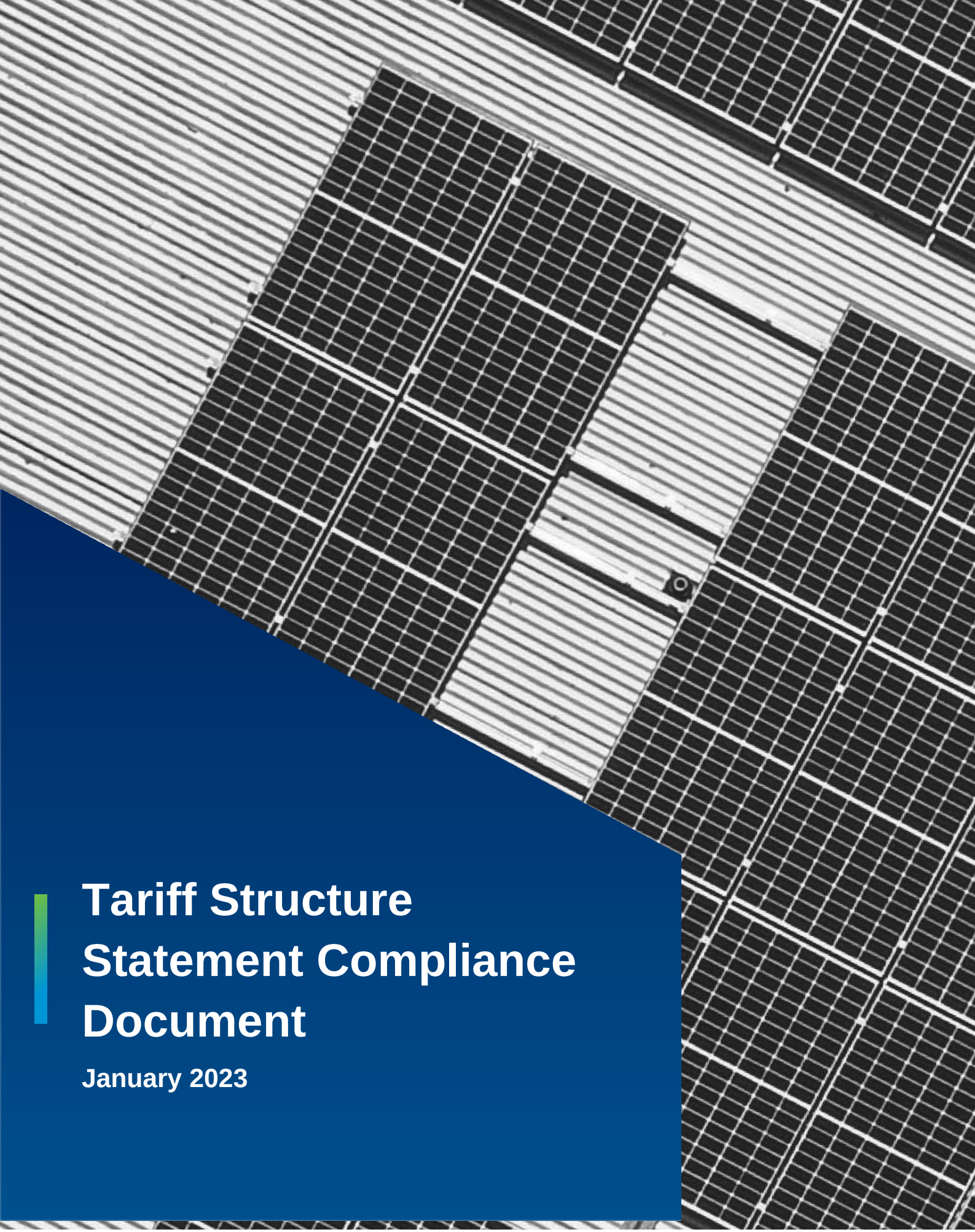


Tariff Structure Statement Compliance Document

January 2023

Ausgrid

Contents

1. Introduction and overview

The National Electricity Rules (**NER**) specify that Ausgrid's Tariff Structure Statement (**TSS**) must comply with the pricing principles for direct control services. The network pricing objective, as specified within the NER, requires that our tariff charges should reflect our efficient costs of providing these services to customers using these tariffs. The efficient costs of a distributor are determined by the Australian Energy Regulator (**AER**) during the five-year regulatory reset process.

Our TSS demonstrates how Ausgrid's network tariffs for the 2024-29 period will comply with the requirements of the NER, the AER's Export Tariff Guidelines and the AER's final decision for the 2024-29 period. For more information on the considerations that Ausgrid applied when designing the tariff structures for the 2024-29 period, see the associated detail in our TSS Explanatory Statement.

For ease of reference we have included a compliance check list as an appendix to this document.

2. List of tariff classes and allocations

This chapter sets out the tariff classes into which retail customers for direct control services will be divided during the 2024-29 period.[1] It also sets out the principles governing the assignment or re-assignment of retail customers to tariff classes, including the process for assessment and review of these tariff class assignments.[2]

2.1 Tariff classes

Part of the process of tariff design is to establish the tariff classes into which we will assign customers. Each of the proposed tariff classes contain at least one tariff.

We define tariff classes on the basis of several attributes, principally, the nature of the customer's connection to our network and whether or not their supply is metered.

Table 1 sets out our standard control tariff classes for the 2024-29 period. These are the same tariff classes we adopted in the 2019-24 period.

Table 1 Our standard control tariff classes

Tariff class	Customer type	Connection characteristics
Low Voltage	Residential Small to medium businesses Larger commercial and light industrial	Any separately metered low voltage (230V or 400V) connection, as measured at the metering point
High Voltage	Industrial	Any high voltage (typically 11kV) connection, as measured at the metering point
Sub-transmission	Industrial	Any sub-transmission (33kV, 66kV or 132kV) connection, as measured at the metering point
Unmetered	Unmetered (e.g. public lighting)	Any unmetered low voltage connected, as defined by Ausgrid in consultation with AEMO[3]
Transmission-connected	Industrial	Any transmission network connection

In addition, Ausgrid also proposes to adopt the following three tariff classes for alternative control services:

- Public lighting;
- Type 5 and 6 metering; and

[1] NER, clause 6.18.1A(a)(1).

[2] NER, clauses 6.18.3 and 6.18.4.

[3] NER, clause S7.4.3 (item 5) sets out eligibility requirements for Type 7 unmetered connections

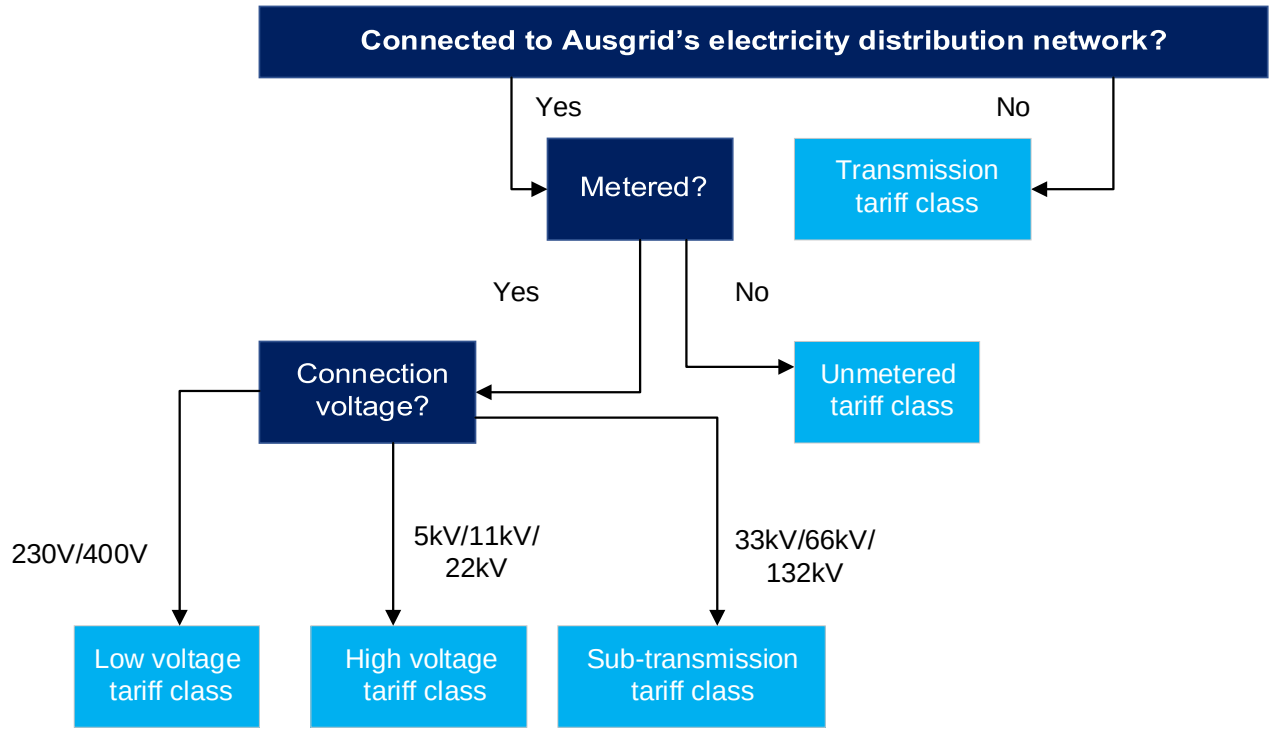
- Ancillary network services.

Alternative network control services are discussed more in Chapter 7.

2.2 Assignment of customers to tariff classes

Our policies and procedures for assigning customers to standard control tariff classes is summarised in Figure 1 below. Our policies and procedures for subsequently assigning customers to tariffs within each tariff class is set out in Chapter 5.

Figure 1: Overview of our tariff class assignment process



Consistent with Figure 1, we propose that the AER determine the below procedures for assigning and reassigning retail customers to tariff classes.[4]

Assignment of existing retail customers to a tariff class at the start of the 2024-29 period

1. Our retail customers will be assigned to the tariff class to which Ausgrid was charging them immediately prior to 1 July 2024 if:
   a. They were an Ausgrid retail customer prior to 1 July 2024; and
   b. They continue to be an Ausgrid retail customer as at 1 July 2024.

[4] NER, clause 6.12.1(17).

Assignment of new retail customers to a tariff class during the 2024-29 period

2. If, after 1 July 2024, Ausgrid becomes aware that a person will become a retail customer, then Ausgrid must determine the tariff class to which the new customer will be assigned.
3. In determining the tariff class to which a retail customer or potential retail customer will be assigned, or reassigned, Ausgrid must take into account one or more of the following factors:

    a. The nature and extent of their usage or intended usage of distribution services;
    b. the nature of their connection to the network; and/or
    c. Whether remotely-read interval metering or other similar metering technology has been installed at the retail customer's premises as a result of a regulatory obligation or requirement.

4. In addition to the requirements under point 3 above, Ausgrid, when assigning or reassigning a retail customer to a tariff class, must ensure:

    a. Retail customers with a similar connection and distribution service usage profile should be treated on an equal basis, subject to subparagraph 4b; and
    b. Retail customers connected to a regulated stand alone power system (SAPS) should be treated no less favourably than retail customers connected to the interconnected national electricity system.

Reassignment of existing retail customers to another existing or a new tariff class during the 2024-29 period

5. Ausgrid may reassign a retail customer to another tariff class if the existing retail customer's connection characteristics have changed such that it is no longer appropriate for that retail customer to be assigned to the tariff class to which the retail customer is currently assigned, or a retail customer no longer has the same or materially similar connection characteristics as other retail customers in the retail customer's existing tariff class. In determining the tariff class to which a retail customer will be re-assigned, Ausgrid must take into account points 3 and 4 above.

Objections to proposed tariff class assignments and reassignments

6. Ausgrid must notify a customer's retailer in writing of the tariff class to which the retail customer has been assigned or reassigned, prior to the assignment or re-assignment occurring.
7. A notice under point 6 above must include advice informing the customer's retailer that they may request further information from Ausgrid and that the retail customer may object to the proposed reassignment. This notice must specifically include:

    a. A written document describing Ausgrid's internal procedures for reviewing objections;
    b. That if the objection is not resolved to the satisfaction of the customer's retailer under Ausgrid's internal review system within a reasonable timeframe, then, to the extent that resolution of such disputes is within the jurisdiction of the Energy and Water Ombudsman of NSW, or like officer, the customer's retailer is entitled to escalate the matter to such a body; and
    c. That if the objection is not resolved to the satisfaction of the customer's retailer under Ausgrid's internal review system and the body noted in clause 7b above, then the customer or its retailer is entitled to seek a decision of the AER via the dispute resolution process available under Part 10 of the National Electricity Law (**NEL**).

8. If, in response to a notice issued in accordance with point 7 above, Ausgrid receives a request for further information from a customer's retailer, then it must provide such information within a reasonable timeframe. If Ausgrid reasonably claims confidentiality over any of the information requested by the customer's retailer, then it is not required to provide that information to the customer's retailer. If the customer's retailer disagrees with such confidentiality claims, it may have resort to the dispute resolution procedures referred to in point 7 (as modified for a confidentiality dispute).
9. If, in response to a notice issued in accordance with point 7 above, a customer's retailer makes an objection to Ausgrid about the proposed assignment or reassignment, Ausgrid must reconsider the proposed assignment or reassignment. In doing so Ausgrid must take into consideration the factors in points 3 and 4 above and notify the customer's retailer in writing of its decision and the reasons for that decision.
10. If a customer's retailer's objection to a tariff class assignment or reassignment is upheld by the relevant body noted in points 7b and 7c above, then any adjustment which needs to be made to tariffs will be done by Ausgrid as part of the next annual review of prices.

If a customer's retailer objects to Ausgrid's tariff class assignment, Ausgrid must provide the information set out in point 7 above and adopt and comply with the arrangements set out in points 8, 9 and 10 above in respect of requests for further information by the customer's retailer and resolution of the objection.

3. Approach to setting tariffs and the basic export level, pricing principles

3.1 Long run marginal cost for import energy

Clause 6.18.5(f) of the NER requires that our tariffs are based on the long run marginal cost (**LRMC**) of providing network services to our customers. The LRMC is an estimate of our future costs of expanding (or contracting) our network to allow for one additional (or one fewer) unit of use of the network. Customer demand during peak network demand periods is a key driver of the costs of our network, and so the LRMC reflects the cost to supply one additional unit of capacity (in kW or kVA) at peak times. By setting tariffs with reference to the LRMC of the network, we promote efficient use of our network based on tariffs that are aligned with the underlying cost of network usage. In addition to managing peak network demand, customer export of energy onto the grid is also becoming an increasing driver of costs. We outline our LRMC approach for customer exports later in this chapter.

