

# Default Market Offer Net System Load Profile approach

Consultation Paper

February 2024

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Inquiries about this publication should be addressed to:

Australian Energy Regulator  
GPO Box 3131  
Canberra ACT 2601  
Tel: 1300 585 165

AER reference: 64687

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## Invitation for submissions

Interested parties are invited to make submissions on this issues paper by 20 February 2024.

Submissions should be sent to: [DMO@aer.gov.au](mailto:DMO@aer.gov.au).

Alternatively, submissions can be sent to:

Daniel Harding  
A/General Manager, Market Performance  
Australian Energy Regulator  
GPO Box 3131  
Canberra ACT 2601

Submissions should be in PDF, Microsoft Word or another text readable document format.

We prefer that all views be publicly available to facilitate an informed and transparent consultative process. Views and comments will be treated as public documents unless specifically requested otherwise. Parties wishing to submit confidentially should:

- clearly identify the information that is the subject of the confidentiality claim
- provide a non-confidential version of the submission in a form suitable for publication.

All non-confidential information will be placed on our website. For further information on our use and disclosure of information provided to us, see the [Australian Competition and Consumer Commission \(ACCC\)/Australian Energy Regulator \(AER\) Information Policy](#) (2014).

## Glossary

Term	Definition
ACCC	Australian Competition and Consumer Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
DMO	Default market offer
NSLP	Net system load profile
PV	PV Solar Systems
SAPN	South Australian Power Network
TNI	Transmission Node Identifiers
5MLP	5 Minute Load Profile
5MS	5 Minute settlement
WEC	Wholesale electricity costs

# 1 Introduction

The aggregate customer consumption profile, or load profile, is a key input into forecasting annual wholesale costs in the Default Market Offer (DMO). The shape of the load profile and its variability, together with spot price outcomes, influences how a retailer manages risk for this segment of the market. In setting the DMO, we aim to use the available load profile data that is reflective of costs to retailers to purchase energy for their residential and small business customers, across the coming financial year.

All previous DMOs have relied on the Net System Load Profile (NSLP) published by Australian Energy Market Operator (AEMO). This data includes the aggregated electricity consumption of all customers with accumulation meters (basic meters). Our methodology to date has used the past 2 years of actual NSLP data to generate multiple representations of the load profile for the given determination year.

In the last two DMO issues papers, we sought stakeholder feedback on options to improve how the NSLP is used to determine a hedging model that reasonably reflects a retailer's risk management strategies. In our October 2023, DMO 6 issues paper, we asked if creating a blended profile using the accumulation meter and interval meter data would be more reflective of retailers hedging strategies. This work is still on-going and will be addressed in the DMO 6 draft determination.

However, due to issues recently identified in the SAPN and Energex NSLP datasets from October 2021 to October 2023, we are now seeking further stakeholder feedback on alternative options to produce the load profiles based on NSLP data for DMO 6. This needs to be resolved regardless of the approach to blending in interval meter data.

As with our previous enquiry in the DMO 6 issues paper, we are interested in which approach best reflects retailers' reasonable costs to purchase, and manage exposure to, wholesale energy across the DMO 6 period and why. We would welcome any documentation stakeholders would have available to support their submission.

## 1.1 Next steps

Table 1 outlines our timetable for this consultation. The short consultation time frame is needed to ensure we are able to consider stakeholder submissions before making the DMO 6 draft determination.

