

# Energex

## Information Guide for Standard Control Services

1 July 2018 to 30 June 2019



positive energy

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## Version control

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# 1 Introduction

The purpose of this document is to assist stakeholders better understand how our network charges are calculated. It sets out the basis upon which our allowed revenue for Standard Control Services (SCS) is to be recovered from our customers through our network tariffs for the period 1 July 2018 to 30 July 2019.

This Information Guide should be read in conjunction with:

- Energex's 2017-20 Tariff Structure Statement (TSS) approved by the Australian Energy Regulator (AER) in February 2017 and its accompanying Explanatory Notes - The TSS sets out our tariff strategy, tariff classes, tariffs and charging parameters for the period commencing 1 July 2017 and ending 30 June 2020. It also contains information on our tariff assignment policy.
- Energex's 2018-19 Annual Pricing Proposal submitted to the AER on 29 March 2018 and approved by the AER on 9 May 2018. This document provides the 2018-19 network charges developed in accordance with all the relevant rules and regulatory requirements, including the TSS.
- Energex's 2018-19 Network Tariff Guide – This document (previously known as the Tariff Schedule) includes information on our tariff classes, tariffs and tariff structures for 2018-19 in accordance with clause 6.18.9(a)(3) of the National Electricity Rules (the NER). Also, to assist customers and retailers, it provides the product codes, Ellipse and Peace codes, and the list of network services which are requested through the B2B communication channels.

These documents are available on the Energex website.<sup>1</sup>

## 1.1 Use of technical terms

On occasion, this Information Guide may use technical terms which might be unfamiliar to our readers. A glossary has been included in Appendix 3 providing definitions of the terminology used throughout this document.

It should be noted that, in this Information Guide, when discussing tariff structures, the term 'fixed connection charge' is referred as 'daily supply charge'. Similarly, the term 'volume charge' is referred as 'usage charge'. This aligns with the terminology used by the AER.

## 1.2 Overview

Energex is the Distribution Network Service Provider (DNSP) that builds, owns, operates and maintains the electricity distribution network, including the poles, wires and equipment that supply power to the growing region of South East Queensland. We provide distribution services to 1.4 million domestic and business connections, delivering electricity to a population base of around 3.4 million people.

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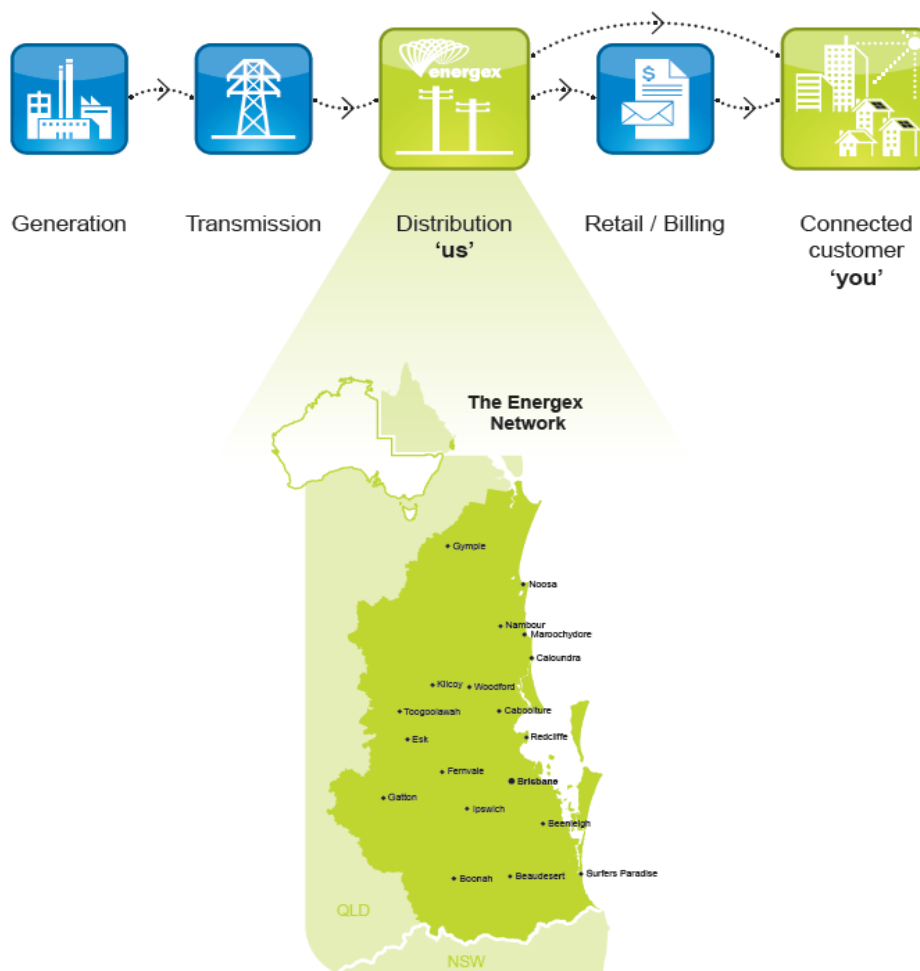
<sup>1</sup> <https://www.energex.com.au/home/our-services/pricing-And-tariffs/business-customers/pricing-publications>