In May 2022 we engaged Houston Kemp who worked with Ausgrid network planners on inputs for the calculation of LRMC. This project determined the LRMC in areas of the network where demand is growing and an estimate of LRMC in areas where demand is falling. The average incremental cost (AIC) approach was used to calculate LRMC in areas where demand is growing and the perturbation approach in areas where demand is falling. An estimate was used to calculate the LRMC in areas where demand is falling. The AIC value sets the upper range and the perturbation value sets the lower range of Ausgrid's estimate of import services LRMC. The lower range is based on an upgrade to a zone substation and should be considered a single point estimate. Further justification for using the upper range values (instead of lower range) is explained in the Houston Kemp report (Attachment 8.7).

We note that the LRMC has declined for all distribution tariff classes in the current regulatory period. This reflects the changes in the demand outlook over this period. A spreadsheet model has been provided with this TSS (Attachment 8.4) which provides the full details of our import LRMC calculations. The capital costs, operating costs, and peak demand assumptions in this model align with table 7.7 of our reset RIN attachments. Appendix B to this document provides detailed information on these items as required by AER Regulatory Information Notice (RIN 4.11).

Table 2. Comparison of LRMC between regulatory control periods ($, real FY24)

Tariff class	2019-24 period per kW pa[5]	2024-29 period per kW pa (upper estimate)	Percentage change
Low voltage / Unmetered	$65.9	$40.0	-39%
High Voltage	$42.2	$15.0	-64%
Sub-transmission	$7.5	$3.1	-58%
Transmission	0	0	0

[5] Excludes LRMC-based repex

3.2 Stand alone and avoidable costs

The NER require Ausgrid to ensure that the revenue recovered for each tariff class lies between:

- An upper bound, representing the stand alone cost of serving the retail customers who belong to that class; and
- A lower bound, representing the avoidable cost of not serving those retail customers.[6]

Therefore, the stand alone and avoidable costs for a tariff class must be set between the costs necessary to only supply that tariff class (i.e. a stand alone price) and the costs that could be avoided if that tariff class were not supplied at all. This ensures that tariffs cannot be set below the incremental cost to supply these customers and do not exceed the cost of only supplying these customers. These approaches are used to calculate the revenues for each standard control service tariff class. The costs are compared with the weighted average revenue derived from Ausgrid's proposed tariffs.

Our stand alone and avoidable cost estimates are prepared using building block costs from the post-tax revenue model. The avoidable costs include scalable operating costs for assets and customer services. Stand alone costs also include the indirect component for operating costs and the return on capital expenditure. The stand alone and avoidable costs estimates are provided separately for the low voltage, unmetered, high voltage, and sub-transmission tariff classes.

Attachment 8.10 is the model that calculates the stand alone and avoidable distribution cost as a percentage of revenue. The Ausgrid distribution revenue for the first year of the next regulatory period is within the stand alone and avoidable cost boundaries for each tariff class, as shown in Table 2.

Table 2 FY25 distribution revenue by tariff class with stand alone and avoidable costs

Tariff class	Avoidable cost	Indicative FY25 distribution revenue	Stand alone cost
Low voltage	$251,017,570	$1,433,864,565	$1,475,002,205
High voltage	$10,645,071	$55,401,769	$956,220,852
Sub-transmission	$8,075,016	$41,055,959	$396,833,087
Unmetered	$1,016,389	$9,121,381	$1,225,001,024

3.3 Side constraints

In respect of pricing side constraints, Ausgrid, under the Rules is limited to the annual movement of revenue recovery between tariff classes. A tariff class cannot face increases that are more than 2% higher than the average increase for all tariffs. The side constraint applies to Distribution Use of System (**DUOS**) only and the tariff class as a whole, and not to individual tariffs, tariff charging components or individual customer outcomes. We also note that the side constraint does not apply to the first year of a regulatory period.

[6] NER, clause 6.18.5(e).

Compliance with this side constraint is a matter for our Annual Pricing Proposals and is not discussed in detail in this TSS. However, in years 2-5 of the 2024-29 period, we will ensure that the annual increase of each tariff class is not more than 2% above the average DUOS price increase overall. We have also ensured that the indicative prices for years 2-5 provided with this TSS comply with the side constraint derived from our proposed revenue paths and forecast CPI.

3.4 Approach to setting consumption-based prices

The network pricing objective as specified within the NER[7] requires that our tariffs and charges should reflect our efficient costs of providing standard control services. Our prices for the 2024-29 period are set to recover total efficient cost. Our approach to setting distribution tariffs is as follows:

1. **Set prices for cost reflective tariff components**
   We currently reflect LRMC in the demand, capacity, and peak period tariff charging components. Ausgrid's long-run marginal costs will continue to be signalled in our peak demand/capacity components and where relevant in the peak energy charges, as per the AER's 2019 decision for the 2019-24 period. For flat tariffs we will reflect the upper LRMC value in the variable energy rate.
2. **Allocate residual distribution revenue to tariff classes**
   Allocation of residual network revenue occurs based on the contribution to system demand by each tariff class, and the extent that each tariff class uses network assets. For example, the low voltage tariff class receives a larger distribution cost allocation (than a high voltage and sub-transmission connections) given a low voltage connection uses more network assets. The residual revenue share outcomes for the low voltage and unmetered tariff classes are projected to be largely stable in the next period. We propose a gradual reduction in residual revenue recovery for the sub-transmission tariff class and an increase for the high voltage tariff class. These changes reflect a long-term transition to a cost reflective revenue recovery for all tariff classes.
3. **Allocate residual distribution revenue to tariff charging components**
   We will continue to reduce the proportion of residual costs recovered from non-peak energy charges, as per the AER's 2019 decision for the 2019-24 period. Residual revenue recovery will gradually increase on existing demand, capacity, and fixed charge components.
4. **Provide an incentive for cost reflective tariffs for small customers**
   Our residential and small business cost reflective tariffs will be set to create a small incentive for customers (via their retailer) to move to these tariffs. This will be achieved by continuing to allocate less residual revenue to the cost reflective demand tariffs (EA116 and EA256). As more customers move to cost reflective tariffs, the amount of residual revenue allocated to these tariffs will increase. This will help avoid bill impacts for customers who remain on flat tariffs, and who would have been progressively assigned more residual revenue as part of a diminishing customer base.
5. **Stand alone and avoidable costs**
   We will ensure the distribution revenue for each tariff class lies between stand alone and

[7] NER, clause 6.18.5(a)

avoidable costs, and that the year-on-year price change for years 2 to 5 is within the side constraint for each tariff class.

Further, the AER's determination decision for the 2019-24 period required that we gradually reduce the difference in residual revenue recovery across residential and small business tariffs. We propose to continue to progress these changes in the next regulatory period.

This section outlines the proposed recovery of residual costs, where we plan to gradually increase or decrease the recovery of residual costs on certain tariffs. For the avoidance of doubt, these rebalancing changes are intended to be achieved over the course of the regulatory control period. Rebalancing may or may not occur in each regulatory year.

3.5 LRMC for export energy

Our small customer export tariff (EA960) is based on the LRMC of providing export services.[8] Consistent with both the NER and the AER's export tariff guidelines, we assume that the total efficient costs of export services is the LRMC.

In Ausgrid's network, the cost drivers for export services are typically voltage related. This means that marginal expenditure typically occurs on low voltage distributors. To reflect this we developed an LRMC estimate based on 16 case studies of low voltage distributors. The 16 case studies are representative of typical distributors that supply most export customers, with a range of customers served and existing penetration of export customers.

We have applied our export growth forecasts, based on AEMO's step-change forecast, to each of these case studies and identified when we would need to build additional hosting capacity. We have built both an average incremental cost and a perturbation LRMC model, with both returning similar results (see Table 3 below).

Table 3 LRMC estimates of export services

$2024	Average incremental cost (lower estimate)	Perturbation (upper estimate)
Central estimate $/kW	$16.6/kW	$21.6/kW
Corresponding export tariff c/kWh	0.91c/kWh	1.18c/kWh

The small customer export tariff will apply the export charge from 10am to 3pm every day. This reflects the time of greatest utilisation of export services and the time of day that drives demand for network hosting capacity.[9]

Over 5 hours every day, the LRMC of exports (based on our central estimates of the case studies) is between 0.91c/kWh and 1.18c/kWh. We note the LRMC of exports has a wide range over our sample of 16 distributors, including variation within four distributors supplied by the same zone

[8] NER, clause 6.18.5(f)

[9] NER, clause 6.18.5(f)(2)

substation. With around 50,000 distributors across our network, and significant variation within local areas it is not practical to calculate locational LRMC estimates to apply to tariffs.[10]

3.6 Approach to setting export prices

We must base all our tariffs on LRMC.[11] For export tariffs, we have estimated that the LRMC is ($, real FY24):

- 0.91c/kWh to 1.18c/kWh for exports between 10am and 3pm; and
- -1.17c/kWh to -2.19c/kWh for exports between 4pm and 9pm everyday

Under the AEMC's access and pricing rule change we can only apply a LRMC based charge for exports above the basic export level.

Ausgrid is providing a 2,500 kWh per annum[12] basic export level between 10am and 3pm, available on our export tariff to residential and small business customers. All exports outside of 10am and 3pm are either free or rewarded, so no free export allowance applies.[13]

Our preference is to apply the basic export level as an energy measure, because it is easier for customers to understand.[14] Our basic export level is consistent with the NER requirements for all distribution businesses to include a basic export level to all export tariffs for the next two regulatory periods.[15]

Consistent with the AER's export tariff guidelines and the NER, we have calculated our 2,500 kWh per annum basic export level by:

1. Analysing the intrinsic hosting capacity of our network.[16] We analysed 16 real, representative low voltage distributors on our network and calculated how much export they could handle before needing significant investment.[17] Rooftop solar capacity was added to individual customers until the export levels required material investment by Ausgrid to manage voltage.
2. Forecast use of the network to accept exports from embedded generation.[18] Our forecast use of the network is consistent with our rooftop solar and battery estimates used throughout our regulatory reset documents. It is based on the AEMO's step-change forecast.

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[10] Balancing NER, clauses 6.18.5(f)(3) and 6.18.5(f)(1).

[11] NER, clause 6.18.5(f)

[12] Applied in retailer billing as 6.85 kWh per number days in the billing period. For example, a 30-day billing period has a basic export level of 205.5 kWh. The first 205.5 kWh exported in the that month (and within the charging window) will not be charged.

[13] NER, clause 11.141.12(a) states that 'A Distribution Network Service Provider must not charge…'. Neither the NER nor the AER's export tariff guidelines define charge, we have interpreted charge in this context to exclude rewards or negative charges.

[14] We are also limited in how we can apply a basic export level by our billing system.

[15] NER, clause 11.141.12(a)

[16] The AER's export tariff guidelines defines the intrinsic hosting capacity as NER, clause 11.141.13(b)(1)(i).

[17] Consistent with NER, clause 11.141.13(b)(1)(i) very small investments were disregarded. We note minimal was not defined. The minimum investment in our sample was $20,000 on a distributor supplying 58 customers, equivalent to $345 per customer served.

[18] NER, clause 11.141.13(b)(1)(ii).

We found that 75% of our distributors could handle all forecast PV customers installing 3 kW solar system. We consider this 75% percentile as suitable as it balances the risk of:

- Ausgrid exhausting its intrinsic hosting capacity without signalling to customers the costs of their export decisions; and
- Charging too many customers for exports where we have sufficient intrinsic hosting capacity in the forecast period.

Our analysis of existing export customers found a significant majority of customers with 3 kW of export capacity export less than 625 kWh in any quarter, making 2,500 kWh per annum an appropriate energy measure for 3 kW of rooftop PV capacity.

We note that 3 kW is not our basic export level, as customers with 3 kW solar system self-consume a significant proportion of their generation. Under our basic export level of 2,500 kWh per annum, customers that set their inverters to a maximum of 1.37 kW exports between 10am and 3pm can avoid all export charges.

Under the NER, cost reflective tariffs are LRMC based tariffs adjusted to recover total efficient costs, in a manner that minimises distortions from a purely LRMC tariff.[19] The AER's export tariff guidelines limit the NER's definition of total efficient costs to refer to directly attributable costs incurred from:

- the date of the access and pricing rule change taking effect; or
- the first day of a network's upcoming regulatory control period.

Using the latter definition and the AER's guidance on export tariff total efficient costs, we estimate our operating and returns on capital for attributable costs is around $5 million per year. We expect revenue recovery for the small customer export tariff will be around $1.5 million per annum.[20]

For the introduction of the export tariff, we have decided that it will be based only on the long-run marginal cost of providing export services after applying a basic export level. We have made this decision, in accordance with the NER:

- Distribution businesses have significant discretion on the 'total efficient costs' under the NER,[21] and we have decided that the 'total efficient costs' are limited to the chargeable long-run marginal costs for export services, for the introduction of the tariff; and
- From 1 July 2025, customers will be assigned to the small customer export tariff,[22] and many export customers with older inverters connected to generation have limited ability to mitigate their exports,[23] supporting a lower cost recovery to manage customer impacts.

The decision to set tariffs equal to LRMC (for exports we can charge) for the introduction of the tariff is a key component of our export tariff transition strategy. Ausgrid will reassess the customer

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[19] AEMC, *Rule Determination, National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014,* 27 November 2014, p 25.

[20] This is based on 2025-26 where all small customers with sufficient metering will be assigned the small business export tariff.

[21] AEMC, *Rule Determination, National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014,* 27 November 2014, p 158.

[22] NER, clause 6.18.5(h)(ii)

[23] NER, clause 6.18.5(h)(iii)

impacts on how we recover export costs in future years, including when the requirement for a basic export level expires in 2034.

3.7 Impact on retail customers

Distributors must consider the impact on retail customers of changes in tariffs from the previous regulatory year by having regard to the pricing principles, customer choice, and the availability of price signals. This TSS demonstrates our compliance with the pricing principles (Chapter 3), the opt out options available for small customer tariffs (Chapter 4), and the time periods in which price signals are available for customers to respond to (Chapter 4).

An extensive bill impact analysis is provided as Attachment 8.3 to this TSS. Our pricing reforms have been developed while considering this analysis and the feedback from our customer and industry stakeholders.

3.8 Tariffs reasonably capable of being understood by customers

Our pricing reforms for 2024-29 period are strongly motivated by the desire of customers and stakeholders for a simple and easily understood tariff structure. Our streamlining reforms include removal of some existing tariffs and simplifying charging components. These reforms have the additional benefit of streamlining our tariff assignment procedure (Chapter 5). Further information is in Chapter 3 of the TSS Explanatory Statement (Attachment 8.2).