**Table 1 Consultation timetable**

Milestone	Date
Publish consultation paper	13 February
Submissions due	20 February

## 2 Net System Load Profile data

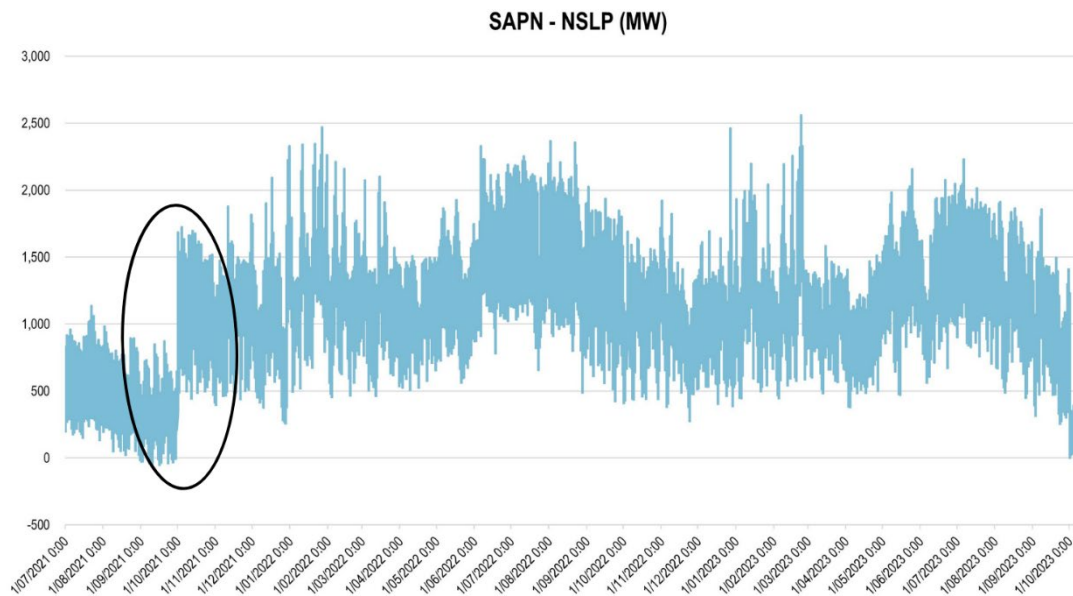
### 2.1 Step change in NSLP data

AEMO uses the NSLP as a basis to settle retailers' accumulation meter customers load, in respect of the wholesale electricity spot market.

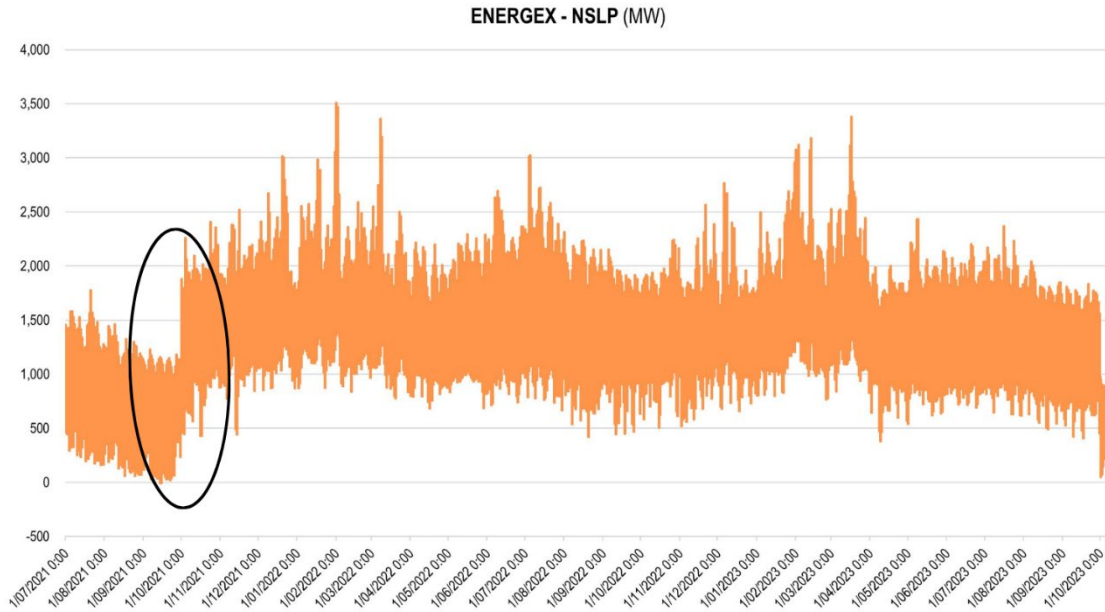
During the development of DMO 5, we identified a step change in the NSLP dataset for SAPN and Energex starting from October 2021 (Figure 1 and Figure 2 highlighted section). This coincided with the start of 5 minute settlement (5MS). The underlying drivers and mechanics of this change were not clear to us at the time so, to delay a possible step change, the AER decided to use the NSLP dataset from DMO 4, for DMO 5. We notified stakeholders of this in our draft DMO 5 determination and did not receive feedback on it from stakeholders.