Our distribution network is a part of the wider electricity supply chain. Electricity is a commodity that is generated within and outside Queensland and transported by Powerlink, the high voltage transmission network, across large distances to our distribution network. In turn, we deliver electricity at lower voltage levels to our residential and business customers in South East Queensland. We also enable connection of distributed generation such as solar PV and embedded generators.

Figure 1-1 represents the electricity supply chain from the generators to customers with electricity transported through the transmission and distribution networks, and sold to customers by electricity retailers.

**Figure 1-1 Energex distribution network**

## The electricity network in South East Queensland



Our distribution network consists of property, plant and equipment assets valued at approximately \$12 billion. Our network is characterised by:

- Connection to Powerlink's high voltage transmission network at 28 connection points
- High density/central business district (CBD) areas such as the Brisbane CBD, and Gold Coast and Sunshine Coast city areas which are typically supplied by 110/11kV, 110/33kV, 132/33kV or 132/11kV substations

- 
- Urban and rural areas where 110/33kV or 132/33kV bulk supply substations are typically used to supply 33/11kV zone substations.

In December 2015, the Queensland Government announced that it would merge its two government owned electricity corporations (GOCs), Energex and Ergon Energy. On 1 July 2016, we became a subsidiary of Energy Queensland Limited (EQL) which is the holding company for both Energex and Ergon Energy. EQL carries out administrative, corporate and management functions for Energex and Ergon Energy but does not provide distribution services.

### **1.3 Regulatory framework**

We operate within the National Electricity Market (the NEM), the longest interconnected power system in the world created which interconnects five regions: Queensland, New South Wales (which includes the Australian Capital Territory), Victoria, South Australia and Tasmania.

The AER is the economic regulator which monitors and enforces compliance of the NEM participants with all the relevant rules and regulatory obligations. Among other things, the AER approves the revenue we are allowed to recover from our customers and the maximum prices we can charge for the services we provide.

We are required under the NER to submit for review and approval by the AER an annual pricing proposal by 30 March each year. The purpose of the pricing proposal is to:

- Set out the proposed tariff classes, tariffs and charging parameters developed under the TSS.
- Demonstrate that we will recover for that year no more than the annual allowed revenue.
- Demonstrate that our prices have been developed in accordance with the requirements.
- Provide network charges for that year.

The requirements we are to comply with when developing the pricing proposal include:

- The National Electricity Law (NEL)
- The requirements set out in Chapter 6 of the NER (e.g. compliance with the pricing principles)
- Final Framework and Approach (F&A) for Energex's 2015-20 Determination
- The obligations set out in the AER Final Decision on the Energex 2015-20 Determination (Final Decision)
- The current TSS.

### 1.3.1 Tariff Strategy

On 27 November 2014, the Australian Energy Market Commission (AEMC) issued a Rule Determination requiring DNSPs to develop tariff strategies that set out how they intend to move towards more cost reflective network tariffs. Cost reflective network tariffs are intended to provide customers strong rewards for using the network more efficiently (e.g. outside peak periods), thereby reducing the need for augmenting the capacity of the network to meet future demand.

In developing cost reflective tariffs, DNSPs must base their tariffs on the incremental costs of future network investment. This concept is known as the Long Run Marginal Cost (LRMC).<sup>2</sup> LRMC signals the impact customer behaviour has on future network costs which, ultimately, can be avoided.

Our tariff strategy is to offer tariffs which include a time-of-use demand charge parameter that reflects LRMC. The structure of the new tariffs comprises:

- A fixed charge (\$/day), also known as 'daily supply charge'
- Time-of-use demand charge (\$/kW or \$/kVA per month during peak periods)
- Volumetric flat charge (cents/kWh), also known as 'usage charge'.

It is anticipated that a shift to a demand tariff structure for all customers will:

- Stabilise revenue recovery – Energex's network is experiencing a significant reduction in electricity volumes being consumed, thereby impacting the stability of volume based tariff levels
- Better reflect the cost of building the network which is based on capacity and reflect the cost of supplying the level of network service used
- Allow for better signaling of forward demand which is the basis for future network augmentation
- Improve asset utilisation
- Support the emergence of new technologies
- Reduce cross-subsidies between customers.