3.9 Embedded network tariffs

We propose to assign embedded networks (**EN**s) using above 160 MWh per annum to separate tariffs. Our proposal includes a tariff for:

- ENs connected to the low voltage network using between 160 and 750 MWh per annum (for ENs currently on the LV 160-750 MWh tariff);
- ENs connected to the low voltage network using more than 750 MWh per annum (for ENs currently on the LV >750 MWh tariff); and
- ENs connected to the high voltage network (for ENs currently on the HV Connection tariff).

The tariffs we currently assign EN customers to result in lower network bills than those in our residential and small business rates. This means that a development's choice to connect to our network as an EN instead of connecting each individual energy user may be partly driven by a reduction in the total network bill (known as tariff arbitrage). The NER require that recovery of residual cost should not distort LRMC. Without the proposed changes our business tariffs could potentially distort price signals to customers, by creating an inefficient incentive (via tariff arbitrage) for new embedded networks.

These proposed tariffs would have the same fixed and energy charges as the equivalent medium or large business tariff, but they would include an increased capacity charge. In response to stakeholder feedback we will introduce the capacity charge uplift over five years, resulting in the tariffs reaching the proposed level by July 2029 (instead of a one-off increase in July 2024). This achieves an appropriate balance between managing bill impacts across the EN customer segment and achieving greater fairness for our other customers.

3.10 Utility-scale storage tariffs

We will introduce a suite of utility scale storage tariffs on 1 July 2024, with a storage tariff available within the low voltage, high voltage and sub-transmission tariff classes. The storage tariffs are based on the National Electricity Objective and the network pricing objective[24] guided by the NER pricing principles.

Our storage tariffs are LRMC based

The sub-transmission storage tariff has LRMC based charging components: [25]

- Critical peak energy – this charge is based on the LRMC of an overload that would shorten the life of a sub-transmission network asset and that could have been avoided by the storage customer, bringing forward $30 million in replacement expenditure by 5-years. This reflects that overloads above the N reliability measure have a meaningful impact on the asset lives of our network infrastructure. The reward is based on the estimated value of unserved energy for other customers when a storage customer can support the network to avoid an outage to prevent an overload.
- Peak usage – this charge is based on the standard LRMC of load for the sub-transmission network, it applies when local assets are within 5 MW of our N reliability level. This considers that only when a flexible storage asset's usage drives the network to near capacity is it likely that the storage customer's network use could drive augmentation expenditure. For the purposes of the tariff, we have assumed peak typically occurs 10 hours a year.
- Off-peak usage – at all other times we consider the LRMC of network usage is zero.

The N measure will vary by where in the network the flexible storage asset is located[26] and the LRMC applied is based on usage of the local network at that time.[27]

The high voltage storage tariff has two LRMC based charging components:

- Critical peak energy – this symmetrical charge/reward is based on the standard LRMC of load for the high voltage network. We have applied the LRMC over a 40-hour window, assuming with our critical peak events we can capture all storage customer activity that drives augmentation expenditure.
- Off-peak usage – we apply no LRMC to usage outside of the peak usage.

The low voltage storage tariff has three LRMC based charging components:

- Critical peak energy – this symmetrical charge/reward is based on the standard LRMC of load for the low voltage network. We have applied the LRMC over a 40-hour window, assuming with our critical peak events we can capture all storage customer activity that drives augmentation expenditure.
- Critical peak export– this symmetrical charge/reward is based on the standard long-run marginal cost of exports for the low voltage network. We have applied the LRMC over a 44-hour[28] window, assuming with our critical peak events we can capture all storage customer

[24] NER, clause 6.18.5(a)

[25] NER, clause 6.18.5(f)

[26] NER, clause 6.18.5(f)(3)

[27] NER, clause 6.18.5(f)(2)

[28] On a postage stamp basis, we have found that high voltage impacts our average low voltage customer for 44 hours per year. This figures varies significantly across the network, however it is consistent in approach with our long-run marginal cost of exports.

activity that drives augmentation expenditure. We have included a 44 kWh/year basic export level to allow 1 kWh/hour of free exports. We have set the basic export level at the minimum level possible because there is no available intrinsic hosting capacity when a peak export event occurs[29].

- Off-peak usage – we apply no long-run marginal cost to usage outside of the peak usage.

The storage tariffs recover more DUOS than the storage customers' avoidable costs

Storage assets have relatively low avoidable and stand alone costs:

- The avoidable distribution cost of a flexible storage customer located in our network will typically be near zero. The flexible storage customers' flexibility allows it to operate in a way that drives no additional costs to our distribution network.[30]
- The stand alone distribution costs of a flexible storage customer are also typically low. Utility scale storage facilities can connect to either the transmission or the distribution network. This suggests that the distribution assets required to exclusively serve a storage facility could in many circumstances be minimal.

We consider that it is important that the total efficient costs allocated to flexible storage customers are between the avoidable and stand alone costs. This ensures that the total efficient costs are:

1. Consistent with the guidance on how to interpret NER, clause 6.18.5(g)(1) provided by the AEMC in its 2014 final determination.[31]
2. Flexible storage customers will connect to Ausgrid's assets where we have spare capacity removing the need for other networks to augment their networks to support flexible storage customers.
3. Flexible storage customers will contribute to Ausgrid's residual cost recovery, reducing the network costs allocated to all other customers.

The storage tariff design minimises distortions to efficient network use

We expect that storage customers will have high price elasticity of demand. This means that allocating cost recovery to variable usage charges may have significant distortions on efficient network usage.[32] Therefore, to comply with the NER we will only allocate residual DUOS to the annual fixed charge component.

Storage tariffs requires dynamic flexible connection agreements to manage customer impacts

Storage customers present a novel challenge for managing customer impacts. We currently only have low voltage storage assets connected to our network (these assets are Ausgrid owned). For new customers, including all high voltage and sub-transmission customers the customer impacts

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[29] We consider an economically efficient level would be zero, but as the NER require a basic export limit to be set over the transitional period, we have adopted the lowest level practical.

[30] Any storage customers operating to provide network support at the low voltage or high voltage network may have a negative avoidable cost, that is without the storage customer Ausgrid would incur costs it must recover from the broader customer base.

[31] AEMC, *Rule Determination, National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014,* 27 November 2014, p 158.

[32] NER, clause 6.18.5(g)(3).

on those customers are managed by the customers' ability to decide not to connect assets to our network or by operating these assets dynamically to reduce their exposure to these network tariffs.[33]

The main challenge is ensuring existing customers without highly elastic demand and the ability to connect to other networks are not able to access this tariff. We consider that there is a risk that the tariff is below the typical avoidable costs of existing, non-flexible network customers. If typical network customers were able to access the tariff the customers may be recipients of economic cross-subsidies. Therefore, we have decided to limit access to the tariff to storage customers. This manages the customer impacts to our broader customer base, by significantly reducing the risk of cross-subsidisation.[34]

Storage customers can understand the tariff

We have consulted with storage customers on the storage tariff. These customers are highly engaged in energy markets, working primarily in wholesale and FCAS markets. Given the type and nature of utility scale storage customers we consider that the tariff is capable of being understood by customers that seek to connect to the Ausgrid network.[35]

[33] NER, clause 6.18.5(h)(2).

[34] NER, clause 6.18.5(h).

[35] NER, clause 6.18.5(i).

4. Explanation of tariff structures and charging parameters

In this chapter, we firstly set out the main tariffs to apply over the 2024-29 period, grouped by tariff class. We then set out the tariffs that we will withdraw at the start of the 2024-29 period and reassign any remaining customers to other tariffs. At the end of this chapter, we set out the trial tariffs to apply in 2024-25. An indicative pricing schedule for our tariffs in 2024-29 is set out in Attachments 8.15 and 8.17.

4.1 Peak tariff charging window from 1 July 2027

The peak charging windows (for energy, demand and capacity components) in the tables in this chapter may shift from 3-9pm to 4-10pm on 1 July 2027. The trigger event for this change will be the occurrence of a network system demand peak occurring after 9pm on any day prior to 1 March 2027. The time of the network system demand peak will be determined according to the approach used in Table 5.3.1 of the annual Regulatory Information Notice submission.[36]

Further information on this proposal can be found in section 3.4 of Attachment 8.2.

4.2 Low voltage customer tariffs

The tariffs structures and charging parameters for the low voltage customer tariff class are set out in the tables below. Tariffs in this tariff class comprise residential and business customer tariffs, as well as primary and secondary tariffs.

[36] This can be found in the Category Analysis RIN document.

Residential and small business customers – primary tariffs

Table 4 Residential customer primary tariffs

Tariff name	Tariff code	Components	Measurement	Charging parameter
Residential flat	EA010 (closed)	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Energy	cents / kWh	Charged applied to all energy consumed
Residential TOU	EA025	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm each day during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
Residential demand (introductory)	EA111	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm each day during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak demand	cents / kW / day	Charge applied to the customer's highest kW demand in any half-hour period between 3-9pm during Summer (November to March) and Winter (June to August) months, resetting monthly
Residential demand	EA116	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm each day during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak demand	cents / kW / day	Charge applied to the customer's highest kW demand in any half-hour period between 3-9pm during Summer (November to March) and Winter (June to August) months, resetting monthly

Table 5 Small business customer primary tariffs

Tariff name	Tariff code	Components	Measurement	Charging parameter
Small business flat	EA050	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Energy	cents / kWh	Charged applied to all energy consumed
Small business TOU	EA225	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
Small business demand (introductory)	EA251	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak demand	cents / kW / day	Charge applied to the customer's highest kW demand in any half-hour period between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months, resetting monthly
Small business demand	EA256	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak demand	cents / kW / day	Charge applied to the customer's highest kW demand in any half-hour period between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months, resetting monthly

Residential and small business customers – secondary tariffs

The following tables set out the secondary tariffs available to residential and small business customers. These comprise of export pricing and controlled load tariffs.

Secondary tariffs apply in addition to the customer's primary tariff. The tariff assignment policy – including whether these tariffs are opt-in or apply by default to certain customers – is set out in Chapter 5.

Table 5: Export pricing

Tariff name	Tariff code	Components	Measurement	Charging parameter
Small customer export tariff	EA960	Energy (charge)	cents / kWh	Charge applies to energy exported above the Basic Export Limit between 10am-3pm each day
		Energy (reward)	cents / kWh	Reward (credit or payment) applies to energy exported between 4-9pm each day. No Basic Export Limit applies before the application of energy rewards.

Table 6: Controlled load tariffs

Tariff name	Tariff code	Components	Measurement	Charging parameter
Controlled load 1	EA030	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Energy	cents / kWh	Charged applied to all energy consumed Supply is usually available for at least 6 hours in any 24-hour period, from midnight to midnight
Controlled load 2	EA040	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Energy	cents / kWh	Charged applied to all energy consumed Supply is usually available for at least 16 hours duration within any 24-hour period, from midnight to midnight, with more than 4 hours between 7am-5 pm.

Medium business customer tariffs

The following table sets out the tariff structures and charging parameters for our medium business customer tariffs in the 2024-29 period. It includes our new tariffs to apply to embedded network customers.

Table 7: Medium business customer tariffs

Tariff name	Tariff code	Components	Measurement	Charging parameter
FY25: LV 60-160 MWh[37] FY26: LV 80-160 MWh FY27, 28, 29: LV 100-160 MWh	EA302	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak capacity	cents / kW / day	Charge applied to the customer's highest kW of demand during any half-hour period between 3-9pm on working weekdays in the previous 12 months
LV 160-750 MWh (system)	EA305	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak capacity	cents / kVA / day	Charge applied to the customer's highest kVA of demand during any half-hour period between 3-9pm on working weekdays in the previous 12 months
LV 160-750 MWh (embedded network)	EA314	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak capacity	cents / kVA / day	Charge applied to the customer's highest kVA of demand during any half-hour period between 3-9pm on working weekdays in the previous 12 months

[37] The name of tariff EA302 changes over the regulatory control period in line with our proposed assignment policy transitional arrangements on who is eligible for this tariff. This is explained in Chapter 5.

Tariff name	Tariff code	Components	Measurement	Charging parameter
LV >750 MWh (system)	EA310	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak capacity	cents / kVA / day	Charge applied to the customer's highest kVA of demand during any half-hour period between 3-9pm on working weekdays in the previous 12 months
LV >750 MWh (embedded network)	EA315	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak capacity	cents / kVA / day	Charge applied to the customer's highest kVA of demand during any half-hour period between 3-9pm on working weekdays in the previous 12 months
LV storage (import)	EA962	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Off-peak energy	cents / kWh	Charge applied to energy consumed outside critical peak periods
		Critical peak energy	cents / kWh	Charge applied during locational critical peak load events
		Critical peak export	cents / kWh	Reward applied during locational critical peak voltage events
LV storage (export)	EA963 Secondary tariff to EA962	Critical peak energy	cents / kWh	Reward applied during locational critical peak load events
		Critical peak export	cents / kWh	Charge applied during locational critical peak voltage events 1 kWh/hour basic export level applies given all exports drive costs when this tariff applies.

4.3 High voltage customer tariffs

The tariffs structures and charging parameters for the high voltage tariff class are set out in the table below.

Table 8: High voltage customer tariffs

Tariff name	Tariff code	Components	Measurement	Charging parameter
HV connection (system)	EA370	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak capacity	cents / kVA / day	Charge applied to the customer's highest kVA of demand during any half-hour period between 3-9pm on working weekdays in the previous 12 months
HV connection (embedded network)	EA365	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak capacity	cents / kVA / day	Charge applied to the customer's highest kVA of demand during any half-hour period between 3-9pm on working weekdays in the previous 12 months
HV storage tariff (import)	EA340	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Off-peak energy	cents / kWh	Charge applied to energy consumed outside critical peak periods
		Critical peak energy	cents / kWh	Charge applied during locational critical peak load events
HV storage tariff (export)	EA341 Secondary tariff to EA340	Critical peak energy	cents / kWh	Reward applied during locational critical peak load events

4.4 Sub-transmission customer tariffs

The tariff structure and charging parameter for the sub-transmission tariffs is set below.

Table 9: Sub-transmission customer tariff

Tariff name	Tariff code	Components	Measurement	Charging parameter
ST connection (system)	EA390	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak capacity	cents / kVA / day	Charge applied to the customer's highest kVA of demand during any half-hour period between 3-9pm on working weekdays in the previous 12 months
ST storage (import)	EA380	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Critical peak energy	cents / kWh	Charge applied to energy consumed that exceeds the N reliability measure of local network assets.
		Peak energy	cents / kWh	Charge applied to energy consumed that is between the N reliability measure and 5 MW below the N reliability measure.
		Off-peak	cents / kWh	Charge applied to energy consumed at all other times.
		Locational TUOS demand	cents / kW / month	Charge applied to the customer's average kW during the half-hour period with the maximum monthly kW recorded at the transmission network connection point(s) supplying the storage customer.
ST storage (export)	EA382 Secondary tariff to EA380	Critical peak energy	cents / kWh	Reward applied to energy exported that is supporting the network to avoid exceeding the local network assets N reliability measure
		Peak energy	cents / kWh	Reward applied to energy exported that is supporting the network reduce overall load between the N reliability measure and 5 MW below the N reliability measure.
		Off-peak energy	cents / kWh	Reward applied to energy exported at all other times

4.5 Unmetered customer tariffs

The tariffs structures and charging parameters for this tariff class are set out in the table below.