It is now clear that the step change in the NSLP data was a result of an interim adjustment made by AEMO due to unusual outcomes occurring in settlement volumes, following the implementation of 5MS. This issue saw artificially volatile volumes occurring when AEMO's algorithms attempted to convert 30-minute and 15-minute data, as well as accumulation meter data collected over a 90-day period, into 5-minute data. AEMO made the adjustment to enable the reconciliation of data for settlement and avoid potential breaches of prudential requirements for Financially Responsible Market Participants.

**Figure 1 – SAPN NSLP data**



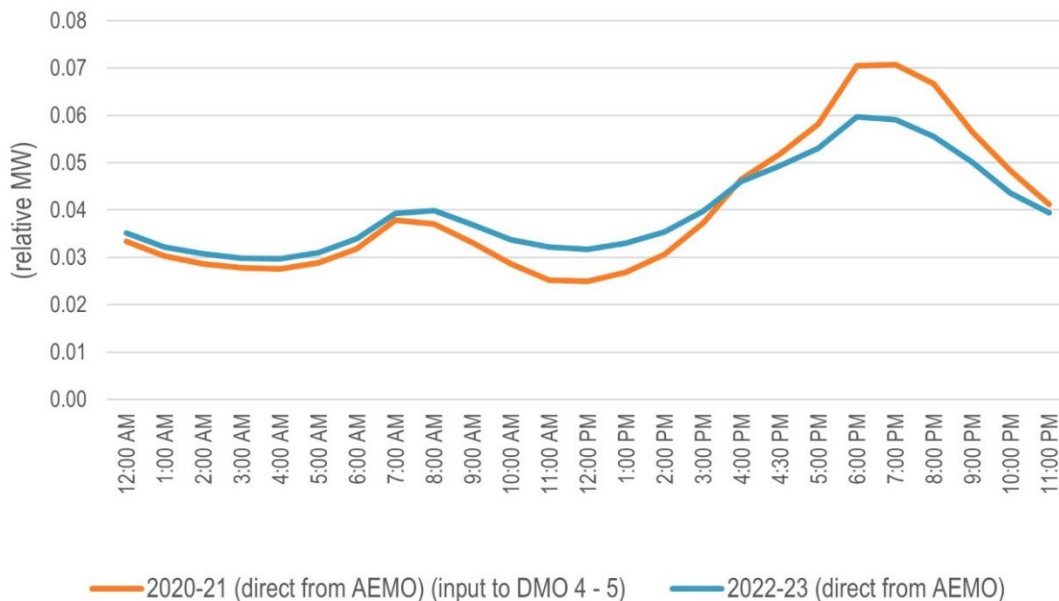
**Figure 2 – Energex NSLP data**



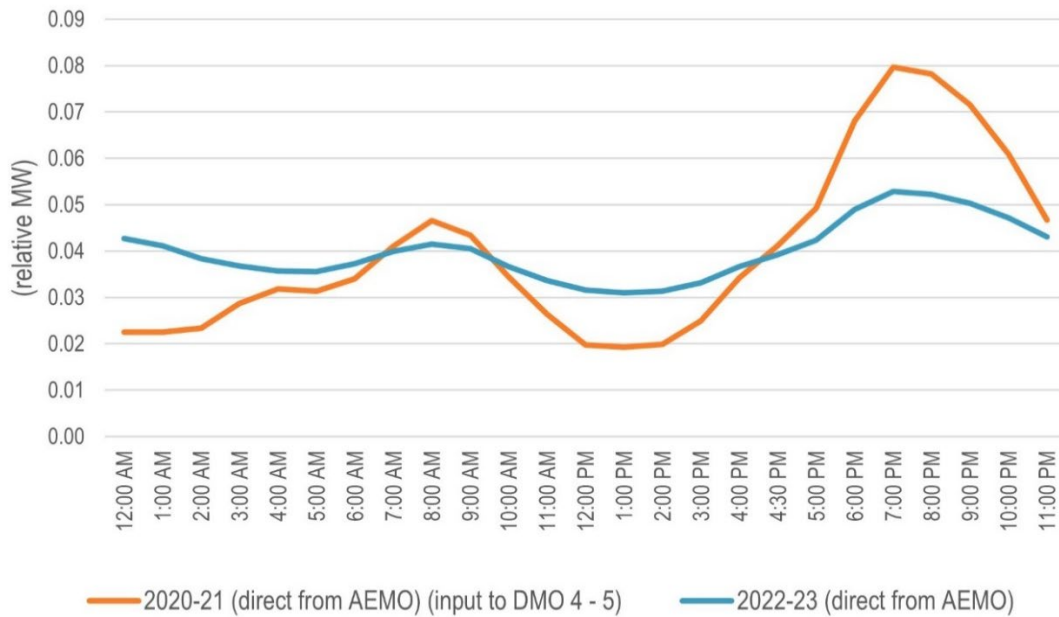
AEMO’s adjustment was based on targeting specific individual transmission node identifiers with stable loads, to lift the total load profile and avoid the artificial volatility that was being created in the conversion of data.

While AEMO’s adjustment did rectify its issue of large variances in settlement volumes, when compared against the NSLP for 2020-21, it also flattened the relative load profile shape when considered for DMO purposes and would likely have altered the settlement of retailers’ accumulation meter load across trading intervals. The data derived while this adjustment was in place effectively shifted some volumes from evening peaks into the daytime, when compared against the NSLP from DMO 4 and 5 (Figure 3 and Figure 4). If the 2022-23 data had been used in the creation of the load profiles for DMO 5, it would have resulted in a flatter load shape than what was actually used (which was the DMO 4 data).

**Figure 3 – Energex average time of day load profile**



**Figure 4 – SAPN average time of day load profile**



## 2.2 AEMO’s long term solution

AEMO has since consulted on load profile methodologies to resolve the settlement volume spike issue and remove its interim adjustment.

AEMO implemented a permanent solution for one element of the issue (the conversion of 30-minute and 15-minute data) and removed the lifting adjustment on 1 October 2023<sup>1</sup>. AEMO will implement a solution for the remaining aspects of the issue from 29 September 2024<sup>2</sup>.