As part of our tariff strategy, we started introducing new cost reflective tariffs to our low voltage (LV) customers in 2016-17 with a time-of-use demand tariff for residential customers (NTC7000 – Residential Demand). In the following year, we introduced a similar tariff for small LV business customers (NTC7100 – Business Demand) in 2017-18. In 2018-19, we are continuing progressing tariff reform with two new cost reflective tariffs: the first one is an innovative seasonal time-of-use network access tariff available to residential customers (NTC6400-Residential Lifestyle), and the second one is available to large LV customers with consumption greater than 100 MWh per year (NTC7200-LV Demand). The Residential Lifestyle tariff, offered to a limited number of customers, is a departure from conventional demand-based tariffs currently offered in the NEM. It should be noted that the LV cost

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<sup>2</sup> Further details on LRMC are provided in Appendix 1 of this Information Guide.



reflective tariffs are currently offered on a voluntary basis. To access these tariffs, customers must have an appropriate Type 1-4 meter.<sup>3</sup>

In 2017-18, we introduced a new time-of-use demand tariff (NTC7400 – Demand ToU 11kV) available to 11kV Line customers. These customers have a coupling point at an 11kV feeder shared with other customers. The new tariff is offered on a voluntary basis for all existing 11kV Line customers and is the default tariff for new eligible customers. Further information on this tariff is provided in Appendix 2 of this Information Guide.

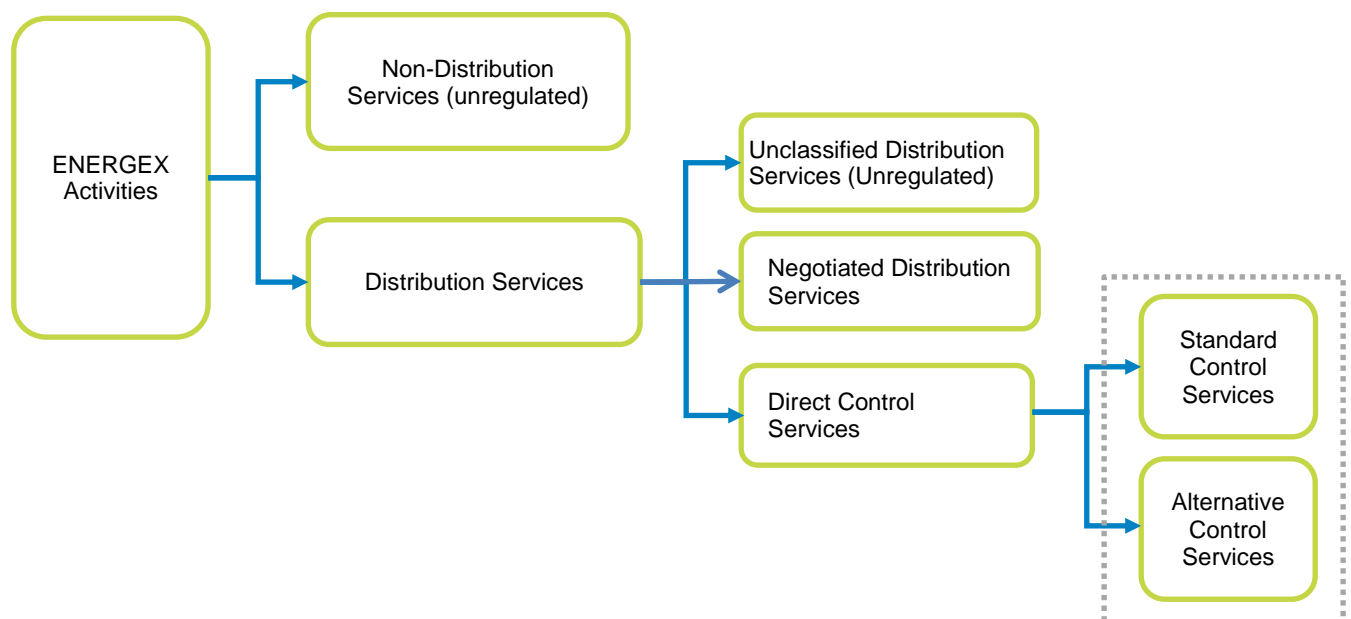
Our tariff strategy for the period commencing 1 July 2017 and ending 30 June 2020 is outlined in our TSS.

## 1.4 Classification of services

The AER determines how our services are classified and in turn the type of regulatory oversight they will be subject to. This is important as it determines how our prices will be set and how revenue is recovered from customers.

In the F&A issued in April 2014 and confirmed in the Final Decision, the AER classified Direct Control Services as Standard Control Services (SCS) or Alternative Control Services (ACS). Direct Control Services, as shown in Figure 1-2 below, are services for which the prices are approved by the AER.

**Figure 1-2 Classification of Energex's distribution services**



Services classified as SCS relate to the access and supply of electricity using our poles and wires (distribution system) to customers. Specifically, they include network services (e.g. construction, maintenance and repair of the distribution system), some connection services

<sup>3</sup> Types 1 to 4 meters are also known as 'smart meters'. They are interval meters which have the capability to record time of use energy and demand. They have communications capability allowing distributors or a third party to read them remotely.