Table 10: Unmetered customer tariffs

Tariff name	Tariff code	Components	Measurement	Charging parameter
Public lighting	EA401	Energy	cents / kWh	Charge applied to all energy assumed to be consumed based on device type
Constant unmetered	EA402	Energy	cents / kWh	Charge applied to all energy assumed to be consumed based on device type
EnergyLight	EA403	Energy	cents / kWh	Charge applied to all energy assumed to be consumed based on device type

4.6 Transmission-connected customer tariffs

There is one tariff that will apply to all transmission-connected customers in the 2024-29 period. The tariff structure and charging parameter for this tariff is set out in the table below.

Table 11: Transmission-connected customer tariff

Tariff name	Tariff code	Components	Measurement	Charging parameter
Transmission-connected	EA501	Fixed	cents / day	Access charge reflecting a fixed amount per day
		Peak energy	cents / kWh	Charge applied to energy consumed between 3-9pm on working weekdays during Summer (November to March) and Winter (June to August) months
		Off-peak energy	cents / kWh	Charged applied to energy consumed at all other times
		Peak capacity	cents / kVA / day	Charge applied to the customer's highest kVA of demand during any half-hour period between 3-9pm on working weekdays in the previous 12 months

4.7 Tariffs to be withdrawn at the start of the 2024-29 period

We propose to withdraw the following tariffs on 1 July 2024 and re-assign any customers on these tariffs to the relevant tariff listed in the tables above. Our tariff re-assignment policy is set out in Chapter 5.

Table 12: Tariffs to be withdrawn on 1 July 2024

Tariff name	Tariff code
Residential transitional TOU	EA011
Residential TOU demand	EA115
Small business transitional TOU	EA051
Small business TOU demand	EA255
Transitional 40-160 MWh	EA316
Transitional 160-750 MWh	EA317
LV Connection (standby)	EA325
HV connection (standby)	EA360
HV connection (substation)	EA380
ST connection (substation)	EA391

Refer to our 2019-24 TSS for the tariff structures and charging parameters for these tariffs

4.8 Trial tariffs for the first year of the regulatory period

In 2024-25, we will offer the following trial tariffs:

1. A flexible load tariff – to test how to implement and the size of the market for prices that only signal costs during critical system events;
2. A stand alone power systems tariff – to test the ability of energy-based charges to optimise customer use of stand alone power systems;

We have included completed AER sub-threshold tariff notifications for each of the proposed trial tariffs in Attachment 8.16.

We intend to test innovative tariff throughout the 2024-29 period. Under the current rules, the expanded threshold for sub-threshold tariffs of up to 1% of revenue from a sub-threshold tariff and up to 5% of revenue from all sub-threshold tariffs will expire for Ausgrid at the end of the 2024-29 period.[38]

We expect to modify and add trial tariffs each year of the 2024-29 regulatory period.

[38] NER, clause 11.141.8(b).

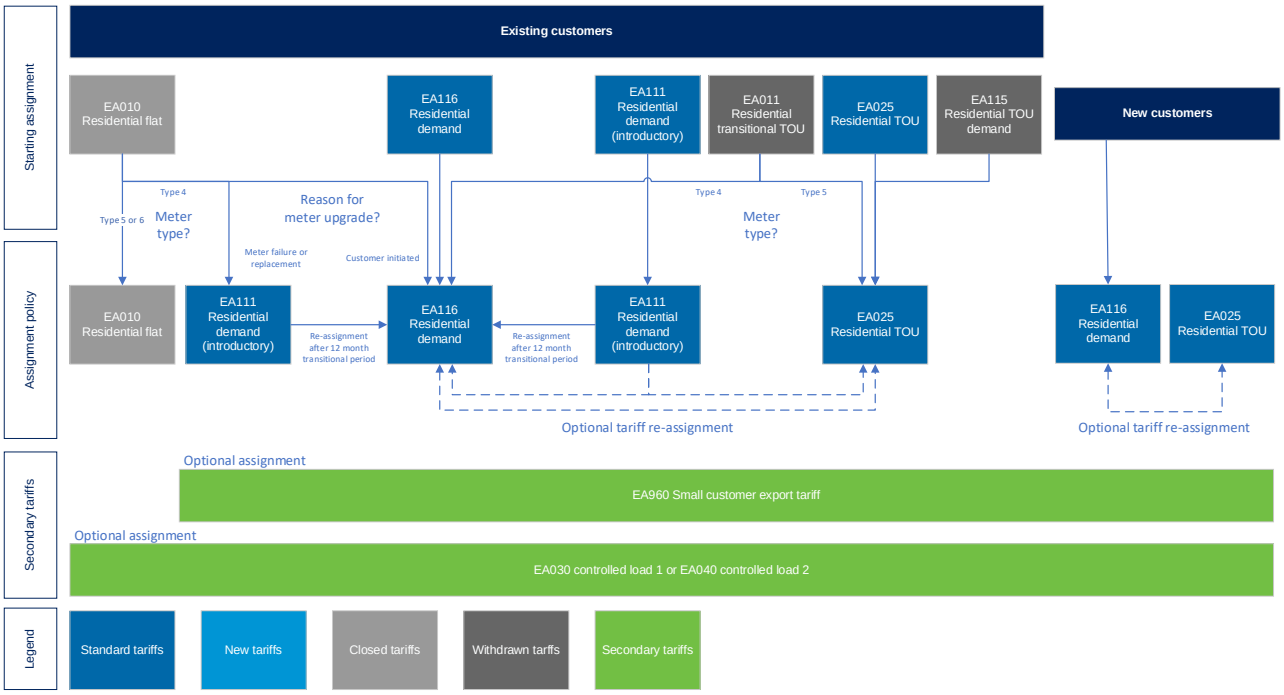
5. Tariff assignment procedures

This chapter sets out the tariff assignment and re-assignment policies to apply to retail customers for standard control services over the 2024-29 period. The tariff assignment and reassignment policies for tariffs within each tariff class are outlined in turn, starting with the Low voltage tariff class. Tariffs for alternative control services are covered in Chapter 7.

5.1 Low voltage customer tariffs – residential customers

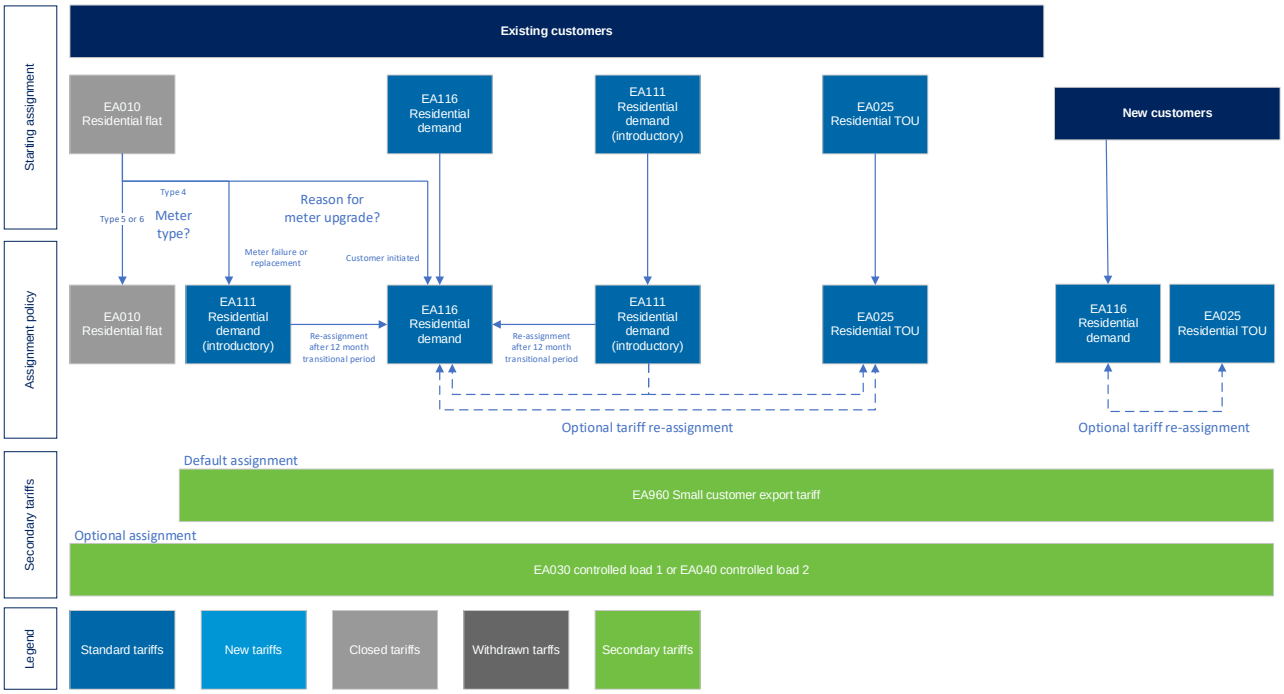
In the first year of the 2024-29 period, we propose to withdraw some residential tariffs and reassign those customers to our main standard tariffs. This is part of our plans to simplify our overall tariff offering. In addition to these changes, in the first year we propose to introduce export pricing as opt-in for residential customers.

Figure 2: Low voltage (residential customer) tariff assignment policy – to apply to regulatory year 2024-25



From the second year (2025-26) we propose to adopt the same tariff assignment policy for residential customers in all remaining years of the regulatory control period. From this year onwards, we also propose to modify our tariff assignment policy for export pricing so it applies by default to any residential customers assigned to cost reflective network tariffs.

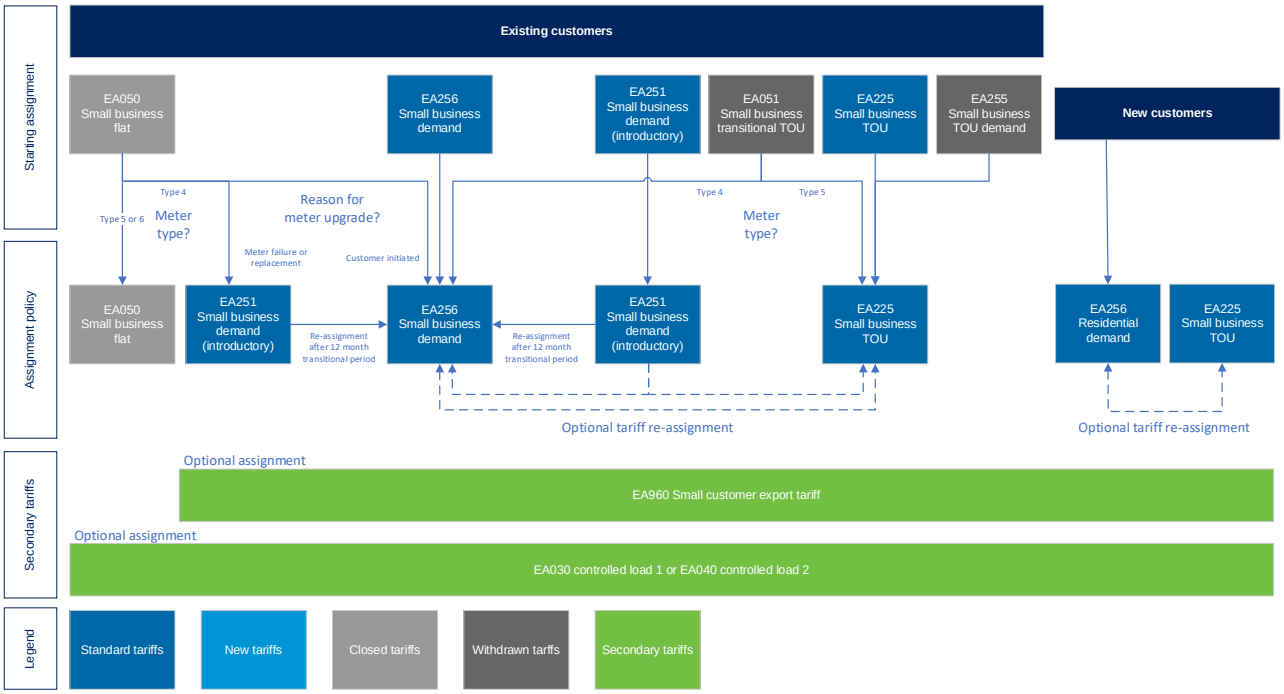
Figure 3: Low voltage (residential customer) tariff assignment policy – to apply from 1 July 2025



5.2 Low voltage customer tariffs – small business customers

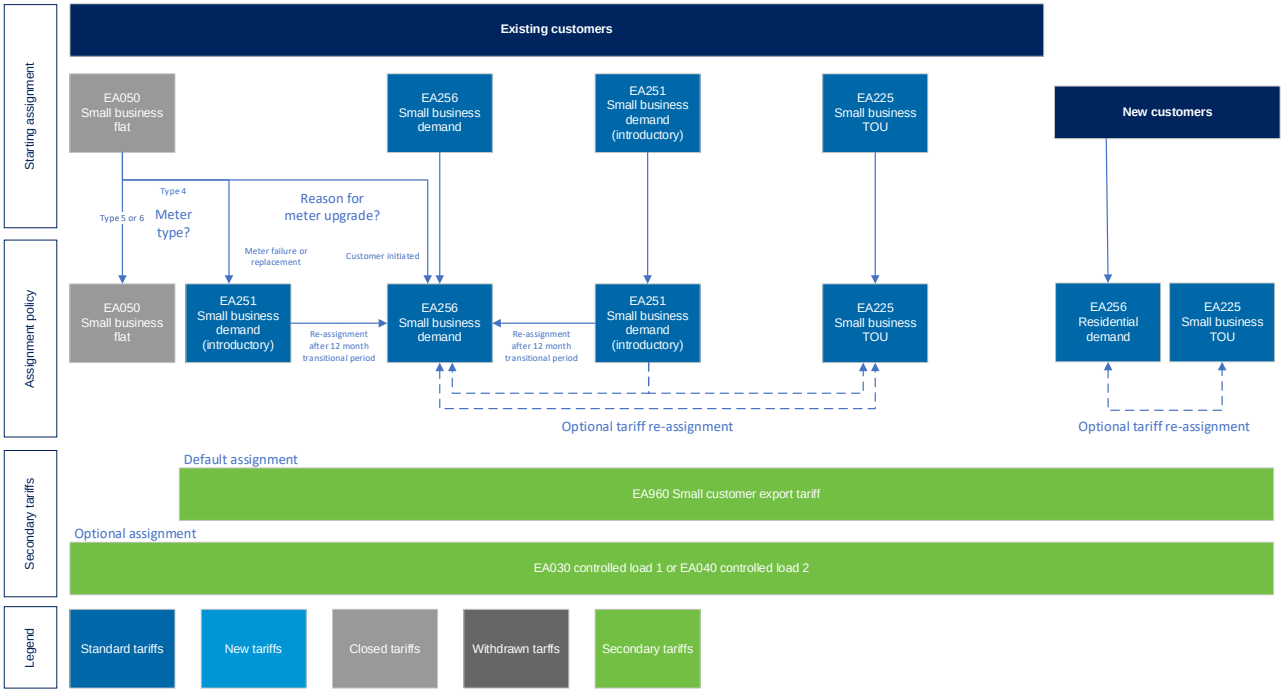
Our tariff assignment policy for small business customers is largely the same as our assignment policy for residential customers. In the first year of the 2024-29 period, we propose to withdraw several small business tariffs with few customers and reassign those customers to our main standard tariffs. In addition to these changes, we propose to introduce opt-in export pricing for small business customers.