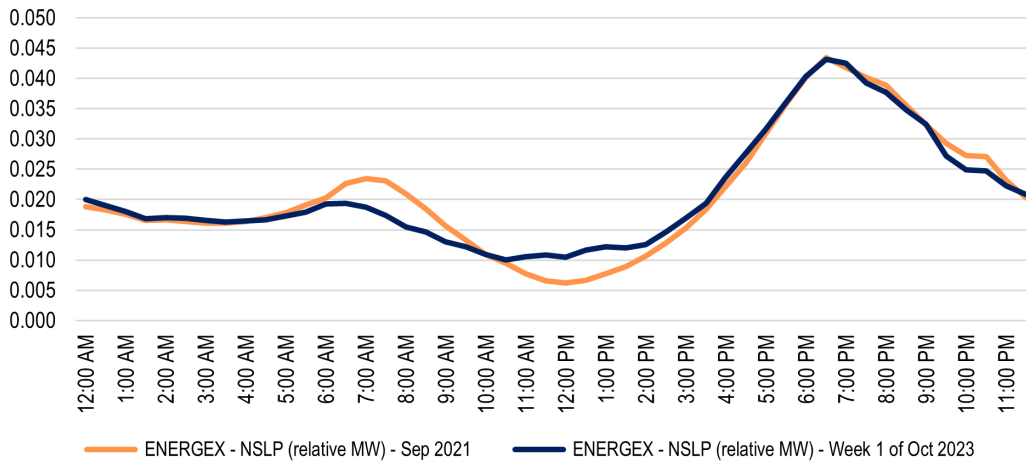
From the 1 week of public NSLP data we have been able to access since 1 October 2023, we have observed a step change down in the Energex and SAPN NSLP data (very right hand side of Figure 1 and Figure 2), with load shapes also returning to a more peaky shape, similar to the profile prior to AEMO’s adjustment in October 2021. Figure 5 and Figure 6 show that the load profile shapes before and after AEMO’s adjustment are relatively similar.

<sup>1</sup> [AEMO - Load Profiling Methodologies Consultation - February 2023](#)

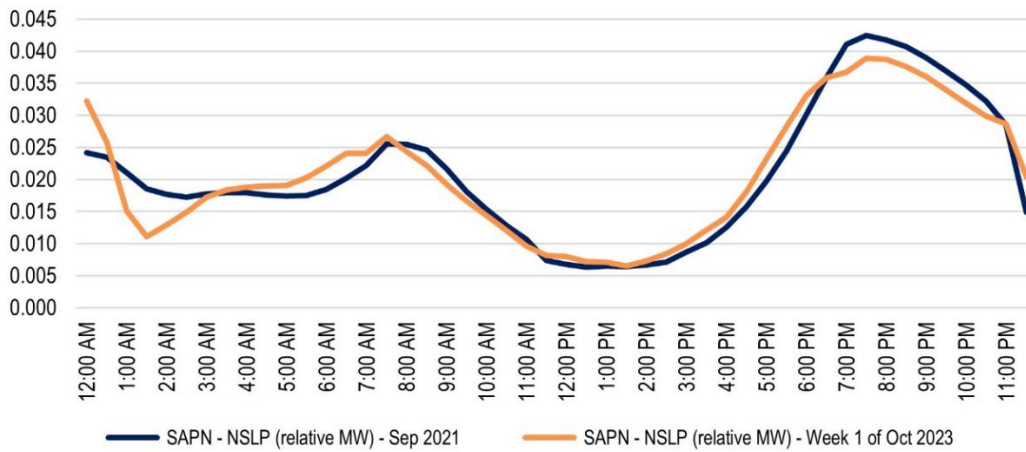
<sup>2</sup> [AEMO - July 2023 Retail Electricity Market Procedures Consultation - December 2023](#)



**Figure 5 – Energex NSLP September 2021 vs October 2023**



**Figure 6 – SAPN NSLP September 2021 vs October 2023**



### 3 Impacts on DMO 6

#### 3.1 How these relate to retailer costs

We are considering how these changes to the NSLP datasets for SAPN and Energex may have, or will, impact retailer costs for the DMO 6 period.

The relationship of the load profile shape and hedging has a large influence on wholesale costs for the DMO. A peakier load profile will generally be more expensive to hedge. This is because additional hedging products, such as cap and peak contracts, are needed to limit exposure to increases in demand for evening peaks. Carve outs of demand during the day can also result in over-hedging of base contracts, which increases costs as well. A flat load requires less dynamic contracting to limit exposure to movements in load and ultimately wholesale prices and therefore a flatter load profile shape will, all else being equal, result in a lower wholesale cost component.