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(e.g. small customer connections) and Type 7 metering services.<sup>4</sup> The AER applies a revenue cap form of control to SCS.

ACS are services we provide to specific customers, mostly charged on a 'user pay' basis and, therefore, do not form part of the SCS or distribution use of system (DUOS) revenue allowance. ACS include services such as Type 6 metering services,<sup>5</sup> public lighting services,<sup>6</sup> an increasing number of connection services, and ancillary services.

ACS are comprised of:

- Fee based services – One-off distribution services that Energex undertakes at the request of an identifiable customer, retailer or appropriate third-party. These services are priced on a fixed fee basis as the costs of providing the service (and therefore the price charged to customers) can be determined in advance.
- Quoted services - These services are priced on application as the nature and scope of these services are variable and the cost of providing the service (and therefore the price charged to customers) are specific to the individual requestor's needs and cannot be determined in advance.
- Type 6 metering services – These services relate to the provision, installation and on-going maintenance of Type 6 meters owned by Energex. Energex recovers its costs through daily meter services charges.
- Public lighting services – These services relate to provision, construction and maintenance of public lighting assets owned by Energex. Energex recovers its costs through a daily services charge.

More information on ACS can be found in Energex's Pricing Proposal.

It should be noted that, with regards to negotiated distribution services, the AER's role is limited to overlooking the negotiating process. It is assumed that customers in this category have sufficient market power to negotiate provision of services. We do not currently have any negotiated services.

The AER plays no role in relation to "Unclassified Services". Unclassified Services are not distribution services or are services that are contestable.

This Information Guide discusses the revenue allocation, tariff classes and tariffs for those distribution services classified as SCS.

## 1.5 Network pricing documents

Energex has published a suite of network pricing documents, some of which are regulatory in nature (e.g. TSS and Pricing Proposal) and others that have been created with a view to assist stakeholders better understand the development and application of network tariffs and charges. These documents are outlined in Figure 1-3 below.

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<sup>4</sup> Type 7 metering refers to unmetered connections where usage is estimated (includes public lighting and traffic lights).

<sup>5</sup> Type 6 meters are manually read accumulative meters which only record total electricity usage.

<sup>6</sup> The conveyance of electricity to street lights remains a SCS, while services relating to the provision, construction and maintenance of street lighting assets have been classified by the AER as ACS.

**Figure 1-3 Supporting network pricing documentation**

<b>Tariff Structure Statement</b>	<ul style="list-style-type: none"><li>• Sets out the proposed tariff classes, tariffs and tariff structures for the 2017-20 period</li><li>• Details how the proposed tariff classes, tariffs and tariff structures comply with the pricing principles</li><li>• Describes the tariff setting process for SCS and ACS</li><li>• Provides details on our tariff assignment policy</li><li>• Provides indicative prices for the 2017-20 period for SCS and ACS</li><li>• Approved by the AER in February 2017, following stakeholder consultation.</li></ul>
<b>Annual Pricing Proposal</b>	<ul style="list-style-type: none"><li>• Sets out the proposed tariff classes, tariffs and charging parameters developed under the TSS that will enable us to recover our allowed revenue</li><li>• Demonstrates compliance with the regulatory requirements</li><li>• Provides 2018-19 network charges for SCS and ACS</li><li>• Provides updated indicative price levels for each tariff and for each of the remaining regulatory years (provided in a separate Indicative Price Schedule)</li><li>• Submitted to the AER annually.</li></ul>
<b>Network Tariff Guide</b>	<ul style="list-style-type: none"><li>• Provides our tariff classes and tariffs for direct control services in accordance with clause 6.18.9(a)(3) of the NER</li><li>• Provides product codes, Ellipse codes and Peace charge codes for our services</li><li>• Provides the list of services which are requested through the B2B communication channels.</li></ul>
<b>Information Guide</b>	<ul style="list-style-type: none"><li>• Sets out the basis upon which our revenue cap for SCS is recovered from various customer groups through network tariffs</li><li>• Outlines our tariffs and charges for SCS and ACS for 2018-19</li><li>• Assists customers and retailers by providing eligibility criteria for assigning customers to tariff classes and tariffs, and product codes.</li></ul>
<b>User Guides</b>	<ul style="list-style-type: none"><li>• Provide an introduction to the current network tariffs for each customer group</li><li>• Published annually and updated as required.</li></ul>
<b>Connection Policy</b>	<ul style="list-style-type: none"><li>• Sets out the circumstances in which a retail customer or real estate developer may be required to pay a connection charge for the provision of a connection service</li><li>• Details how we calculate the capital contributions to be paid.</li></ul>

These documents are available on our website on the Pricing Publication page.<sup>7</sup>

<sup>7</sup> <https://www.energex.com.au/home/our-services/pricing-And-tariffs/residential-customers/pricing-publications>

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## 2 Tariff classes and tariffs for Standard Control Services

This chapter discusses Energex's tariff classes, tariffs and tariffs structures for SCS in alignment with the TSS.