Figure 4: Low voltage (small business) tariff assignment policy – to apply to regulatory year 2024-25



From the second year (2025-26), the tariff reassignments from withdrawn tariffs will be complete, and we propose to adopt the same tariff assignment policy for small business customers in all remaining years of the regulatory control period. From this year onwards, we also propose to modify our tariff assignment policy for export pricing so it applies by default to any small business customers assigned to cost reflective network tariffs.

Figure 5: Low voltage (small business) tariff assignment policy – to apply from 1 July 2025

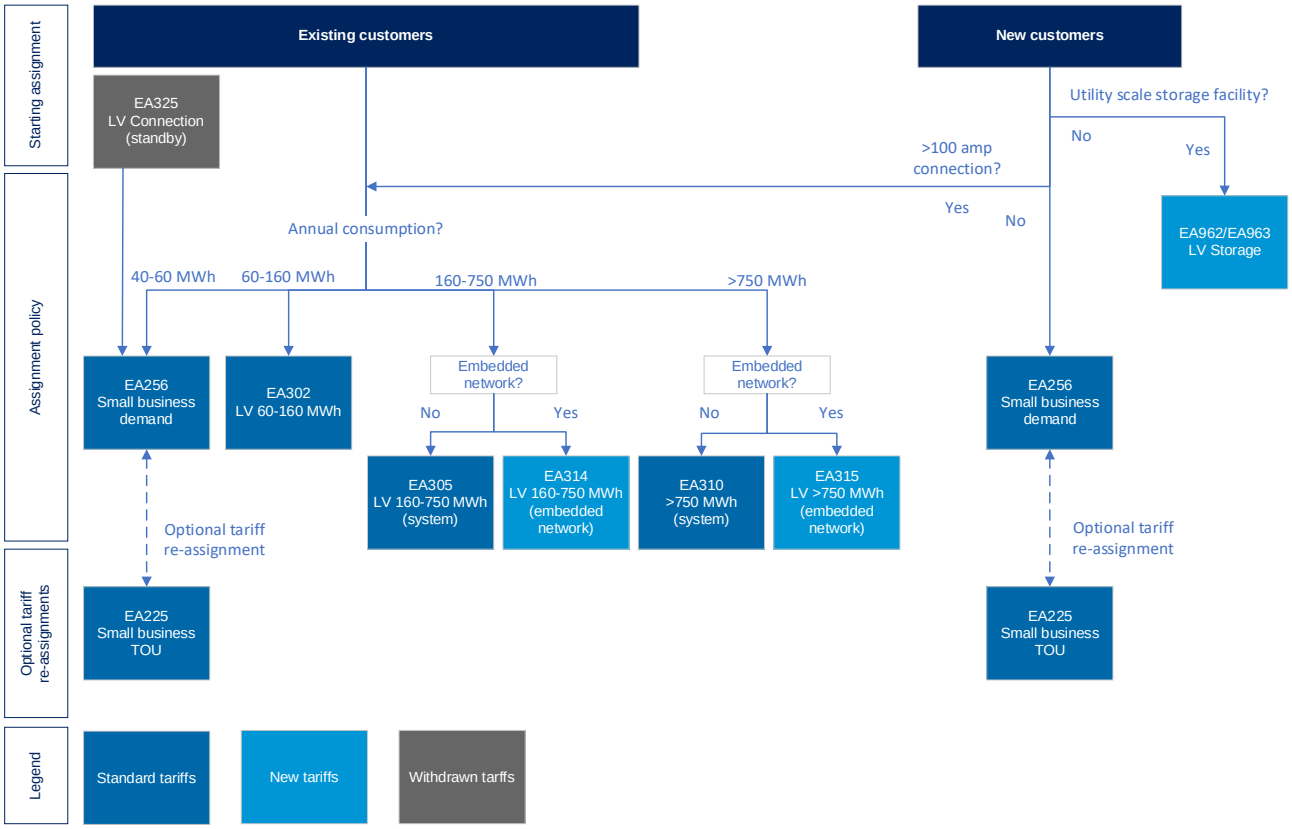


5.3 Low voltage customer tariffs – medium business customers

We are proposing to make several changes to our medium business customer tariff assignment policies. In the first year of the 2024-29 period, we propose to withdraw one medium business tariffs with few customers and reassign those customers to one of our main demand tariffs.

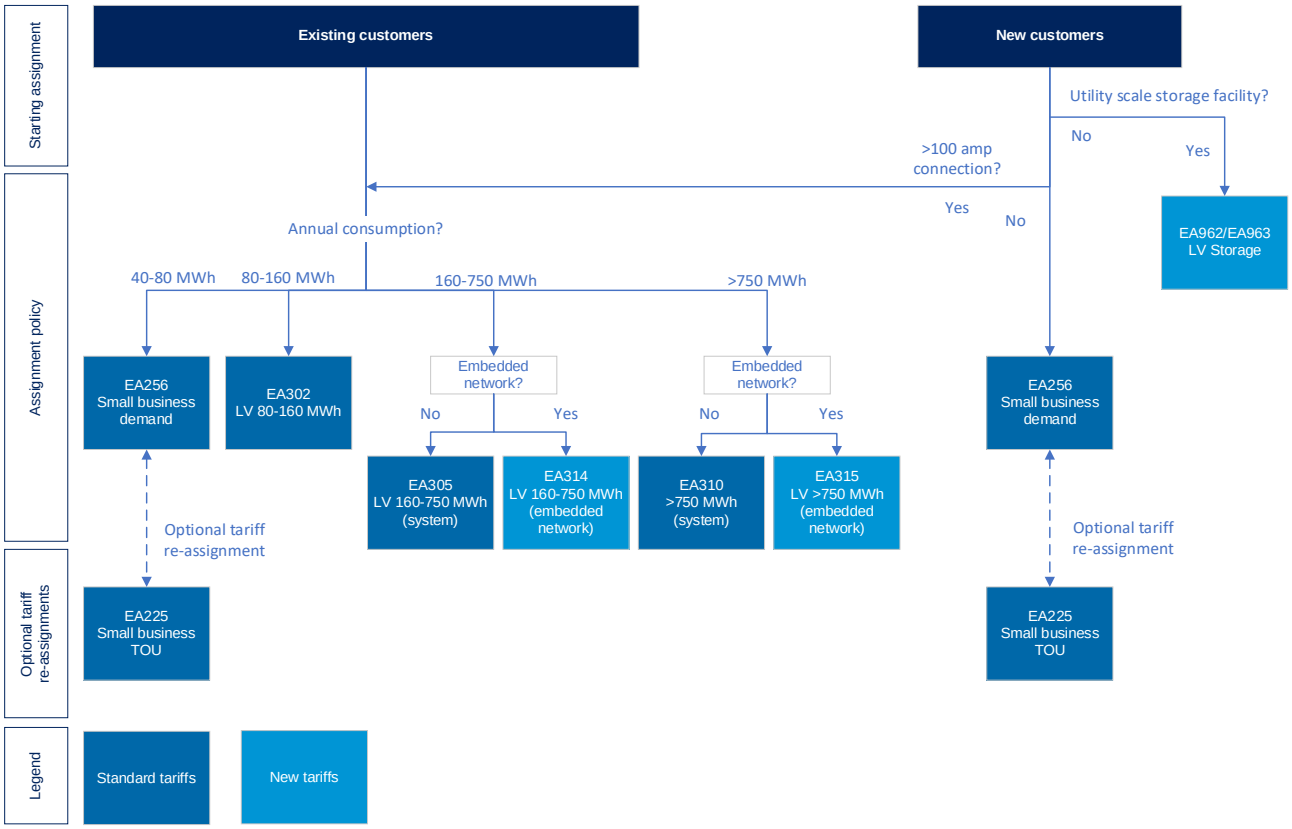
We are proposing to change the way new business connections are assigned by including connection size. We are also proposing to broaden our demand tariff eligibility to medium business customers with lower levels of annual consumption. In addition, we are also proposing to introduce new embedded network tariffs and utility scale storage tariffs. Further information is in Chapter 3 of Attachment 8.2.

Figure 6: Low voltage (medium business) tariff assignment policy – to apply to regulatory year 2024-25



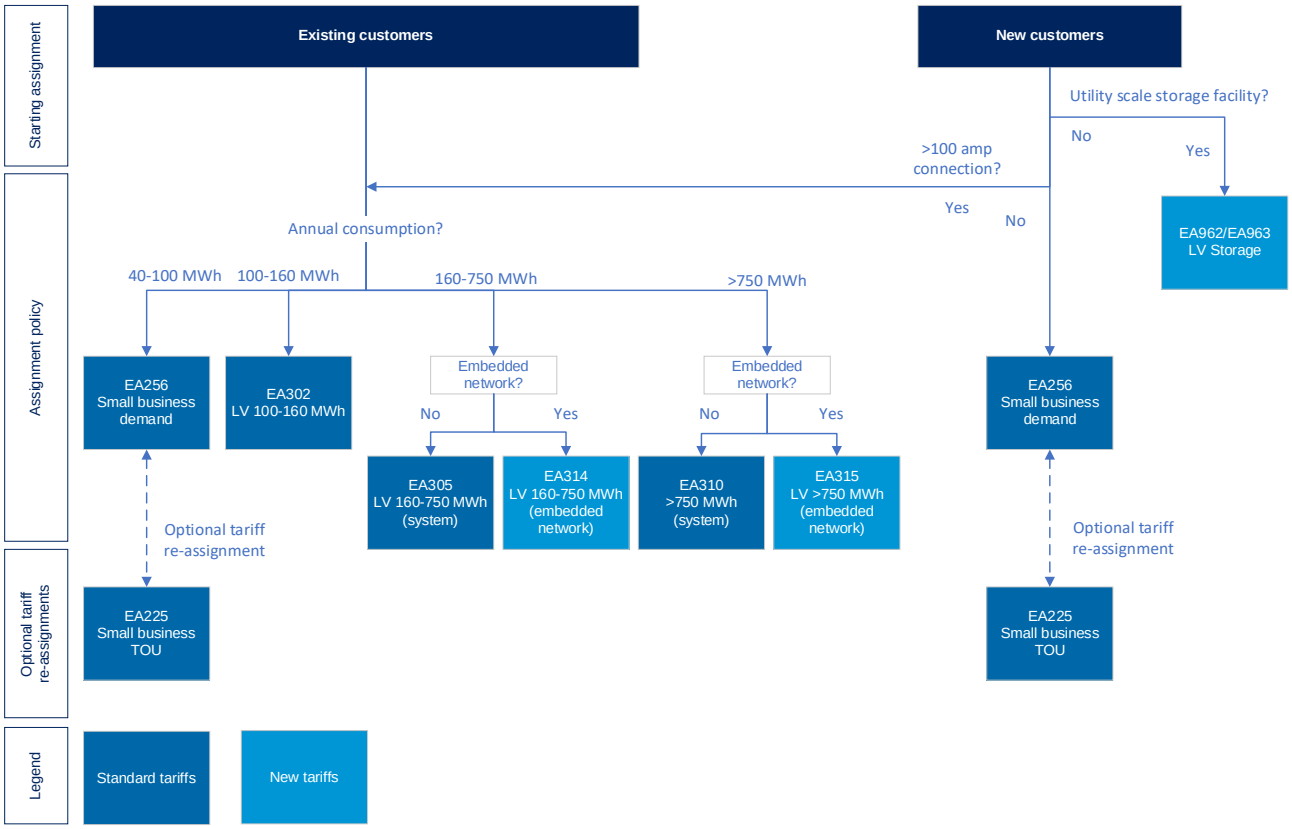
We are broadening the eligibility of small business demand and time of use tariffs over the first three years of the regulatory control period. In the second year, we propose to increase the eligibility threshold from 60 to 80 MWh annual consumption.

Figure 7: Low voltage (medium business) tariff assignment policy – to apply to regulatory year 2025-26



In the third year, we propose to complete our transition and increase the eligibility threshold from 80 to 100 MWh annual consumption for small business demand and time of use tariffs. No other tariff assignment policy changes occur in this year.