We consider the use of the NSLP in the DMO reflects retailer costs in two ways:

- While specific weekly financial settlements will be based on more granular NSLP datasets than the 2-year aggregate we use for the DMO, we consider it to be a reasonable representation on a whole-of-market basis.
- The NSLP is likely to be a driver of retailers hedging strategies because it represents what they are settled against in the spot market, at least in respect of customers with accumulation meters.

Figure 7 provides a timeline that highlights the overlap of the adjusted NSLP data with hedging decisions retailers may have made.

**Figure 7 – NSLP timeline relevant to DMO**



Note this figure does not highlight any potential impacts from AEMO’s long term solution being implemented on 29 September 2024.

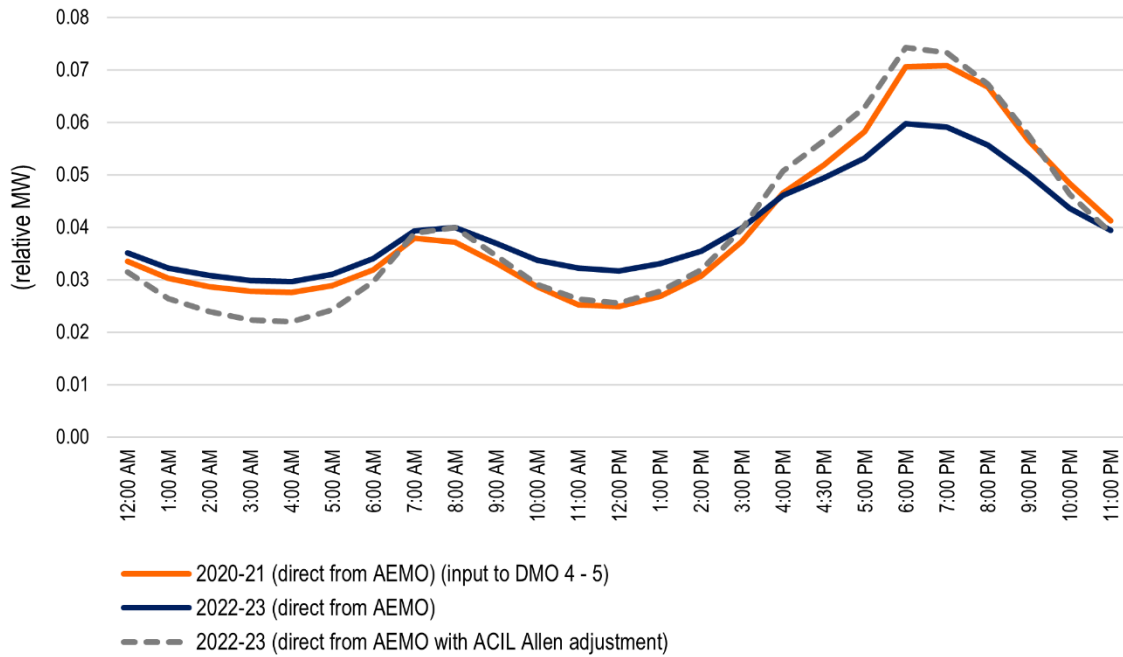
#### 3.2 Options available for DMO 6

Our goal in making a determination for DMO 6 is to select an NSLP that best reflects the costs retailers face purchasing energy on behalf of their customers over the DMO 6 period.

