



Enel X Australia Pty Ltd  
Level 18, 535 Bourke Street  
Melbourne, Victoria 3000  
Australia  
T +61-3-8643-5900  
[www.enelx.com/au/](http://www.enelx.com/au/)

Environment, Energy and Science  
Department of Planning Industry and Environment  
4 Parramatta Square, 12 Darcy Street  
Parramatta NSW 2150

By email: [energysecurity@environment.nsw.gov.au](mailto:energysecurity@environment.nsw.gov.au)

24 June 2020

To whom it may concern

**NSW Energy Security Target and Safeguard: Consultation Paper**

We welcome the opportunity to provide feedback on the consultation paper on the NSW Government's *Energy Security Target and Safeguard*.

Enel X works with commercial and industrial energy users to develop demand-side flexibility and offer it into wholesale capacity, energy and ancillary services markets worldwide, as well as to network businesses. In the NEM, Enel X participates in the energy and frequency control ancillary services (FCAS) markets, offers network support to network service providers, and has developed reserves for the Australian Energy Market Operator (AEMO) under the Reliability and Emergency Reserve Trader (RERT) framework.

We support the implementation of a scheme that will help develop the capability of NSW consumers to provide demand response. Demand response has a critical role to play in meeting the NSW Government's Energy Security Target by providing a low cost, flexible alternative to new generation capacity. To be of value to NSW customers, the scheme must be designed in a way that results in a tangible and demonstrated level of demand response.

Enel X would be pleased to work with the Department to assist in developing a workable, effective approach that delivers effective demand response. We would be happy to contribute our expertise and experience in delivering demand response, both in the NEM and around the world.

The remainder of this submission sets out our response to a number of the questions posed in the consultation paper, with a focus on those that relate to the peak demand reduction scheme and specifically peak demand response and peak demand shifting. Please contact me if you would like to discuss any aspect of this submission.

Regards

Elisabeth Ross  
Consultant, Industry Engagement and Regulatory Affairs  
[elisabeth.ross@enel.com](mailto:elisabeth.ross@enel.com)

## 1. INTRODUCTION

Enel X strongly supports the introduction of a peak demand reduction scheme in NSW.

Demand response has a critical role to play as fossil fuel generators retire and as Australia transitions to a low carbon economy. Demand-side flexibility provides a more cost effective means of meeting peak demand requirements than building generation capacity that is rarely used. As such, a scheme that encourages and supports greater use of demand-side flexibility will help ensure that NSW consumers do not pay more than they need to for their energy, while ensuring that the NSW Government's Energy Security Target is met.

In addition to lowering regional peak demand, we note that rewarding flexible demand can also help reduce overall system costs at other times. As we transition to having a significantly higher proportion of renewable generation in the overall generation mix, it will also be important to reduce demand at times when renewable output is low. These times are not necessarily considered peak, but to the extent they result in peak requirements of dispatchable capacity to meet demand at these times, then demand response could make a valuable contribution in improving reliability and reducing costs. As such, the NSW Government may wish to consider whether the scope of the scheme should target this situation, either initially or in the future as this 'peak dispatchable capacity requirement' separates from peak demand.

There are currently limited opportunities for customers to be rewarded for providing demand response. This is changing with the introduction of the wholesale demand response mechanism (WDRM), whereby customers will be able to participate in the wholesale market via a demand response service provider and be rewarded the spot price for reducing demand. However, the demand response capability will take some time to develop. Further, we strongly agree with the view expressed in the consultation paper that "Irregular payments in response to peak events alone may not be enough to incentives deployment of significant demand response capacity".<sup>1</sup>

As such, we see two roles for the peak demand reduction scheme:

1. reducing barriers to participation; and
2. providing a kick-start to the WDRM.

The capital outlay for demand response is not significant relative to generating units, but it is nevertheless challenging for potential providers of demand response—particularly C&I customers—to justify the effort in participating where returns are not guaranteed. C&I customers expend significant time and often cost in retooling operations, changing process and training staff to participate in demand response. WDRM differs from demand response markets like Contingency FCAS in that it does not provide a predictable or guaranteed return, is dispatched only for a small number of hours per year, and depends upon uncontrollable factors such as weather and market events.