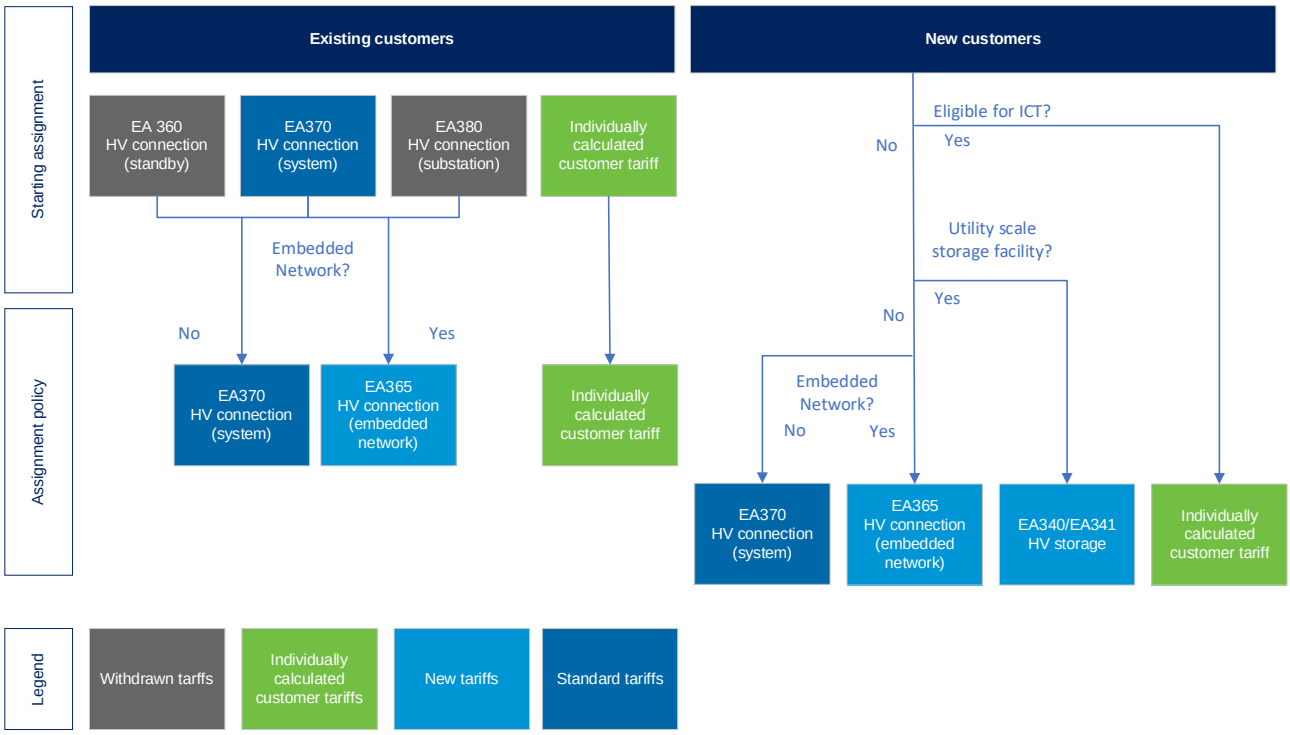
Figure 8: Low voltage (medium business) tariff assignment policy – to apply from 1 July 2026



5.4 High voltage customer tariffs

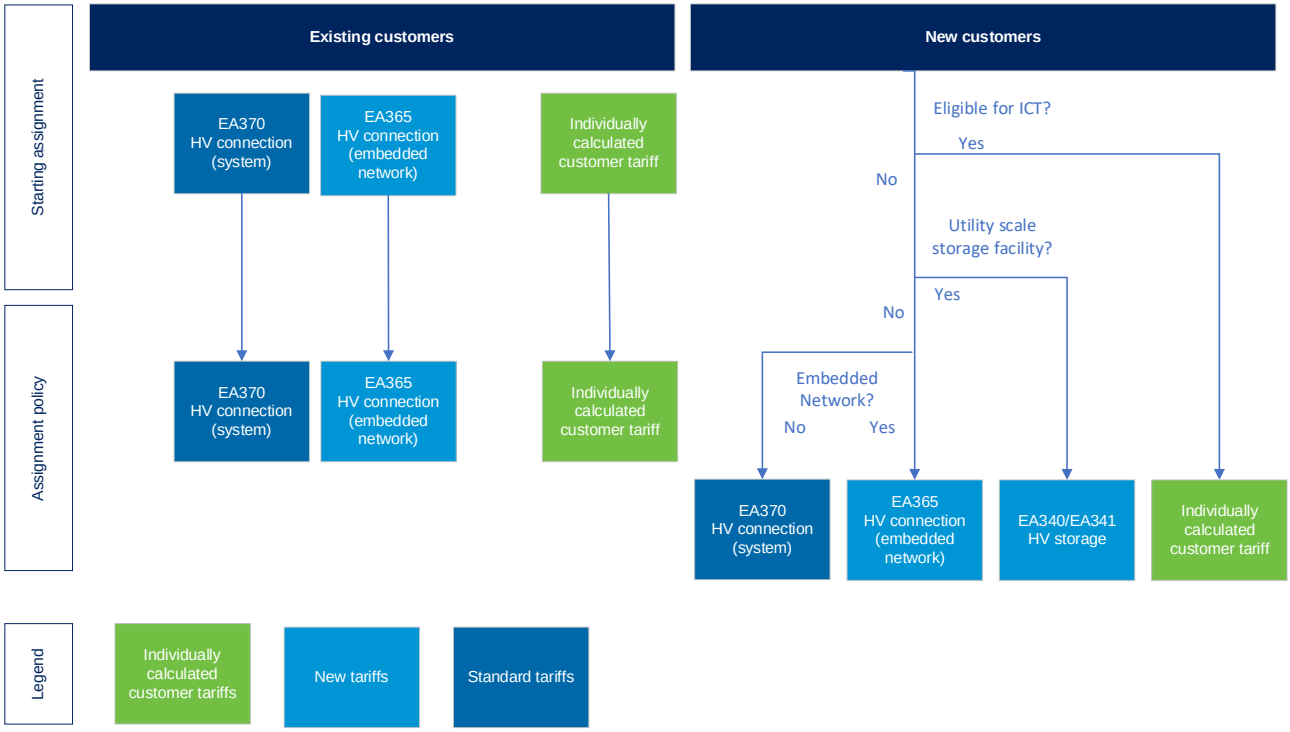
In the first year of the 2024-29 period, we propose to withdraw several high voltage tariffs with few customers and reassign those customers to our main standard tariffs. This is part of our plans to simplify our overall tariff offering. In addition to these changes, we propose to introduce a new tariff to apply to embedded networks connected to our high voltage network, and a utility scale storage tariff.

Figure 9: High voltage customer tariff assignment policy – to apply to regulatory year 2024-25



After the tariff simplification and introduction of an embedded network tariff in the first year, we do not propose to make any further changes to our tariff assignment policies for high voltage customers over the 2024-29 period.

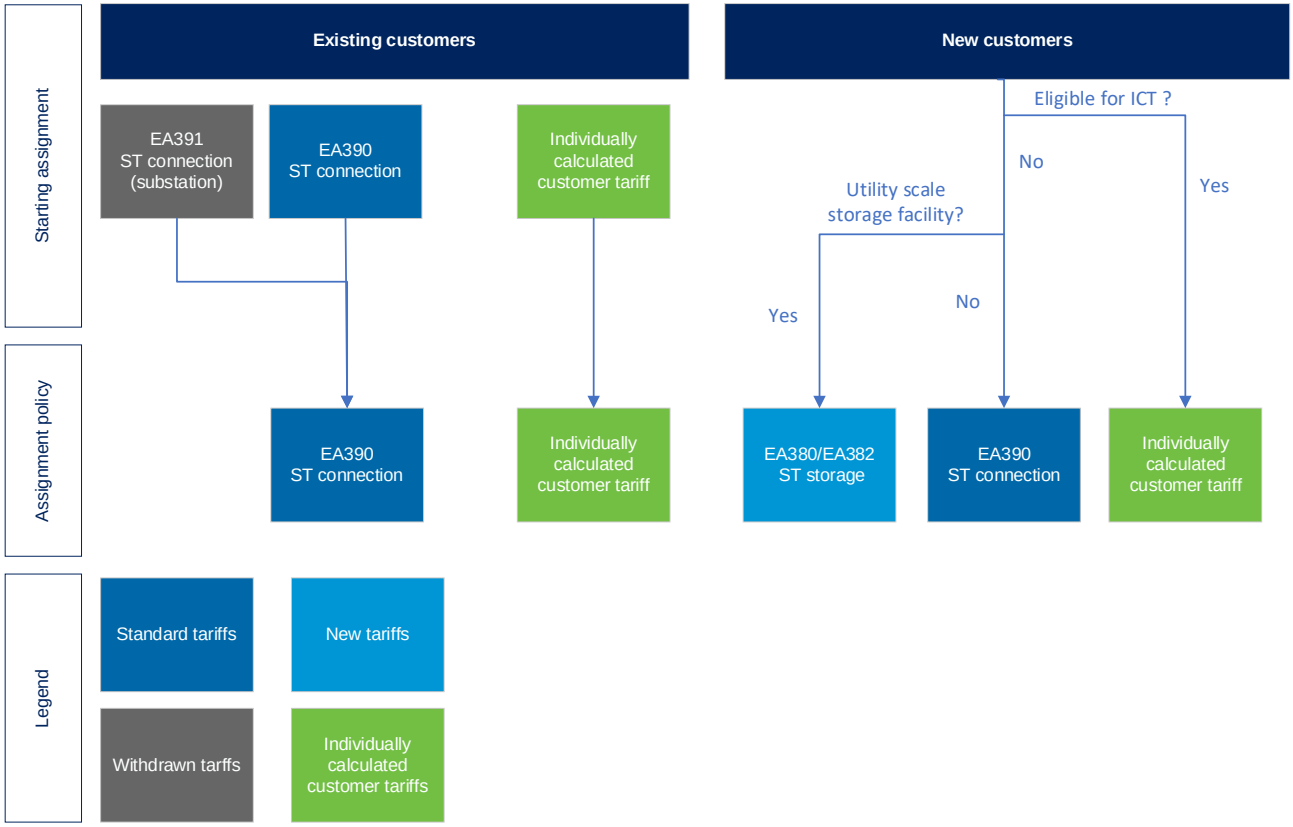
Figure 10: High voltage customer tariff assignment policy – to apply from 1 July 2025



5.5 Sub-transmission customer tariffs

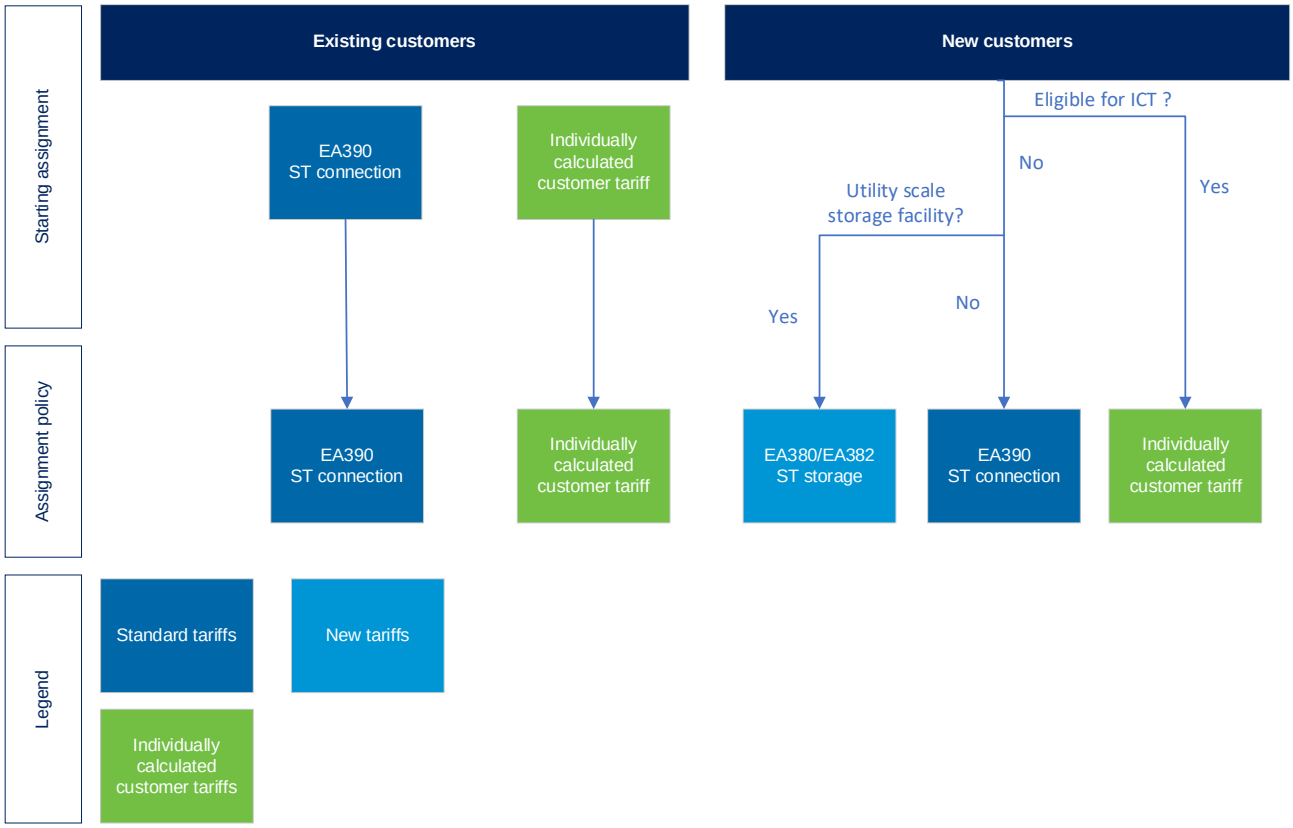
In the first year of the 2024-29 period, we propose to withdraw one tariff with few customers and re-assign those customers to our main standard tariff. This is part of our plans to simplify our overall tariff offering. We also propose to introduce a utility scale storage tariff.

Figure 11: Sub-transmission customer tariff assignment policy – to apply to regulatory year 2024-25



After the tariff simplification in the first year, we do not propose to make any further changes to our tariff assignment policies for sub-transmission connected customers over the 2024-29 period.

Figure 12: Sub-transmission customer tariff assignment policy – to apply from 1 July 2025



5.6 Unmetered customer tariffs

We have made no changes to our tariff assignment policy for unmetered tariffs from the 2019-24 period, and propose no changes for the new regulatory control period unless changes are required to meet NER or AEMO requirements.

Unmetered tariffs apply to network customers that are not required to install a meter to measure the flow of electricity in a power conductor and accordingly there is a requirement to determine by other means the energy data that is deemed to flow in the power conductor.

Table 13: Unmetered tariffs

Tariff name	Tariff code
Public lighting	EA401
Constant unmetered	EA402
EnergyLight	EA403

5.7 Transmission-connected customer tariffs

We have one standard transmission connected tariff (EA501) for customers directly connected to our transmission network. Some customers are also eligible to be assigned to our individually calculated customer tariffs.

5.8 Individually calculated customer tariffs

Customers currently on a published NUOS tariff that have network usage that is greater than 10 MW or 40 GWh per annum over a period of a full year will be reassigned to an Individually Calculated Tariff (**ICT**). Individually calculated tariffs can also be offered to customers expected to satisfy the threshold criteria in the near future and/or customers requiring non-standard connection. ICTs apply to customers assigned to the high voltage, sub-transmission or transmission tariff classes.

Ausgrid will conduct an ICT eligibility assessment in September in the financial year preceding the financial year from which the ICT will apply. This gives Ausgrid sufficient time to calculate an appropriate distribution loss factor for the tariff as distribution loss factors are required to be submitted to the AER and AEMO by late February.

Ausgrid can reassign customers on ICTs whose network usage is expected to permanently fall below 10 MW or 40 GWh per annum over a period of a full financial year, to an appropriate listed tariff unless provided otherwise in the connection agreement with this customer. This reassignment will be notified to the customer by 30 September in the financial year preceding the financial year from which the ICT will cease to apply.