### 2.1 Overview

Energex has approximately 1.4 million residential and business customers, with a range of different characteristics. To minimise transaction costs, we group customers that have similar characteristics together so that similar customers are assigned to the same tariff classes and tariffs within each tariff class.

#### 2.1.1 Tariff classes

At the broadest level we differentiate between tariff classes based on the voltage level at which a customer is connected to the network and the amount of electricity that they consume annually.

The key voltage levels used for tariff setting purposes are the sub-transmission; high and low voltage levels of the network. The majority of Energex's customers – residential and small business – are connected at the low voltage level of the network, with a relatively small number of large business customers connected at the sub-transmission or high voltage levels of the network.

#### 2.1.2 Tariffs

Once we have grouped our customers into tariff classes, we determine the number of tariffs (and associated structures) that will be made available to each tariff class.

We generally have more than one network tariff available to customers in each tariff class, recognising that some tariffs may not be appropriate for a customer given the capability of the meter attached to their premises or the customer's particular connection characteristics. For example, a customer with a basic meter cannot access a Time of Use (ToU) or demand tariff because the customer's meter cannot record consumption by time of day or half hourly demand.

#### 2.1.3 Tariff structures

Each network tariff has its own particular tariff structure, representing how customers are charged for their use of the network and reflecting customer preferences. The components of each tariff constitute its tariff structure.

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## 2.1.4 Charging parameters and levels

The individual charges and settings within each network tariff are known as the tariff charging parameters. The charging parameters that may be used when constructing network tariffs include a combination of the following:

- Daily supply charge
- Flat usage charge
- ToU energy charge
- Demand charge
- Capacity charge
- Network access allowance<sup>8</sup>
- Summer peak top-up.<sup>9</sup>

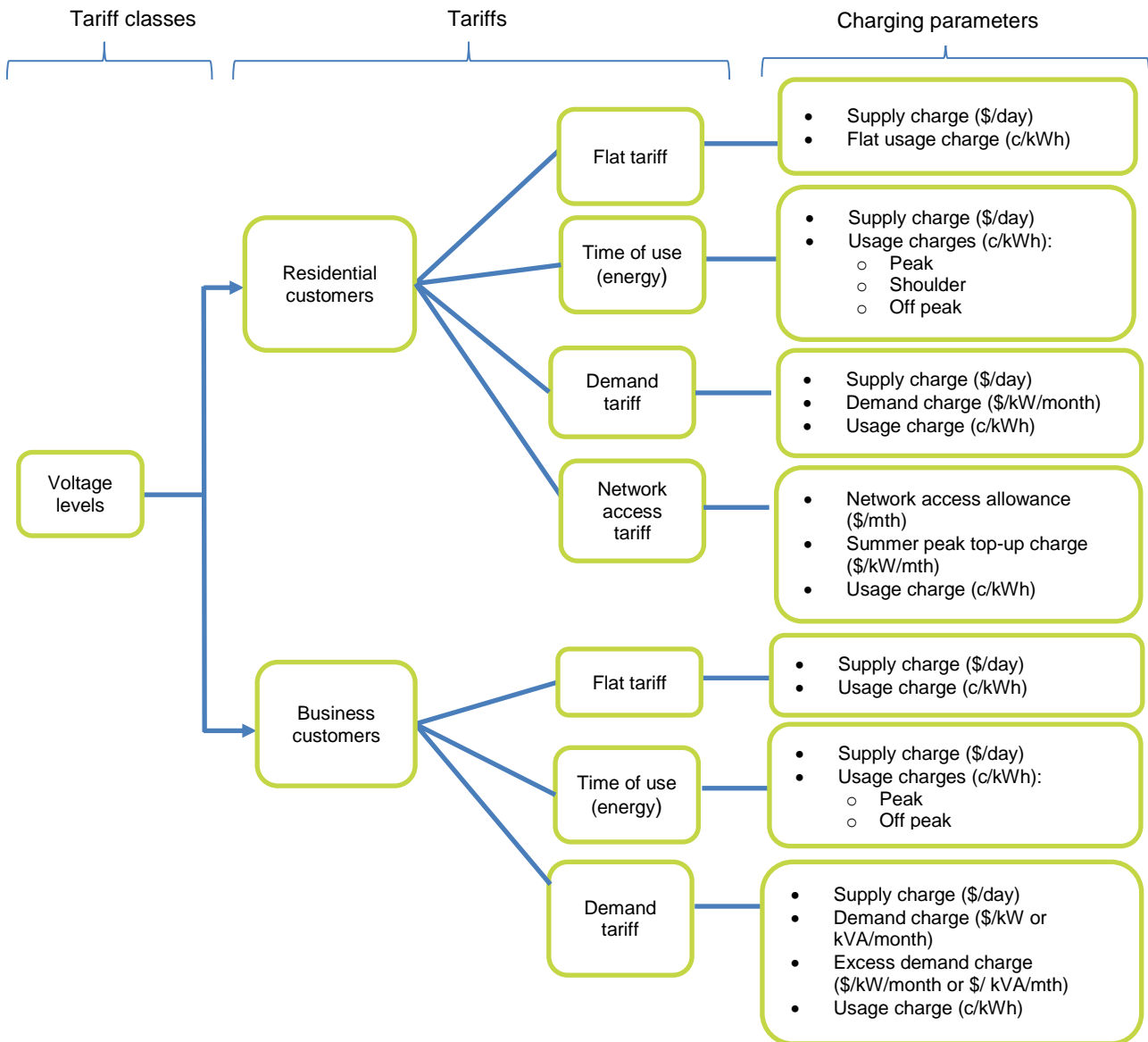
Tariffs classes, tariffs and tariff structures are presented in Figure 2-1 below.