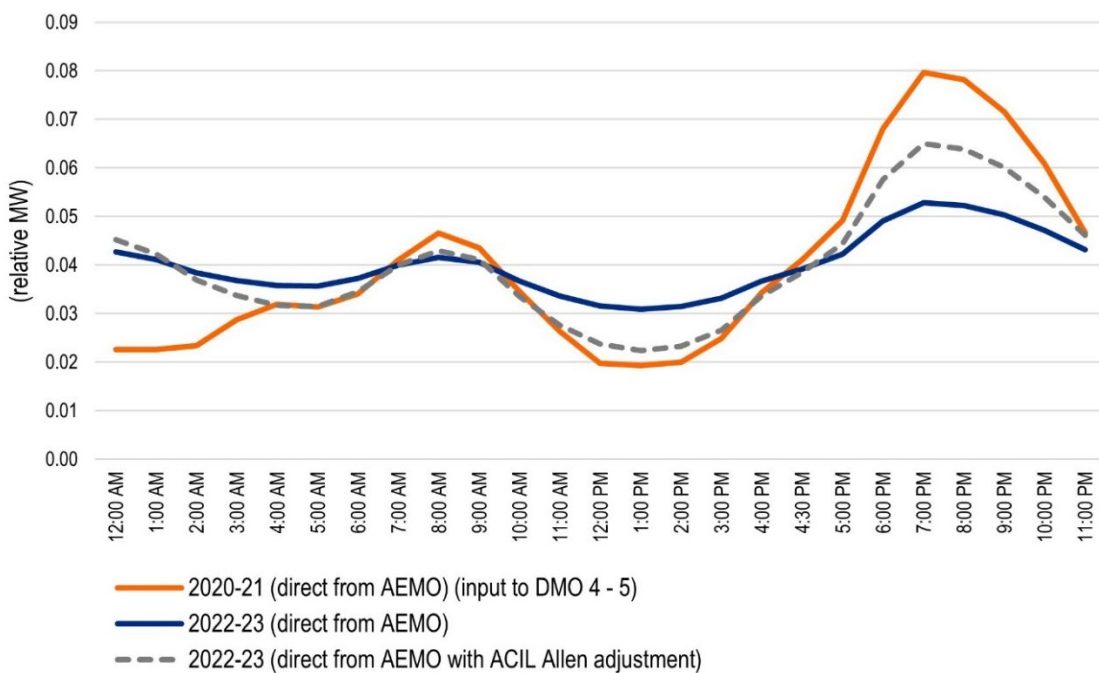
We have considered 3 NSLP options available, to address the issue resulting from AEMO’s temporary adjustment of the NSLP data for SAPN and Energex, for DMO 6. Figure 8 and Figure 9 show the average time of day profiles for each of these.

Options 1 and 2 both use NSLP data from 1 October 2021 to 30 June 2023, whereas option 3 uses the NSLP data from DMO 4 and 5. There are some practical considerations with using this option, in particular in our draft determination, and it would require further modelling to enable a direct comparison with options 1 and 2. However, we have included it in this paper to test with stakeholders.

**Figure 8 – Average time of day profile - Energex**



**Figure 9 – Average time of day profile - SAPN**



### 3.2.1 Option 1 – Use NSLP data as published by AEMO

This option would use approximately 2 previous years of NSLP data (Oct 2021 to July 2023), which covers the majority of time in which the adjustment by AEMO was in place and impacted the NSLP datasets.

The advantages of this option are that the NSLP dataset as published is transparent and publicly available. It is also the data likely to have driven retailers hedging strategies for accumulation meter customers over the last 2 years.

The disadvantage of using this data is that AEMO’s manual adjustment has now been removed. Therefore, this may not be a good representation of the load profile shape that retailers’ accumulation meter load will be settled against for the DMO 6 period, and the shape that retailers may have been hedging against since 1 October 2023.

As the resulting load shape from the 2022-23 data is flat, compared to both alternative options, it will result in a lower wholesale cost component, as it is less expensive to hedge against. Based on forecast wholesale costs from January 2024, which are still subject to change, this option would result in WECs that are 15% lower in Energex and 19% lower in SAPN, than option 2.

### 3.2.2 Option 2 – Undertake a manual adjustment to the NSLP data

This option would involve our wholesale modelling consultant, ACIL Allen, making a modification to the NSLP data (Oct 2021 to July 2023). The modification seeks to ameliorate the impacts on the NSLP which were a result of AEMO’s adjustment, returning it to a shape closer to that prevailing before and after the adjustment was in effect.

