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Mr John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Mr Pierce

Re: Consultation Paper National Electricity Amendment (Demand side obligations to bid into central dispatch) Rule 2015

Sun Metals welcomes the opportunity to respond to the Consultation Paper National Electricity Amendment (Demand side obligations to bid into central dispatch) Rule 2015.

The overall theme of the attached submission is that NEM Central Dispatch System has been set up to manage supply in a safe and efficient manner for the benefit of consumers. The central dispatch system is a key process in the NEM to facilitate the appropriate dispatch of participants whose primary function is to earn revenue directly from their participation in the NEM. This is generation. There is a fundamental difference between those who participate in the dispatch process to set the price for sale of their services and those who are simply trying to manage the input costs to their operation like Sun Metals.

If the many processes applicable to generators, were applied to consumers it would provide very little value in improving the efficiency of investment, operation and use of electricity for the long term interest of consumers of electricity.

Yours faithfully,

Yun Choi
CEO Sun Metals Corporation Pty Ltd
Demand Side Obligations to Bid into Central Dispatch

The primary business of our organisation is not to generate income from electricity or to deliver electricity to end users in a safe and reliable manner, rather it is to produce zinc at the lowest cost. Given these different objectives care must be taken that further regulation of consumers over the basic input of electricity, should only be done if there are quantifiable and material benefits that do not add to the complexity and costs of consuming electricity.

Snowy Hydro submitted rule change listed, but was not able to:

- quantify in a material way that the benefits of the Rule change;
- understand the practical implication of making consumers act like generators and
- take into consideration the cost of imposing more system and administration burden on consumers.

The following analysis lists out the issues from a consumer's perspective, if the Rule change is implemented.

Question 1 The Rule Change Request

- (a) Is the lack of participation of market loads as scheduled loads in AEMO's central dispatch process, a material issue, in relation to the price discovery process or any other aspect of the market's operation?
- (b) Has the problem related to lack of participation by market loads as scheduled loads in AEMO's central dispatch process been correctly identified in the rule change request?
- (c) If no, what problem or issue, if any, arise as a result of market loads not participating in AEMO's central dispatch process as scheduled loads?
- (d) Does Snowy's proposed rule address the issue identified in the rule change request?
- (e) If no, are there other ways to address the issue identified in the rule change request?

Sun Metals is a consumer of electricity to produce zinc. It has organised its operation to allow it to make commercial decisions about its level of use of electricity based on its production targets for the day, the condition of its process and the likely price of electricity. There is currently no incentive and only additional costs for Sun Metals to participate as a Scheduled Load because there is no compensation for Sun Metals for allowing its potential variation in demand to be used to create a more technically efficient dispatch outcome. If a more efficient dispatch outcome is achieved through greater participation by Scheduled Loads the beneficiaries are the whole consumer base in the market. In contrast all other participants in the dispatch process (generators) are compensated for the use of their offering but the market design does not envisage compensation for controllable loads.

The fundamental design of the NEM is to ensure appropriate dispatch of generation to meet the demand side requirements in an economic manner. There may be a distinction that should be drawn between market customers who use controlled load to earn revenue from the on-sale of electricity (pumped storage and retailers with controlled loads) and market customers who use electricity purely as a consumable.

The current structure that allows (but does not oblige) a market customer who can control his load to register as a Scheduled Load is appropriate for market customers who use control of their load to manage their price exposure for the electricity they use as a consumable.

Question 2 Market Impacts

(e) Are any negative impacts related to the procurement and used of FCAS by AEMO mitigated if market loads are scheduled?

Control of electricity usage should be with the end user, unless it can be done safely and within known parameters. Given current technology, we could not allow AEMO to use the automated FCAS process to control our load as the FCAS system could do harm to our equipment and/or processes.

In our case, control over electricity current is done based on known parameters (e.g. temperature, acidity, and impurities) that vary in real time. A central AEMO dispatch system cannot be expected to know how these real time parameters. The FCAS system could easily harm the quality of the zinc, if electricity parameters are changed without consideration of our current operating conditions. An extreme consequence could be an explosion in our electrolysis department, if electricity is dropped for an extended period of time during a load shedding event.

Question 4 Incentives and obligations

(a) Do any incentives currently exist for market loads to become scheduled loads?

At the moment we see no incentives in becoming a scheduled load.

(b) If no, could incentives be created in the market to encourage market loads to participate in the central dispatch process as scheduled loads without creating a mandatory obligation on market loads to become scheduled?