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<sup>8</sup> Used for the Residential Lifestyle tariff.

<sup>9</sup> Ibid

**Figure 2-1 Tariff classes, tariffs and associated structures**



Source: Based on AEMC, Rules Determination – National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014, 27 November 2014.

**Daily supply charge (also known as connection or fixed charge):**

The daily supply charge is a \$/day charge applied regardless of usage to each energised connection point.

There are a number of ‘fixed’ costs that Energex must recover for assets that have already been built and must be maintained for a long period of time. The daily supply charge reflects the costs associated with the provision of connection services.

For small customers, daily supply charges are designed to recover costs associated with a customer’s connection to the network and portions of the residual shared network costs. A daily supply charge provides multiple benefits such as:

- 
- It provides a level of stability to small customer bills and mitigates customer impact.
  - It is a concept that is familiar to customers.
  - It is non-distortionary to the price signal.

For large customers, daily supply charges reflect the capital, and operating and maintenance (O&M) costs associated with the connection assets funded by Energex which are specifically attributable to individual customers. Connection assets contributed by customers only incur an O&M charge.

As previously noted in Section 1.3.1, on 1 July 2017 we introduced a new voluntary tariff available to 11kV Line customers: NTC7400 Demand ToU 11kV. The daily supply charge for this tariff is recovered through a capital charge applied to the customer's non-contributed connection asset (replacement) value (NCCAV), and an operation and maintenance charge applied to the customer's total connection asset (replacement) value (CAV). Further information on this tariff is provided in Appendix 2.

### **Demand charges:**

Peak demand is an indicator of network capacity and therefore a key driver of future network augmentation. Network expansion becomes necessary where there is a likelihood of demand exceeding available network capacity.

Demand charges are reflective of augmentation costs associated with customer demand activity. Demand charges are levied on the basis that network users who place greater pressure on the network should incur higher charges.

This is a monthly charge calculated as a \$/kilowatt (kW) or \$/kilovolt ampere (kVA) rate for the maximum (or peak) demand recorded at a single point in time at a customer's connection point. This is the key difference with usage charges which are measured over a period of time. The peak demand for ToU demand charges is recorded during network peak periods (refer to

for demand charging timeframes).

Demand charges deliver a stronger signal to customers than a usage charge alone about the incremental cost of augmenting the capacity of the network to meet future demand, reflecting the LRMC. This means that customers who place more pressure on the network by using more electricity at peak times are charged more. As a result, these charges encourage customers to reduce their maximum demand.

Further details on LRMC are provided in Appendix 1.

### **Network access (Residential Lifestyle) charges:**

#### **Network access allowance:**

The network access allowance is a feature of the Residential Lifestyle tariff. It is a monthly fixed charge (\$/month) based on the customer's nominated access band. Each access band provides different network use allowance for the 'summer peak window' defined as between

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4pm and 9pm on any day during November to March (see Table 2-11). The network use allowances for each band are shown in Table 2-12.

It is important to note that once the choice of access band is made, customers are not allowed to move to a lower

**Summer peak top-up charge:**

The summer peak top-up charge (\$/kWh) is applicable to the single maximum daily energy consumed above the limit of the customer's nominated access band during the month. This top-up charge is only applicable to network use during the summer peak window (that is, between 4pm and 9pm on any day during November to March). No top-up charge is applicable for use of the network anytime outside of the summer peak window. The rate of the top-up charge is the same, regardless of the customer's chosen network access band.

Once the network access allowance for the chosen band has been exceeded, the exceeded amount (expressed in kWh) remains available to the customer for the rest of the month until the allowance is reset back to the original nominated allowance at the start of the incoming month.