A certificate scheme could help overcome this hurdle by guaranteeing some value in participating. By rewarding availability through an upfront payment, customers would have greater certainty that

---

<sup>1</sup> NSW Department of Planning, Industry and Environment, Energy Security Target and Safeguard: Consultation Paper, April 2020, p28.

investing in demand response capability will provide a positive return. As such, a certificate scheme will help encourage increased demand response into the market than might otherwise occur.

In lowering the barriers to participation, the peak demand reduction scheme will provide a kick-start to WDRM, which is due to be implemented in October 2021. This will help the market develop and mature more quickly. In light of the closure of Liddell in April 2023, providing the WDRM with additional momentum early on will assist in ensuring that demand response forms part of the efficient mix of replacement capacity.

Finally, we note that given low penetration of demand response currently, there is unlikely to be oversubscription in early days of certificate mechanism. This means both that there is a relatively low risk of “getting it wrong”, and that the NSW Government has the ability to set and adjust pricing over time as the market begins to develop.

## **2. SETTING AN ENERGY TARGET**

The consultation paper proposes setting an energy target based on available firm capacity and an estimate of maximum demand, and raises questions regarding the appropriate methodology for estimating these values.

In principle the methodology used to estimate capacity and forecast maximum demand in NSW should be consistent with the approach used by AEMO for the purpose of signalling reliability and investment requirements across the National Electricity Market (NEM). It is better to have a consistent set of investment signals across national and state-based mechanisms. Inconsistencies in approach could result in inefficient investment across jurisdictions.

For this reason, unless there is a good reason to deviate from AEMO’s methodology, Enel X considers a consistent approach should be adopted.

## **3. POWERS TO GATHER INFORMATION**

The NSW Government has suggested it will institute new information gathering powers to obtain the information required to set the energy target, including gathering information from demand response providers. In designing the new information gathering power, there are two areas where Enel X considers careful thought needs to be given.

First, information requirements will likely need to differ between generators and demand response providers. For example, the consultation paper proposes the use of AEMO’s project commitment categories, which were designed for understanding when new generation capacity may come online and do not apply as well to demand response. In contrast to generation, demand response can be quick to activate, and critically the decision on whether or not to proceed lies with the customer, not the demand response service provider.

Second, as noted in the consultation paper, AEMO already collects extensive information annually on demand response via its demand side participation portal. The NSW Government should be able to leverage this to avoid participants having to provide the same information twice via different mechanisms.

#### 4. IMPLEMENTATION TIMEFRAME

The consultation paper asks when the peak demand reduction scheme could be implemented.

Enel X considers the scheme should be implemented by the time the WDRM commences in October 2021. Given the likely links between these two schemes, coupled with the need to invest in replacement capacity in advance of Liddell closing in April 2023, ideally the scheme would not commence any later than this, although it could start earlier. The NSW Government may wish to consider a trial that could be of benefit to the market this summer, which we would be happy to discuss further.

We note that some aspects of the scheme could commence earlier than. As noted in the consultation paper, for example, the accreditation of certificate providers could commence prior to targets being assigned to liable entities.

#### 5. THE PURPOSE OF A PEAK DEMAND REDUCTION SCHEME

**How can the scheme's certificates best capture capacity, timing, duration and availability factor?**

The consultation paper suggests the dimensions of the certificates could include the following: capacity; temperature extremes; months/days/times; duration and an availability factor. Requiring capacity to be available when wholesale prices are higher than a threshold is also raised as an option. A certificate factor could then be defined as 1 certificate = capacity (kW or MW) available for a defined period (e.g. 30 minutes) and at specified times or under specified conditions multiplied by the availability factor. The availability factor would be the ratio of the number of days that the capacity is available during the specified time, divided by the total days in the specified time.

Our comments relate specifically to those activities that require a behavioural response – that is, peak demand reduction and peak demand shifting.

##### *Capacity and duration*

Enel X agrees that the certificates need to define capacity, measured in either kW or MW.

For reasons of practicality, we consider a duration of 30 minutes is appropriate. A 30 minute interval is consistent with other demand management schemes administered by AEMO and network businesses. Furthermore 30 minute intervals are also consistent with AEMO's standard 30 minute metering and current settlement processes, which would provide for an independent and verifiable measurement of demand reduction.