5.9 Green hydrogen exemptions

The NSW Government's Hydrogen Strategy was released in October 2021 to support development of a commercial green hydrogen industry in NSW. The strategy will require a 90% reduction in network charges for eligible green hydrogen facilities. The Electricity Supply Act 1995 has been amended to give effect to these changes and supporting regulations are expected to be released in 2023. We will comply with these regulations and ensure that the reduction in network charges is applied to eligible facilities.

6. Export tariff transition strategy

Ausgrid considers that export services, like consumption services, are a standard service available to almost all our customers. The AEMC's removal of the prohibition on export charges allows distribution businesses to improve the efficiency of our prices by signalling the costs of both consumption and export services to the customers using these services. We will introduce our small customer export tariff (EA960) for residential and small business customers on the timeline allowed by the AEMC. The rule change has also enabled us to create and new innovative tariff structure for storage tariffs that includes export pricing.

6.1 Overview of proposal

In the 2024-29 period, we will base our small customer export tariff on the LRMC (and LRMC savings) of chargeable exports.[39]

We will transition customers to our small customer export tariff (EA960) over two-years:

- From 1 July 2024 our small customer export tariff is available to all residential and small business customers on demand or TOU tariffs on an opt-in basis; and
- From 1 July 2025, we will assign by default all residential and small business customers with demand or TOU tariffs, and all new connections and meter upgrades to our small customer export tariff.

Our assignment policy does not allow customers to opt-out of the small customer export tariff from 1 July 2025. This ensures that customers are paying for the Ausgrid services they use. Similarly, we do not allow customers to opt-out of consumption charges. As our export pricing structure includes charges and rewards, customers who respond to these price signals (e.g. by installing a battery or adopting behavioural changes to shift their consumption profile) will have the opportunity to reduce their exposure to export charges and increase the opportunity to receive export rewards. Further, we expect it is likely our export charges for the 2024-29 will be lower than the feed-in tariffs customers receive from retailers. Therefore, in practice, it is likely customers will perceive these export charges as a reduction in their feed-in tariff, rather than a charge to export.

The revenue recovered for the export tariff will be lower than the attributable costs of export services.[40]

Additionally, our suite of storage tariffs each have export components:

- The sub-transmission storage tariff (EA380/EA382) and high voltage storage tariff (EA340/EA341) reward customers when they export into the Ausgrid network during critical peak energy events; and
- The low voltage storage tariff (EA962/EA963) rewards storage customers for providing network support during critical peak energy events and charges storage customers for load during critical peak export events.

[39] That is exports above the basic export level in the charging window and all exports in the reward window.

[40] To clarify in terms of the NER, our allocation of total efficient costs to the small customer export tariff is lower than if we strictly adhered to the guidance provided by the AER. We consider that our allocation of total efficient costs remains consistent with NER, clause 6.18.5(g).

6.2 Customer consultation and tariff trials

Our export tariff transition strategy has been developed in consultation with our customers. We heard from:

- Voice of Community Panel (citizens jury) – who provided support for a flexible two-way pricing mechanism to optimise electricity supply and demand;[41]
- Ausgrid Pricing Working Group (customer advocate group) – who helped Ausgrid develop our export tariff strategy and provided strong and varied feedback on the export tariff proposal; and
- Submissions – we received feedback on our export tariff transition strategy through submissions to our Pricing Directions Paper.

We have supported the customer consultation with extensive modelling and a tariff trial. Since 1 July 2022, Ausgrid has trialled a residential two-way tariff (EA959/EA960). In this process we have learnt how to implement an export tariff without incurring additional expenditure.

Our modelling found that most residential export customers will see network bill decreases.[42]

6.3 Export tariff transition strategy

We expect that our export tariffs will change in future regulatory periods in response to:

- The forecast costs and savings from exports;
- The customer impacts of changes to export tariffs; and
- The regulatory requirements of export tariffs.

Our best forecasts are that exports are expected to drive substantial future costs on our network. We expect to progressively exhaust intrinsic hosting capacity in many parts of our network. We consider it is important to signal our best estimate of the costs of exports to signal to customers the costs and benefits of changing behaviours and Customer Energy Resources (**CER**) investment.

There is significant uncertainty on the future of CER, particularly if CER will respond to the introduction of a network price signal:

- Customers may respond to our price signal by reducing exports in the charging window and increasing exports in the reward window, which could reduce our future costs of hosting exports on our network. Similarly, responses to changing load charging windows could similarly reduce our future costs of hosting exports on the network.
- Customers may consider the export tariff does not significantly change their export or investment decisions and may continue to increase exports during our export charging window. This could maintain or even increase our future cost of hosting exports.

Our future export tariffs will significantly depend on how export behaviour changes. We consider that network prices are an important factor in export behaviour, but customer energy decisions will be based on a much wider range of factors including costs of electrical technology, wholesale and retail costs, and environmental factors.

Between 2025-26 and 2028-29, we consider we could have justified recovering approximately $5 million per year under the AER's export tariff guidelines. Our indicative DUOS prices show we

[41] Ausgrid Community Panel Report, *Voice of Community Panel Report,* 2022, Recommendation 9

[42] Relative to not being assigned an export tariff.

will be below this recovery level in the 2024-29 period. In future regulatory periods, we expect to recover a greater proportion of our export costs from export tariffs. The transition will depend on how much we spend on export hosting capacity, LRMC, retailer responses to the export structure, and regulatory requirements.

The amount of expenditure we incur expanding hosting capacity in this and future regulatory periods will influence the revenue recovery from export tariffs. Higher expenditure will increase our need to recover revenue from export tariffs. The LRMC will change overtime. The long-run marginal cost is forward looking and our allowed revenue is based on past and present expenditures. If the LRMC falls after we have invested to expand hosting capacity, LRMC based tariffs will recover less revenue. To ensure export customers recover a fair amount of the costs for our investments in expanding hosting capacity we may need to recover costs in other ways.

Until 2034 we are required to include a basic export level.[43] The basic export level in this regulatory period removes the price signal from around 70% of exports that drive our future network costs. Reducing or removing the basic export level will allow greater cost recovery and reduce inefficient signals that may drive inefficient network use and investment.

We will continue to consult with our stakeholders on export tariffs and their evolution in our network.

[43] NER, clause 11.141.13

7. Alternative control services

Ausgrid provides three categories of alternative control services: public lighting, type 5 and 6 metering and ancillary network services. Each alternative control service category is its own tariff class. These services are subject to different pricing mechanisms than standard control service network tariffs and operate under a price cap mechanism as decided in our final framework and approach.[44] Attachment 8.11 contains the indicative pricing schedule 2024-29 for ACS.

7.1 Public lighting

Provision of public lighting services in NSW is governed by the Public Lighting Code.[45] Our services include:

- Condition monitoring and maintenance planning;
- Luminaire cleaning and inspection;
- Lamp replacement and disposal;
- Luminaire replacement and refurbishment;
- Outage detection; and
- Inspection, test, repair and replacement of equipment.

We recover our costs through three charging structures:

- For lighting installed after July 2009, a capital charge for luminaires, brackets, smart controllers and poles where the pole is a dedicated lighting pole. This is an annual charge per asset;
- For lighting assets installed before July 2009, a total capital charge relating to all pre-July 2009 installed public lighting assets for each customer, mainly local councils, per annum; and
- A maintenance charge which is an annual charge per luminaire, and connection type where the connection is underground.

The post-2009 capital charges are levied according to the type of luminaire, bracket or pole, and whether it is located on a minor or major road. The maintenance charges also vary depending on the lighting technology, i.e. LED or traditional/legacy, and whether it is located on a minor or major road.

7.2 Type 5 and 6 metering

Ausgrid provides basic metering services to customers in our network area. While customers can switch to an advanced meter through their retailer, many customers still retain their basic Ausgrid meter. As customers transition to advanced meter offerings, they cease to receive an Ausgrid provided regulated metering service. Accordingly, our role in providing metering services is declining as the transition to advanced meters occurs.

The cost of providing these services are not uniform for all customers because:

- If their meter was installed before 30 June 2015, Ausgrid funded the cost of the meter; and

[44] AER, Framework and Approach for Ausgrid, Endeavour Energy and Essential Energy: Regulatory control period commencing 1 July 2024, July 2022, 39.

[45] https://www.energy.nsw.gov.au/nsw-plans-and-progress/regulation-and-policy/public-lighting-code

- If their meter was installed after that date, the customer paid for the meter upfront.

To reflect this difference, our current metering pricing includes two charges – a capital charge that reflects the cost of funding the meter, and a non-capital charge which reflects the cost of delivering meter reading, testing and maintenance services.

We apply these charges so that customers who paid for their own meter upfront via their retailer only pay the non-capital charge, while customers with an Ausgrid funded meter may pay both charges. The charges are per meter per year, and by customer type as defined by the network tariff.

7.3 Ancillary network services

To recover our costs associated with ancillary network services, we levy fees on the requesting party. The fees that we charge may be either of the following:

- a fixed fee — applied to services where delivery involves a consistent level of effort each time and are based on the average time required to deliver a service and hourly labour rates; and
- a quoted fee — applied to services where the delivery time varies significantly, depending on size and complexity of the work involved and are based on estimated time required to deliver the service and hourly labour rates.

One fee, material sales, is based on the cost of the materials plus a margin.

7.4 Consistency with the NER

The prices we have proposed reflect the efficient cost of providing each service.

Price changes in each year of the regulatory period are defined by the relevant control mechanism, which we will apply at each annual pricing proposal.

A. Appendix: Compliance checklist

This TSS is a requirement of the NER. The below table outlines requirements from version 193 of the NER and where we have addressed these rule requirements within this TSS.

NER reference	Requirement(s)	Relevant section of Ausgrid's submission
6.8	Regulatory proposal and proposed tariff structure statement	
6.8.2	Submission of regulatory proposal, tariff structure statement and exemption application	
6.8.2(a), (b)	A *Distribution Network Service Provider* must, whenever required to do so under paragraph 6.8.2(b) (i.e. at least 17 months before the expiry of a distribution determination that applies to the Distribution Network Service Provider), submit to the *AER* a *regulatory proposal* and a proposed *tariff structure statement* related to the *distribution services* provided by means of, or in connection with, the *Distribution Network Service Provider's distribution system*.	This TSS
6.8.2(c)(7)	A *regulatory proposal* must include a description (with supporting materials) of how the proposed *tariff structure statement* complies with the *pricing principles for direct control services* including: i) a description of where there has been any departure from the pricing principles as set out in paragraphs 6.18.5(e) to (g) of the NER; and ii) an explanation of how that departure complies with clause 6.18.5(c) of the NER.	TSS Chapter 3 and TSS Explanatory Statement
6.8.2(c1)(2)	The *regulatory proposal* must be accompanied by an overview paper in reasonably plain language which includes: i) a description of how the *Distribution Network Service Provider* has engaged with relevant stakeholders including *distribution service end users* or groups representing them and (in relation to the *tariff structure statement*) *retailers* and *Market Small Generation Aggregators* in developing the *regulatory proposal* and the proposed *tariff structure statement* including the *export tariff transition strategy*; ii) the relevant concerns identified as a result of that engagement; and iii) how the *Distribution Network Service Provider* has sought to address those concerns.	2024-29 Regulatory Proposal - Overview
6.8.2(c1)(5)	The *regulatory proposal* must be accompanied by an overview paper in reasonably plain language which includes a description of the key risks and benefits for *distribution service end users* of the *regulatory proposal* and the	2024-29 Regulatory Proposal - Overview

NER reference	Requirement(s)	Relevant section of Ausgrid's submission
	proposed tariff structure statement including the *export tariff transition strategy*;	
6.8.2(d1)	The proposed *tariff structure statement* must be accompanied by an *indicative pricing schedule*.	Attachments 8.15 and 8.17 indicative pricing schedules
6.8.2(d2)	The proposed *tariff structure statement* must comply with the *pricing principles for direct control services*.	TSS Chapter 3
6.8.2(e)	If more than one *distribution system* is owned, controlled or operated by a *Distribution Network Service Provider*, then, unless the *AER* otherwise determines, a separate *tariff structure statement* are to be submitted for each *distribution system*.	Not applicable
6.8.2(f)	If, at the commencement of this Chapter, different parts of the same distribution *system* were separately regulated, then, unless the *AER* otherwise determines, a separate *tariff structure statement* are to be submitted for each part as if it were a separate *distribution system*.	Not applicable
6.18	Distribution Pricing Rules	
6.18.1A	Tariff Structure Statement	
6.18.1A(a)(1)	A *tariff structure statement* must include the *tariff classes* into which *retail customers* for *direct control services* will be divided during the relevant *regulatory control period*.	TSS Chapter 2
6.18.1A(a)(2)	A *tariff structure statement* must include the policies and procedures the *Distribution Network Service Provider* will apply for assigning *retail customers* to tariffs or reassigning *retail customers* from one tariff to another (including any applicable restrictions).	TSS Chapter 5
6.18.1A(a)(2A)	A *tariff structure statement* must include a description of the strategy or strategies the *Distribution Network Service Provider* has adopted, taking into account the pricing principle in clause 6.18.5(h), for the introduction of *export tariffs* including where relevant the period of transition (*export tariff transition strategy*);	TSS Chapter 6
6.18.1A(a)(3)	A *tariff structure statement* must include the structures for each proposed tariff.	TSS Chapter 4
6.18.1A(a)(4)	A *tariff structure statement* must include the *charging parameters* for each proposed tariff.	TSS Chapter 4
6.18.1A(a)(5)	A *tariff structure statement* must include a description of the approach that the *Distribution Network Service Provider* will take in setting each tariff in each *pricing proposal* during the	TSS Chapter 3

NER reference	Requirement(s)	Relevant section of Ausgrid's submission
	relevant *regulatory control period* in accordance with clause 6.18.5 (pricing principles). Note: Under clause 11.141.13(a), a *tariff structure statement* of a *Distribution Network Service Provider* applicable during the tariff transition period for the *Distribution Network Service Provider* must also include, for each proposed *export tariff*, the basic export level or the manner in which the basic export level will be determined and the eligibility conditions applicable to each proposed *export tariff*.	TSS Chapters 5 and 6 (for export tariff eligibility conditions)
6.18.1A(b)	A *tariff structure statement* must comply with the *pricing principles for direct control services*.	TSS Chapter 3
6.18.1A(e)	A *tariff structure statement* must be accompanied by an *indicative pricing schedule* which sets out, for each tariff for each *regulatory year* of the *regulatory control period*, the indicative price levels determined in accordance with the *tariff structure statement.*	Attachments 8.15 and 8.17 indicative pricing schedules
6.18.3	Tariff Classes	
6.18.3(b)	Each customer for *direct control services* must be a member of 1 or more *tariff classes*.	TSS Chapter 2
6.18.3(c)	Separate *tariff classes* must be constituted for *retail customers* to whom *standard control services* are supplied and *retail customers* to whom *alternative control services* are supplied (but a customer for both *standard control services* and *alternative control services* may be a member of 2 or more *tariff classes*).	TSS Chapter 2
6.18.3(d)	A *tariff class* must be constituted with regard to: 1. the need to group *retail customers* together on an economically efficient basis; and 2. the need to avoid unnecessary transaction costs.	TSS Chapter 2
6.18.4	Principles governing assignment or re-assignment of retail customers to tariff classes and assessment and review of basis of charging	
6.18.4(a)	In formulating provisions of a distribution determination governing the assignment of *retail customers* to *tariff classes* or the re-assignment of *retail customers* from one *tariff class* to another, the *AER* must have regard to the following principles:	Noted
6.18.4(a)(1)	*retail customers* should be assigned to *tariff classes* on the basis of one or more of the following factors: i) the nature and extent of their usage or intended usage of *distribution services*; ii) the nature of their connection to the *network*;	TSS Chapters 2 and 5