**Usage charges (also known as energy or volume charges):**

Flat usage charge:

This charge is calculated in cents per kilowatt hour (c/kWh), and is applied to the total energy used at a connection point over a billing period. This charge recovers the residual costs that have not been recovered from the daily supply charge and, for cost reflective tariffs, the demand charge.

This charge remains the same regardless of the time of the day electricity is used and does not reward customers for reducing their impact on the network during peak periods.

Time of Use (ToU) usage charge:

This charge is calculated in c/kWh, with different rates applying to the electricity consumed at a connection point at different times of the day. For small customers, ToU usage charges can recover costs that have not been recovered from a demand charge or daily supply charge.

These charges are designed to incentivise the reduction of demand on the network during peak times by encouraging customers to switch non-essential electricity consumption to off-peak and/or shoulder times.

**Capacity charge:**

This charging parameter is similar to a monthly maximum demand charge. The capacity charge reflects the amount of network capacity which is set aside for an individual customer to use at any time.



Capacity charges account for augmentation costs at the customer connection level and all associated upstream augmentation costs already incurred to provide sufficient network capacity to accommodate the customer’s demand.<sup>10</sup>

This is a charge calculated as a \$/kilovolt ampere (kVA) rate for the network capacity provided for a connection point and based on the customer’s maximum half hourly kVA power reading that occurred at a connection point in the prior 12 months. Capacity is essentially a fixed charge as it remains the same throughout the regulatory year. Capacity charge does not take into consideration the time in which the network capacity is utilised nor the long term changes in consumption behaviour.

Capacity charge is incorporated in the network tariffs of very large business customers.

## 2.2 Energex tariff classes for 2018-19

Energex’s network tariff classes have been designed to group similar customers together according to voltage level, usage profiles, and nature of the connection in accordance with the requirements set out in the NER. We have three tariff classes, namely:

- Individually Calculated Customers (ICC)
- Connection Asset Customers (CAC)
- Standard Asset Customers (SAC).

Details of our tariff classes are outlined in Table 2-1.

**Table 2-1 – 2018-19 SCS tariff classes**

Tariff class	Eligibility criteria
Individually Calculated Customers (ICC)	<p>Customers are assigned to the ICC tariff class if they are coupled to the network at 110 kV or 33 kV.</p> <p>Customers with a network coupling point at 11 kV may also be assigned to the ICC tariff class if:</p> <ul style="list-style-type: none"> <li>• the customer’s electricity consumption is greater than 40 GWh per year at a single connection; and/or</li> <li>• the customer’s annual maximum demand is greater than or equal to 10 MVA; and/or</li> <li>• the customer’s circumstances mean that their average shared network charge becomes meaningless or distorted.</li> </ul> <p>ICC tariffs are based on:</p> <ul style="list-style-type: none"> <li>• the actual dedicated connection assets utilised by the customer; plus</li> <li>• the customer’s specifically identified portion of the shared distribution network utilised for the electricity supply, including common and non-system assets.</li> </ul>

<sup>10</sup> Capacity is charged regardless of when it is required.

Tariff class	Eligibility criteria
Connection Asset Customers (CAC) <sup>a</sup>	<p>Customers with a network coupling point at 11 kV who are not allocated to the ICC tariff class are allocated to the CAC tariff class.</p> <p>CAC tariffs are based on:</p> <ul style="list-style-type: none"> <li>the actual dedicated connection assets utilised by the customers; plus</li> <li>average charges for use of the shared distribution network including common and non-system assets by the relevant tariff class.</li> </ul>
Standard Asset Customers (SAC)	<p>All customers connected at LV are classified as SACs.</p> <p>SAC tariffs are based on:</p> <ul style="list-style-type: none"> <li>average charges for dedicated connection assets; plus</li> <li>average charges for use of the shared distribution network, including common and non-system assets.</li> </ul>
<p>Note:</p> <p>a. In circumstances where a customer's connection point does not have the appropriate metering to access tariffs within the tariff class to which they are assigned, the customer may be temporarily assigned to a tariff within the SAC tariff class.</p>	

Customers who fall within the ICC or CAC tariff classes are known as Major Customers. These customers are typically large high rise residential and commercial premises, commercial, industrial or public infrastructure developments or large embedded generators (larger than 30kVA). Such connections may involve high voltage overhead or underground mains and services, distribution transformers, high voltage metering units and protection systems.

### 2.3 Tariffs and associated structures for 2018-19

Our tariffs and tariff structures for SCS for 2018-19 are provided in Table 2-2 to Table 2-9.