While settlement is moving to five minutes, from our experience a 30 minute interval would allow for broader market participation as:

- Five minute intervals would be unnecessarily cumbersome
- Many participants cannot respond within 5 minutes, but can respond if given at least 30 minutes notice – therefore it wouldn't make sense to ask sites to spend 30 minutes ramping down to only provide 5 minutes of demand response.
- AEMO and TransGrid (and previous AusGrid) demand management programs also typically ask for a minimum of 30 minutes duration, which allows sufficient time for sites to begin ramping down and ensures that any demand response provided is meaningful.

### *Availability factor*

We agree that certificates should be based on the availability of the resources. Where certificates are based on actual performance, this metric becomes less relevant. However, where certificates are awarded on the basis of expected performance, the availability factor can be assessed by undertaking 'testing' of demand reduction capability prior to the certificate being validated.

### *Trigger for providing demand response*

The consultation paper proposes a range of possible mechanisms under which demand response would be triggered, including: temperature extremes; months/days/times (e.g. between 4:30pm and 6:30pm on summer weekdays); and a wholesale spot price threshold.

The certificate design must take into account the key objective of the scheme; that is, to reduce peak demand. However, it may also be worth considering rewarding demand response at other times when it is of value to the market. As noted in section 1, reducing demand when demand is high and supply is low (e.g. renewable output is low, transmission failures or generator outages occur) will become increasingly important as the proportion of renewable energy in the system increases in relation to dispatchable capacity. This may influence the way the scheme is designed.

Irrespective of the trigger for demand response, a critical consideration in designing the certificate scheme is that the certificate provider must be able to demonstrate not only the technical ability to provide demand response, but that demand response will actually occur in practice. This is important to ensure that liable entities are purchasing certificates that are backed up by meaningful demand response capacity.

#### **1. Time-based triggers**

Certificates could be based on times when the flexible capacity is expected to be most useful. Peak demand periods are primarily driven by weather conditions and the time of day. Therefore focusing on peak demand intervals during the summer peak season would be most likely to deliver on the objective of the scheme.

At this stage we consider this approach is likely to be the most workable. The scheme could operate as follows:

- Certificates are based on providing demand response at a certain time when peak demand is most likely to occur e.g. summer weekdays between 4:30 and 6:30pm.
- The certificate provider must submit basic information about a resource and how it technically functions so that the appropriate entity (NSW Government/IPART/AEMO) can assess that it has the ability to provide demand response or demand shifting.
- Certificate providers would also be required to demonstrate they have a contract in place with the customer and are appropriately registered as a Market Participant in the relevant market in which they are operating (e.g. as a Demand Response Service Provider to operate in the wholesale market).
- The certificate provider would need to provide evidence to the scheme administrator that the capacity was offered into the market during the times required and, if dispatched, evidence of the response. Appropriate evidence could include dispatch information or settlement data from AEMO, or the customer could be required to submit meter data to verify performance.

- If the resource fails to respond, the certificate provider should be liable and would have to pay back the cost of certificate plus potentially a penalty. This penalty should be based on a sliding scale.
- Optional feature: The scheme could include a price threshold at which the demand response capacity must be offered into the market. This could just be the wholesale market price cap, but it could be something lower. This would increase the likelihood of demand response being dispatched. The price threshold would have to be sufficiently high to ensure demand response providers can cover their costs and make a return on their investment.
- Optional feature: the scheme could require an upfront test prior to the certificate being verified to give confidence to the NSW Government of the resource's ability to respond. An appropriate entity (e.g. TransGrid or AEMO) would send a dispatch signal to the resource operator to reduce load for a short period, with limited advance notice to avoid gaming. Certificates could then be validated if this test was successful. However, an upfront test is not strictly necessary – having to pay a penalty for failing to respond should be sufficient.

## 2. Spot price-based triggers

A spot price-based approach to triggering demand response could also be workable. High spot prices typically occur when the supply/demand balance is tight, signalling a need for increased supply or reduced demand. This typically occurs during the summer peak season, when hot weather drives up demand, and is exacerbated by any supply issues present (e.g. generator outages or unplanned transmission / interconnector outages due to bushfires, storms etc.). As such, high prices can be an indicator of peak demand.