In a normal procurement or auction basis, the customer knows the price they are going to pay and either accepts or rejects this price. The NEM system has not been designed that way. It is a supply bid in system, where the customer has a more passive acceptance of the price from the lowest costs bids made by generators.

If demand customers are to take a more active role in the market, then customers should be at least given the opportunity to know what the price is in advance of consuming it. By knowing the price rational economic decisions can be made on whether to either accept or reject the price. Knowing the price also enables the consumer to decide, if either more or less electricity will be consumed at that point of time.

To facilitate this process AEMO's could make the following changes to the dispatch model:

- prior to dispatch AEMO notifies the demand participants what the price will be in the next 5 minute pricing period prior to the dispatch interval starting;
- allow demand participants to either accept or reject the actual known price and notify what the consumption level will be;
- the dispatch model recalculate the dispatch generation required given the customers' notification;
- the price to demand participants customers to be settled on 5 minute settlement pricing, instead of the current 30 minute average pricing. This will ensure that the price doesn't change after it has been accepted;
- pay the demand participate as an ancillary service to compensate them for the interruption to their process.

The advantages of this process are:

- removing the bid stack approach for demand participants allows for the normal market bid and offer dynamics to occur;
- allowing the customer to know the price more closely aligns supply and demand price signals;
- provides a financial incentive to loads to participate in the dispatch process; and
- it brings the electricity market in line with normal consumer protection requirements where the customer knows what the price of the goods prior to consumption it.

Question 7 Technical requirements

- **Are stakeholders aware of any technical limitations of market loads which would not allow, or make it difficult for, market loads to comply with the requirements and obligations that currently exist for scheduled loads that participate in the central dispatch process?**

Sun Metals Corporation Pty Ltd is probably one of the most sophisticated demand load participant within the NEM, but even our organisation would not be able to comply with some of the most basic requirements of being a scheduled load.

The main problem is that we are not a homogenous load. Our load is made up of both controllable and uncontrollable load intermingled together. Almost 20% of our load is uncontrollable, which will vary based on operation requirements that have nothing to do with price. We cannot forecast or accurately control these changes in load due to the dynamic nature the large amount of equipment and processes that use electricity around the refinery. For instance, if we need to use more electricity due to sudden changes in process solution condition, or our Roaster suddenly become unstable requiring us to turn-on electrical driven equipment to stabilise the situation, we cannot wait for the next despatch period to do this.

For the uncontrollable load we will not be able to adhere to AEMO's central dispatch processes of:

- 5 minute predetermined demand loads;
- Will not be able to specify whether the load is "normally-on" or normally-off";
- The uncontrollable volume cannot be priced in the ten price bands;
- We cannot specify the load for each of the 48 trading intervals (30-minute intervals);
 - An incremental MW amount for each price band specified in the dispatch bid; and
 - An up ramp rate and a down ramp rate;
- Prices associated with each band must increase monotonically with an increase in available MWs

The technical flow on effect of having both an uncontrolled and controlled load is that we only have one connection to the grid, so AEMO will not know whether our change in load is due to our controlled or uncontrolled load. These load variations will mean AEMO's forecasting will still be inaccurate.

Sun Metals does control some of its load based on the required duty of the rectifiers in the electrolysis process. AEMO control of the rectifiers within the process is technically possible. However unplanned changes in the rectifier duty resulting from AEMO control could have major disruptive impacts on the remaining parts of the zinc refining process with very significant technical and economic impacts on the viability of the operation.

Question 8 Costs and benefits

(a) Under the proposed rule, what are the qualitative and/or quantitative costs and benefits associated with the operation of the market given market loads requirement to become scheduled, including but not limited to the market loads ability to respond to changes in the spot price, the pre-dispatch process including the demand forecast, the central dispatch process, and system safety and reliability with respect to:

- **Market customers with market loads;**
- **Generators, both base load and peaking generation;**
- **AEMO;**
- **Retailers and their customers;**
- **Other parties who participate in the market?**

From a market customer's point of view there are no benefits in becoming a scheduled load, instead it only adds extra administration, regulatory burden and monitoring costs to our organisation. The main issues being:

- The need to staff a 24hr/7days a week trading room to handle all the AEMO processes.
- Our systems do not have adequate communications and /or telemetry to support the issuing of dispatch instructions and the audit of responses.
- The majority of generators can absorb these type of costs due to the size of their organisations and the fact that such data is critical to the efficient operations of their organisations. Demand loads are much smaller in scale therefore these type of costs only add to the burden of using electricity without a net gain to consumers.

