

**Power NI Energy Limited
Power Procurement Business (PPB)**

System Services Consultation

SEM-13-060

October 2013

Response by Power NI Energy (PPB)

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System Services Consultation

Power NI Energy (PPB) welcomes the opportunity to respond to the consultation on the DS3 System Services.

PPB is the counter-party to Power Purchase Agreements, which were established in 1992 as part of the restructuring and privatisation of the electricity supply industry in Northern Ireland. PPB purchases both the capacity of the contracted generating units and any electricity generated by those units on terms specified in the agreements. The generating units are extremely flexible and reliable and therefore with the changes in the generation mix and typology of the system these units are likely to play a significant role in helping the System Operator manage the system. Flexibility is required to secure a system, which is being designed to accommodate ambitious renewable targets.

Messages

- 1. Synchronous Inertial Response Product.** The proposal by the system operators to limit this service to generators with a minimum SIFR threshold of 15 seconds is unfair and could lead to in-efficient operation of the system as the true price of this service will not be reflected in the optimisation of dispatch. All plant, which has the capability of providing inertia should be eligible for remuneration. The existing constraints groups, published by the System Operators, provides evidence that the existing conventional generating units provide inertia and does not differentiate between the thermal generating units. This is especially important in Northern Ireland, which is facing capacity adequacy. The signal to investors is that a non-synchronous source which provides no inertia is as valuable as one with an SIFR of 14.9 seconds. This could be a costly mistake for Northern Ireland. Given the debate in relation to RoCoF it is perverse that thermal generators which help prevent a fast rate of change of frequency by providing inertia may not be rewarded for this.
- 2. Plant Flexibility** – the existing products do not properly address all aspects of flexibility. The Ballylumford power station was re-planted having taken into cognisance system security issues. The TSO product proposal does not address this concern. For example can Northern Ireland operate securely with three 400MW generating units. If one 400MW Generating Unit was on an outage can Northern Ireland operate securely if another 400MW Generating Unit trips? There is no product which recognises the flexibility afforded by a 2+1 CCGT configuration. No investor will commission this type of CCGT with the proposed products as it will be building a less efficient plant. The Utility Regulator must assess what is required for Northern Ireland and make sure customers do not end up paying for additional arrangements, over and above DS3, to ensure system security.
- 3. Reserve Products** – the definition of Replacement Reserve Products refers to Technical Offer Data (TOD). The market only provides for one set of TOD to be submitted. This would result in less flexibility than under the current arrangements as a CCGT which submits TOD based on Combined Cycle operation could not avail of Replacement Reserve for Open Cycle dispatch. This would result in an uneconomical result for customers.

4. **Ramping Products** - the definition Ramping Products refers to Technical Offer Data (TOD). The market only provides for one set of TOD to be submitted. This would result in an uneconomical result for customers as the benefits of Open Cycle operation would not be realised for a CCGT which has submitted a TOD for Combined Cycle Operation. It would be useful if the System Operator presented statistical evidence of ramping down requirements and how ramping down requirements may change in the future with changing sources of generation; demand side management; electric vehicles etc. A cost benefit analysis would identify the benefits of having sources of active power with fast ramping down rates relative to a counterfactual (such as the slowest existing ramp down rate). Slow ramp down rates could prohibit investment in electric vehicles etc if the system is unable to react to large changes in demand.

5. **Reactive Power Products – Locational Element**

As the system operators recognised, in the Advisory Council discussion paper, dated May 2012, the control of frequency and voltage bring very different challenges. “reactive power cannot be transmitted over long distances, whereas real or active power can be supplied at any appropriate point in the system and will affect frequency in the same way. Reactive power (Mvars) therefore must be supplied locally as much as possible” . The reactive power dispatch problem is one of the most difficult in power systems and therefore given the paradigm shift in the typology and operation of the system it is extremely important that the reactive power optimisation problem must be rigorously modelled for future operating scenarios in order to (i) minimise total power loss by considering other variable constraints (ii) avoid non-economical transformer tap changing and var sources switching (iii) control voltages within acceptable ranges and ensure voltage stability of the system. The rules for procuring reactive power, and the design of the products, can therefore affect whether adequate reactive power supply will be available, and in all locations, thereby ensuring that at all times the operation of the system is reliable and efficient. It is not acceptable to state that any departure from the proposed reactive power product design, as set out in the consultation paper, would add too much complexity to the product.

The existing constraint groups, published by the System Operators, provides evidence that certain reactive power sources are required to be connected to the system, at all times, in order to maintain the system voltage profile. However the design of the products for voltage control do not reflect this unique challenge to voltage control. Only load buses where it is cost-effective (determined by contribution of system performance including factors such as security, reliability and economics) should be selected for contracting reactive power ancillary services.

The Utility Regulator should review the requirement for a locational element in the Reactive Power Product otherwise special arrangements will need to be put in place with NIE or other Grid Users to provide the reactive power requirements in Northern Ireland at an additional cost to customers.

6. It is difficult to understand why the DS3 consultation document does not recognise the potentially serious system security issues Northern Ireland may face after 2015. This is the result of the closure of plant at Ballylumford at the end of 2015 and the impact of the Industrial Emissions Directive on Kilroot Power Station. The analysis

has focused on the ancillary services required to increase the current maximum SNSP limit of 50% to a future limit of 75%. The paper fails to recognise that there are major constraints on the network on the Island of Ireland and whilst generation adequacy on the Island of Ireland may be sufficient this does not translate to ensuring there is a secure system throughout the Island. Will the proposed ancillary service arrangements help ensure Electricity Supply Standards can be maintained in Northern Ireland in 2016. PPB also believes that under the existing categories of system services there should be further differentiation within product types. For example, the provision of reactive power from synchronous generators close to system load where there is a potential scarcity for the same should be better remunerated than reactive power provided by a Service Provider which is not required for system security.

The costs to the Northern Ireland and Irish economies as a result of a supply failure would be significant and therefore reliability of the system services is essential in order to ensure the system operator can maintain system security.

7. Whilst the regulators have decided to carry out their own analysis in relation to the commercial arrangements, which PPB welcomes, we are also of the view that this must be undertaken expediently. PPB believes all elements of the DS3 arrangements must be introduced at the same time. If for example the Regulators decide to apply a GPI for RoCoF this must be implemented at the same time as a significant increase in ancillary service revenues. The current arrangements do not adequately support providers of essential system services. Increasing levels of wind generation are reducing infra-marginal rent and capacity payments for synchronous generators whilst these generators are also being relied on to provide the flexibility required to manage the system with increasing levels of wind. It is imperative that the scarcity of one service should not affect the value of the other. Should the existing interaction between the CPM and AS remain, the underlying regulatory risk inherent in that link undermines both mechanisms and acts as a potential risk to investment.