendations paper. AES also has some reservations as to the value attributed to both individual services and total savings and would welcome the proposed cost benefit analysis.

Conclusions

AES agrees in general with the proposed definition of the services with some specific exceptions which have been identified under the relevant product responses.

The design of the products and the structure of the associated payments, i.e. the number and type of products rewarded for capability against dispatch, is attempting to incentivise a small number of large inflexible generators to provide greater flexibility.

In defining the enhanced system services they should be defined in relation to a common grid code minimum standard required for each service in order to establish the minimum required for plant connecting to the system, i.e. plant must meet this standard service level to be eligible for remuneration for standard services and better this standard to be eligible for enhanced system services payments.

Our understanding is also that the Regulatory Authorities (RAs) have mandated the Transmission System Operators (TSOs) to explore new technologies for the provision of DS3 system services and we have presented to the TSO a new Energy Storage device that can provide a component of all of the existing and proposed DS3 system services. We would encourage the TSOs to engage with AES to investigate the full potential of this new technology in the provision of system services.