ACIL Allen’s modification would be done by calculating an adjustment to the NSLP based on the observed change (in terms of magnitude and spread) in loads between the three months prior to the adjustment (July to September 2021) and the first three months with the adjustment (October to December 2021). The modification would be applied to the loads over the entire period of the adjustment, to remove its impact on the NSLP.

The adjustment is the standard statistical distribution transformation formula:

$$\text{Demand}_{new} = \text{Average Demand}_{preuplift} + (\text{Demand}_{postuplift} - \text{Average Demand}_{postuplift}) * \left( \frac{\sigma \text{ Demand}_{preuplift}}{\sigma \text{ Demand}_{postuplift}} \right)$$

Average demand - average of actual half hourly demand across each respective 3 month period

Demand - actual half hour demand

$\sigma$  - standard deviation

The 3-month pre and post October 2021 time period is chosen because it minimises the risk of including other fundamental changes in consumer demand patterns and underlying changes to the population of the NSLP dataset.

The advantage of using this data is that it ameliorates the impacts of the adjustment by AEMO on the NSLP. This delivers load profile shapes that more closely align with the load profiles evident since the adjustment has been removed. Therefore, it is likely a more accurate load profile that retailers will be exposed to in the DMO 6 period.

Due to the complexity and time it takes ACIL Allen to model forecast wholesale costs for the DMO, along with legislative times frames for the DMO, data post 1 October 2023 is not able to be included in the draft DMO determination.

The disadvantage to using this data is that it would decrease transparency to stakeholders and the modification by ACIL Allen is based on 6 months of data, which may reduce the efficacy of the attempt to determine the NSLP without AEMO's adjustment. It also does not reflect the load profile which retailers are likely to have been hedging against up until 1 October 2023.

As the modification from ACIL Allen would result in a peakier load profile data shape, it would result in a higher wholesale cost component, compared to the flatter load shape using the NSLP data as published by AEMO. Based on forecast wholesale costs from January 2024, which are still subject to change, this option would result in WECs that were 18% higher in Energex and 24% higher in SAPN, compared to option 1.

### **3.2.3 Option 3 – Continue to use the NSLP data from DMO 4 and DMO 5**

This option sees the NSLP datasets used in DMO 4 and 5 continue to be used for DMO 6.

While we have included this option in the consultation paper, we do not consider it is a dataset that is reflective of a retailer's load shape for the DMO 6 period. The data will be 3 to 5 years old at the commencement of the DMO 6 period and unlikely to be a realistic load shape for the DMO 6 period, given the movement of small customers away from the NSLP due to an increase in the penetration of interval meters from this time. It would also mean that ACIL Allen's spot price modelling will be based on system load trace data that is also 3 to 5 years old, as to maintain internal consistency between the spot price modelling and the hedge model, coincident NSLP and system demand traces from the same period must be used. Finally, AEMO's systems and its treatment of interval meters changed across 2021 and therefore we would not be able to develop an appropriate blended profile dataset, which the majority of stakeholders stated was a preferred approach in response to questions on this topic in the DMO 6 issues paper. We therefore do not consider this an appropriate option for the development of DMO 6 draft determination.

## **3.3 We are seeking submissions on the method that best represents actual costs**

One of our tasks in setting the DMO is to determine the reasonable cost to a retailer of purchasing wholesale energy. We are seeking stakeholder views on which of the options best represents reasonable costs and why.

Additionally, we would welcome evidence from stakeholders on:

- How the NSLP and settlement of the NSLP influence hedging strategies of retailers.
- How retailers have adjusted hedging strategies due to AEMO's changes to the NSLP data across October 2021 to October 2023 and post October 2023
- Whether there are other load profile data sources available that would better reflect load shapes of retailers across the DMO 6 period? If so, why should we consider them and are there any implications to consider, noting we may not be able to consider them for the draft determination if they involved significant modelling or data work but could consider them for the final determination?
- Any other information or views relevant to this issue.