A certificate scheme based around spot prices could operate in a similar way to the proposal above. Instead of requiring demand response to be provided during certain time intervals, demand response would be required to be offered into the market once the wholesale price reaches a certain threshold. To create a valid certificate could require that a resource is dispatched through the wholesale market at least once, or on a small number of occasions, during the summer period at a time in which prices exceed the threshold.

This approach would demonstrate the resource responds in the real market as required and shows this resource is available to provide the broader flexibility services that we suggest these resources should be providing (e.g. to support the integration of further intermittent renewables).

However, unlike a specified time period, this approach creates uncertainty about when demand will need to be offered in order to back up the certificates. While spot prices can be forecast with some degree of accuracy, it is difficult to predict with any certainty at a given point in time whether the spot price will be above or below the threshold price. This makes it more difficult to participate compared to a known, time-based scheme. It could lead to inefficiently high dispatch of demand response if certificate providers are trying to ensure they meet the certificate requirements. Alternatively, it could lead to an unnecessarily high degree of non-compliance if certificate providers are attempting to minimise dispatch while meeting the certificate conditions.

### 3. Temperature-based triggers

At this stage we consider a temperature-based approach is less likely to be workable as an availability-based certificate scheme.

While temperature extremes are a primary driver of peak demand, not all hot days result in peak conditions. Requiring demand response to be offered above a threshold temperature could therefore result in an inefficiently high level of demand response.

Alternatively, the scheme could target a certain number of the hottest days or peak demand intervals, similar to Western Australia's Individual Reserve Capacity Requirement scheme. This scheme operates essentially by requiring customers to pay additional costs for their contribution to the 12 system peak demand intervals on the grid each summer. This charge is calculated following the summer period. Customers can reduce their exposure to these costs by reducing their demand on the hottest days.

This approach is less likely to be workable in the context of a certificate scheme that is intended to provide investment certainty. While hot days can be predicted reasonably well in advance, it is difficult to predict which days over the summer will be the hottest. Consequently, either customers will need to provide an inefficiently high level of demand response in order to qualify for the certificates, or else try to time their response and risk not meeting the requirements.

#### **Who is best placed to manage the financial risk that capacity is not made available when needed?**

The certificate provider is best placed to take on the risk that capacity is not available when needed. This is consistent with other aggregator programs in the NEM, such as the Small Generation Aggregator scheme and the RERT. It is also consistent with network demand management programs, where the aggregators take on the risk of non-delivery, not the end customer.

The role of aggregators is to ensure that the contracted capacity is always available. This means building up operational buffers, by way of having additional capacity available if some customer sites cannot respond on the day (due to operational constraints etc.).

The certificate provider would therefore take on this risk, since it holds the contracts with the customers and these would provide the appropriate incentives for curtailing load during dispatch events, and/or penalties for not being available.

Where appropriate, risks may be shifted onto the customer via contractual arrangements. However, this should be by commercial agreement between the certificate creator and the customer.

Where capacity is not available, the certificate provider should be required to pay back the cost of the certificate, and could potentially be exposed to additional penalties. Any penalty should be based on a sliding scale so that the degree of underperformance is taken into account and small diversions are not overly penalised.

## **6. ELIGIBLE PEAK DEMAND REDUCTION ACTIVITIES**

### **Are there other activities the NSW Government should consider for inclusion in the peak demand reduction scheme?**

The consultation paper identifies peak demand savings, peak demand response and peak demand shifting as potential activities that would be included in the peak demand reduction scheme. Enel X agrees these are the key activities that should be captured.

### **Are there alternative ways in which the peak demand scheme could complement national schemes?**

The consultation paper identifies the four main areas where demand response is, or will be, facilitated under national schemes: WDRM; RERT; frequency control ancillary services; and network support.

We agree that the peak demand reduction scheme should be designed in such a way that it complements each of these mechanisms. Further, it is important that customers participating in the peak demand reduction scheme are able to participate in each of these national mechanisms, to the extent permitted under the National Electricity Rules. It is important that demand side response providers and their customers are able to value stack across multiple markets to make providing demand response as attractive as possible to customers and to extract the full value of demand response across different markets.