NER reference	Requirement(s)	Relevant section of Ausgrid's submission
	iii) whether remotely-read interval metering or other similar metering technology has been installed at the *retail customer's* premises as a result of a *regulatory obligation or requirement*.	
6.18.4(a)(2)	*retail customers* with a similar *connection* and *distribution usage* profile should be treated on an equal basis, subject to subparagraph (3A).	TSS Chapters 2 and 5
6.18.4(a)(3A)	*retail customers connected* to a *regulated SAPS* should be treated no less favourably than *retail customers connected* to the interconnected national electricity system.	TSS Chapter 2 (FY25 trial tariffs)
6.18.4(a)(4)	a *Distribution Network Service Provider's* decision to assign a customer to a particular *tariff class*, or to re-assign a customer from one *tariff class* to another should be subject to an effective system of assessment and review. Note: If (for example) a customer is assigned (or reassigned) to a *tariff class* on the basis of the customer's actual or assumed *maximum demand*, the system of assessment and review should allow for the reassignment of a customer who demonstrates a reduction or increase in *maximum demand* to a *tariff class* that is more appropriate to the customer's *load* profile.	TSS Chapter 2
6.18.4(b)	If the *charging parameters* for a particular tariff result in a basis of charge that varies according to the *distribution service* usage or load profile of the customer, a distribution determination must contain provisions for an effective system of assessment and review of the basis on which a customer is charged.	TSS Chapters 2, 4 and 5
6.18.5	Pricing principles	
6.18.5(a)	Network pricing objective The *network pricing objective* is that the tariffs that a *Distribution Network Service Provider* charges in respect of its provision of *direct control services* to a *retail customer* should reflect the *Distribution Network Service Provider's* efficient costs of providing those services to the *retail customer*. Note: Charges in respect of the provision of direct control services may reflect efficient negative costs.	TSS Chapter 3
6.18.5(b)	Application of the pricing principles Subject to paragraph 6.18.5(c), a *Distribution Network Service Provider's* tariffs must comply with the pricing principles set out in paragraphs (e) to (j).	TSS Chapter 3

NER reference	Requirement(s)	Relevant section of Ausgrid's submission
6.18.5(c)	A *Distribution Network Service Provider's* tariffs may vary from tariffs which would result from complying with the pricing principles set out in paragraphs (e) to (g) only: (1) to the extent permitted under paragraph (h); and (2) to the extent necessary to give effect to the pricing principles set out in paragraphs (i) to (j).	TSS Chapter 3
6.18.5(d)	A *Distribution Network Service Provider* must comply with paragraph (b) in a manner that will contribute to the achievement of the *network pricing objective*.	TSS Chapter 3
6.18.5(e)	Pricing Principles For each *tariff class*, the revenue expected to be recovered must lie on or between: (1) an upper bound representing the stand alone cost of serving the *retail customers* who belong to that class; and (2) a lower bound representing the avoidable cost of not serving those *retail customers*.	TSS Chapter 3
6.18.5(f)	Each tariff must be based on the *long run marginal cost* of providing the service to which it relates to the *retail customers* assigned to that tariff with the method of calculating such cost and the manner in which that method is applied to be determined having regard to: (1) the costs and benefits associated with calculating, implementing and applying that method as proposed; (2) the additional costs likely to be associated with meeting demand from *retail customers* that are assigned to that tariff at times of greatest utilisation of the relevant service; and (3) the location of *retail customers* that are assigned to that tariff and the extent to which costs vary between different locations in the *distribution network*.	TSS Chapter 3
6.18.5(g)	The revenue expected to be recovered from each tariff must: (1) reflect the *Distribution Network Service Provider's* total efficient costs of serving the *retail customers* that are assigned to that tariff; (2) when summed with the revenue expected to be received from all other tariffs, permit the *Distribution Network Service Provider* to recover the expected revenue for the relevant services in accordance with the applicable distribution determination for the *Distribution Network Service Provider*; and (3) comply with sub-paragraphs (1) and (2) in a way that minimises distortions to the price signals for efficient usage	TSS Chapter 3

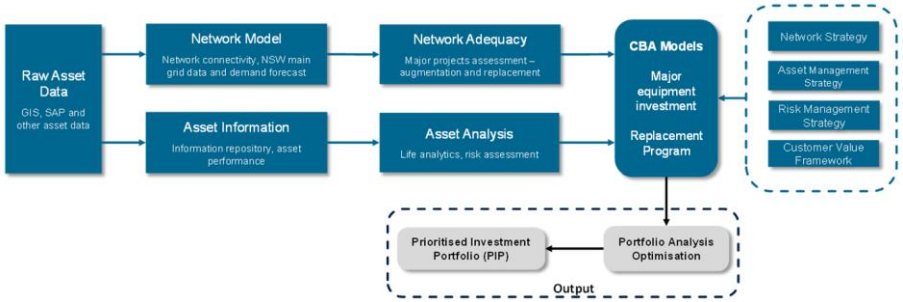
NER reference	Requirement(s)	Relevant section of Ausgrid's submission
	of the relevant service that would result from tariffs that comply with the pricing principle set out in paragraph (f).	
6.18.5(h)	A *Distribution Network Service Provider* must consider the impact on *retail customers* of changes in tariffs from the previous *regulatory year* and may vary tariffs from those that comply with paragraphs (e) to (g) to the extent the *Distribution Network Service Provider* considers reasonably necessary having regard to: (1) the desirability for tariffs to comply with the pricing principles referred to in paragraphs (f) and (g), albeit after a reasonable period of transition (which may extend over more than one *regulatory control period*); (2) the extent to which *retail customers* can choose the tariff to which they are assigned; and (3) the extent to which *retail customers* are able to mitigate the impact of changes in tariffs through their decisions about usage of services.	TSS Chapter 3, TSS explanatory statement and Attachment 8.3 bill impacts
6.18.5(i)	The structure of each tariff must be reasonably capable of: (1) being understood by *retail customers* that are or may be assigned to that tariff (including in relation to how decisions about usage of services or controls may affect the amounts paid by those customers) or (2) being directly or indirectly incorporated by *retailers* or *Market Small Generation Aggregators* in contract terms offered to those customers, having regard to information available to the *Distribution Network Service Provider*, which may include: (3) the type and nature of those *retail customers*; (4) the information provided to, and the consultation undertaken with, those *retail customers*; and (5) the information provided by, and consultation undertaken with, *retailers* and *Market Small Generation Aggregators*.	TSS Chapter 4 and TSS explanatory statement
6.18.5(j)	A tariff must comply with the *Rules* and all *applicable regulatory instruments*.	Noted
11.141	Rules consequential on the making of the National Electricity Amendment (Access, pricing and incentive arrangements for distributed energy resources) Rule 2021	
11.141.13	Basic export levels to be specified in tariff structure statements	

NER reference	Requirement(s)	Relevant section of Ausgrid's submission
11.141.13(a)(1)	For the purposes of new clause 6.18.1A(a), a tariff structure statement of a Distribution Network Service Provider that will apply during the tariff transition period for the Distribution Network Service Provider must include, in addition to the elements in new clause 6.18.1A(a): (1) for each proposed export tariff, the basic export level or the manner in which the basic export level will be determined; and (2) the eligibility conditions applicable to each proposed export tariff.	TSS Chapters 3 and 5

RIN obligations (26 October 2022)

RIN reference	Requirement(s)	Relevant section of Ausgrid's submission
4	Supporting information requirements	
4.2.5(f)	Provide the models Ausgrid has used to: … calculate the long run marginal cost estimates in Ausgrid's proposed tariff structure statement;	Attachment 8.4 and 8.5 LRMC models
4.11	Proposed tariff structure statement	
4.11.1	Provide and describe the methodology and assumptions used to prepare the long run marginal cost estimates in Ausgrid's tariff structure statement.	Attachment 8.6 Houston Kemp LRMC paper
4.11.2	Describe the relationship between the expenditure, demand and other inputs (as appropriate) used in the model provided under this section and the expenditure, demand and other forecasts (as appropriate) provided as part of the building block proposal for the forthcoming regulatory control period.	TSS Appendix B RIN.11 Houston Kemp LRMC paper
4.11.3	If Ausgrid calculates the long run estimate cost estimates using a method different from the Average Incremental Cost method, Ausgrid must provide all inputs, definitions and sources for inputs, a description of the methodology, and calculations for every stage of the methodology in the in the materials submitted to the AER.	Attachment 8.6 Houston Kemp LRMC paper Attachment 8.4 and 8.5 LRMC models
4.11.4	Describe the methods and assumptions used to derive the disaggregated capex beyond the forthcoming regulatory control period. Provide any model(s) used to derive such capex.	TSS Appendix B Attachment 8.4 and 8.5 LRMC models
4.11.5	Describe the methods and assumptions used to derive the disaggregated opex beyond the forthcoming regulatory control period. Provide any model(s) used to derive such opex.	TSS Appendix B Attachment 8.4 and 8.5 LRMC models
4.11.6	Describe the methods and assumptions used to derive the disaggregated demand beyond the forthcoming regulatory control period. Provide any model(s) used to derive such demand.	TSS Appendix B Attachment 8.4 and 8.5 LRMC models

B. Appendix: Supporting information to LRMC inputs

4.11	RIN obligation	Responses
4.11.2	Describe the relationship between the expenditure, demand and other inputs (as appropriate) used in the model provided under this section and the expenditure, demand and other forecasts (as appropriate) provided as part of the building block proposal for the forthcoming regulatory control period.	The demand forecast is a critical set of information required to determine the need for investments to augment the network. This is combined with data that describes the performance of the existing network (i.e. asset life, asset capacity, connections, load transfer capabilities, failure rates, repair times, etc) in a model that forecast the performance of the current network to determine the level of supply risks posed to customers. The model identifies and quantifies the risks (i.e. supply risks measured as expected unserved energy, safety risks, environmental risks, etc). The consequences of these risks are converted into economic impact measured in dollars and included as benefits in a Cost-Benefit Analysis, because the reduction of these risks is a benefit to the market (i.e Ausgrid and its customers). Ausgrid applies Cost-Benefit Analysis to make capital investment decisions in network assets. This is the approach to determine if network augmentation investments are required at the subtransmission and distribution levels. These investment decisions are in-turn included in a Prioritised Investment Portfolio (PIP). A high-level description of the process and the relationships between demand, expenditure and other inputs is provided in the diagram below. 

4.11.4	Describe the methods and assumptions used to derive the disaggregated capex beyond the forthcoming regulatory control period. Provide any model(s) used to derive such capex.	Once the network constraint triggering network augmentation is identified, an Options Analysis is performed to identify the network solutions capable of resolving the constraint. Both network and non-network solutions or options are considered. Generally, the parameters considered to identify network options are capacity/size (MVA), site specific conditions (space available, access difficulties) and timeframe required to deliver the solution. Opportunities are also sought to improve network arrangement, potential for staging of investments and/or potential for implementing holistic solutions addressing multiple issues. Multiple options are considered at the initial stage, but as the assessment considers the magnitude of the investment or the ability to deliver the solution at the required time, some of the initial proposals are filtered and not pursued any further. After that, only few options are considered for comparison in an economic analysis, which is undertaken to determine the option that maximises the market benefit. In some cases, preliminary investigations are carried out to gain a better understanding (and refined cost estimates) of the feasibility of an option prior to economic analysis. All options require an estimation of the investment costs required to procure, install and commission new assets. Ausgrid's cost estimation is based on unit rates and building blocks of network assets that are updated regularly, based on previous projects undertaken in previous years, and consideration of market conditions (i.e. available suppliers, commodity prices, inflation, etc). The latest set of unit rates is uploaded in a cost estimation model (SAP Analytics Cloud or SAC) jointly developed by Ausgrid with consultants, which also take into consideration the typical construction timeframes to develop the cash flow of the proposed investment over the construction period.
4.11.5	Describe the methods and assumptions used to derive the disaggregated opex beyond the forthcoming regulatory control period. Provide any model(s) used to derive such opex.	Consideration is given to include a high-level estimate of preventative maintenance, including an allowance for regular inspections and to undertake a maintenance program. In general, a percentage relative to the capital cost of the asset is used to derive opex for network assets. This percentages are usually between 0.5% and 2%, depending on the network asset type. For instances, the lower value is usually assigned for underground cables because they are less prone than other assets to have breakdowns. These values are included in the economic analysis to determine the Net Present Value of the options in the Options analysis, but generally they are not material relative to the capex values.
4.11.6	Describe the methods and assumptions used to derive the disaggregated demand beyond the forthcoming regulatory control period.	Forecasted demand across the network is disaggregated into 3 voltage levels namely Low Voltage (LV), 11kV High Voltage (HV) and 33kV and above Subtransmission (ST), and segmented into the 25 area plans to facilitate the calculation of LRMC. Zone substation, subtransmission substation, and HV customer forecasted demand is produced as per methodology and assumptions outlined in Attachment 5.6.a - Maximum Demand Forecast.

	Provide any model(s) used to derive such demand.	For disaggregation to LV and 11kV HV demand: a) 11kV HV customer load at time of system peak for the latest processed year is extracted from metering interval data and aggregated by connecting zone substation b) Zone substation actual peak demand for the latest processed year is extracted from forecasting system c) The ratio of 11kV HV demand at a zone substation as a percentage of total the zone substation demand is calculated d) Zone substation forecast demand for each year is diversified to system peak e) 11kV HV ratio is applied to forecasted zone substation demand to calculate the forecasted HV demand f) Zone forecast demand minus the calculated forecast HV demand at the location is the residual LV forecast demand g) HV forecast demand and LV forecast demand for each zone substation and each year is aggregated by 25 area plans For disaggregation to ST demand: h) Forecast demand for subtransmission customers connected at 33kV and above is extracted from forecast system, diversified to system peak, and categorised by area plan i) Forecast demand in h) is adjusted for known major customer connections forecasted to occur at 33kV and above j) Forecast demand for each forecast year in i) is aggregated to ST forecast demand by 25 area plans