The scheme also needs to be sufficiently flexible to accommodate flagged changes to the national frameworks. This includes, for example, the potential move to a two-sided market and changes to the way essential system services are delivered, including the potential implementation of an ahead market.

### **Which calculation methods should be developed first?**

Deeming is less appropriate in the context of demand response, as a behavioural response is generally required, not just the installation of technology. Any deeming should be limited to technologies where no behavioural response is required and where the peak demand reduction capability cannot be tampered with. This could include peak demand savings, for example, but is less likely to be relevant to peak demand response or peak demand shifting.

Where a behavioural response is required, certificates should be created using measured and verified demand response.

### **Should location-based multipliers or activities that are specific to certain locations be considered?**

In our experience a location-based approach can have the effect of dis-incentivising customers who would otherwise provide value to the grid as a whole. Further, there may be certain locations which have greater multipliers but without sufficiently suitable demand response participants. Finally, such schemes are likely to add an additional layer of complexity without clear benefit or value.

As an example, we note that avoided transmission use of system (TUoS) payments, which are supposed to be provided by distributors to customers with embedded generators where the embedded generation results in a reduction of load on the distribution network, are rarely well understood by either party. This can lead to avoidance or incorrect application.

Furthermore, while network and wholesale peaks are not always coincident, for the most part peak demand days will have similar conditions across all parts of the grid. Therefore all regions will require

demand management to help with system reliability. It is for this reason that the RERT mechanism is applied by state and not at a more granular level.

As such, Enel X considers that any localised outages, or supply/demand issues are best addressed directly by the relevant distributor, not via this scheme.

## **7. PEAK DEMAND REDUCTION CERTIFICATES**

### **What qualifications should certificate providers be required to have?**

Enel X agrees there should be an accreditation process for parties wishing to become certificate creators to ensure they are appropriately qualified.

A number of existing schemes provide useful guides to the types of qualifications that certificate providers should be required to have. While the requirements under the existing Energy Savings Scheme provides a useful starting point, there are likely to be additional requirements to satisfy the specific nature of the behavioural demand response components of the peak demand reduction scheme. These additional requirements could be informed by AEMO's requirements for RERT providers and the requirements that transmission/distribution companies have for providing demand reduction.

These cover the following types of requirements:

- Technical capabilities
- Record keeping and quality assurance processes
- Suitably qualified personnel
- Contractors/sub-contractors quality management systems
- No conflict of interest
- Health & Safety Environment declaration
- Provision of Bank Guarantee in the event that a certificate provider fails to provide the necessary demand response and is required to pay back the cost of the certificate and potentially a penalty
- General Corporate and Financial Background
- Financial Stability (including copy of most recent financial year accounts)
- Insurance (including public liability insurance and professional indemnity liability insurance)

As is the case with RERT, it should not be necessary for an accredited provider to be the owner of a facility used to supply demand response. Where an accredited provider does not own the relevant facility being used to offer reserve, they should be required to demonstrate that the owner has permitted the use of the facility in this manner, such as the existence of a contractual relationship.

We note that the Independent Pricing and Regulatory Tribunal currently administered the Energy Savings Scheme, and therefore they may be considered the natural entity to administer accreditation for the peak demand reduction scheme.

We note that AEMO may also be well placed to accredit and monitor certificate providers under the peak demand reduction scheme. Given the links between this scheme and the WDRM, AEMO would be well placed to monitor and enforce obligations imposed on certificate holders. AEMO would also be able

to leverage their current access mechanism to ensure timely and secure access to customer electricity data that may be required for measurement and verification of demand response provided by customer sites.

**Should certificates expire every compliance year or should they be transferable to future compliance years?**

Enel X considers that certificates should be transferable to future compliance years. As noted in the consultation paper, this has the advantage that it is consistent with the ESS and would have lower transaction costs. It also has the advantage of allowing certificates to be created with greater certainty. While this may reduce certainty about how much demand response will be provided in any given year, we consider the advantages of this approach outweigh the disadvantages.