**Table 2-2 - Tariffs and tariff structures for customers connected at 33kV and above**

Tariff	Tariff description	Tariff structure	Charging parameter	Implementation
ICC (NTC1000)	Customers in the ICC tariff class are assigned to this tariff.	Supply charge	Unit: \$/day (these charges vary for each customer).	Default tariff.
		Capacity charge	Unit: \$/kVA/month.	
		Time-of-Use charge	Unit: c/kWh Peak and off-peak timeframes defined in Table 2-9	
		Demand charge	Unit: \$/kVA/month Quantity: Maximum kVA demand	

			measured over a 30 minute period during the billing period <sup>a</sup>	
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Note:

a. The average power used during the 30 minute period is used to calculate demand.

**Table 2-3 - SCS tariffs and tariff structures for customers connected at 11kV**

Tariff	Tariff description <sup>a</sup>	Tariff structure	Charging parameter	Implementation
11kV Bus (NTC4000)	Customers with a network coupling point at an 11 kV zone substation bus via a dedicated 11 kV feeder that is not shared with any customer.	Supply charge	Unit: \$/day (these charges vary for each customer).	Default for customers with an 11kV bus configuration.
		Demand charge	Unit: \$/kVA/month Quantity: Maximum kVA demand measured over a 30 minute period during the billing period <sup>b</sup>	
		Usage charge	Unit: c/kWh Quantity: Peak and off-peak timeframes are defined in Table 2-9	
11kV Line (NTC4500)	Customers with a network coupling point at an 11 kV feeder shared with other customers.	Supply charge	Unit: \$/day (these charges vary for each customer).	Grandfathered on 1 July 2017.
		Demand charge	Unit: \$/kVA/month. Quantity: Maximum kVA demand measured over a 30 minute period during the billing period <sup>b</sup>	
		Usage charge	Unit: c/kWh. Quantity: Peak and off-peak timeframes defined in Table 2-9	
HV Demand (NTC8000)	Previously, this tariff was allocated to 11 kV customers with energy less than 4 GWh per year and demands less than 1 MVA.  From 1 July 2017,	Supply charge	Unit: \$/day (these charges vary for each customer).	Grandfathered since 1 July 2015.
		Demand charge	Unit: \$/kVA/month. Quantity: Maximum kVA demand measured over a 30 minute period during the billing period <sup>b</sup>	

Tariff	Tariff description <sup>a</sup>	Tariff structure	Charging parameter	Implementation
	new customers with these characteristics are allocated to either NTC7400 – Demand Time-of-Use 11 kV if they share an 11 kV feeder with other customers or to NTC4000 – 11 kV Bus if they have an 11 kV bus configuration.	Usage charge	Unit: c/kWh. Quantity: kWh in billing period	
EG – 11kV (NTC3000)	Previously, this tariff was allocated to customers who were predominantly generation customers with a generation capacity greater than 30 kVA.  From 1 July 2017, new customers with these characteristics are allocated to either NTC7400 – Demand Time-of-Use 11 kV if they share an 11 kV feeder with other customers or to NTC4000 – 11 kV Bus if they have an 11 kV bus configuration.	Supply charge	Unit: \$/day (these charges vary for each customer).	Grandfathered since 1 July 2015.
		Demand charge	Unit: \$/kVA/month Quantity: Maximum kVA demand measured over a 30 minute period during the billing period <sup>b</sup>	
		Usage charge	Unit: c/kWh. Quantity: Peak and off-peak timeframes defined in Table 2-9 .	
Demand Time-of-Use 11kV (NTC7400)	Cost reflective Time-of-Use demand tariff for customers with a network coupling point at 11 kV feeders shared with other customers.	Supply charge	<u>Capital:</u> Unit: \$/day/\$M of non-contributed asset value (NCCAV). Quantity: NCCAV (\$M) and number of days in billing period.  <u>Operating and maintenance:</u> Unit: \$/day/\$M connection asset value (CAV). Quantity: NCCAV (\$M) and number of days in	Tariff offered from 1 July 2017 on a voluntary basis for all existing 11kV Line customers on legacy tariffs.  This tariff will become the default tariff from 1 July 2017 for new customers that share an 11kV feeder with

Tariff	Tariff description <sup>a</sup>	Tariff structure	Charging parameter	Implementation
			billing period.	other customers.
		Peak Demand charge	Unit: \$/kVA/month. Quantity: Maximum kVA demand measured as a single peak over a 30 minute period during charging window defined in Table 2-10.	
		Excess demand charge	Unit: \$/kVA/month. Quantity: The maximum of: <ul style="list-style-type: none"> <li>• Zero,</li> <li>• Maximum kVA demand measured as a single peak over a 30 minute period outside the peak charging windows defined in Table 2-10 minus the peak demand quantity as described above <sup>b</sup></li> </ul>	
		Usage charge	Unit: c/kWh. Quantity: kWh in billing period.	

Notes:

- a. It should be noted that connection assets are the assets required to connect an electrical installation to the shared network, and are all the assets from the connection point back up to and including the network coupling point. Dedicated connection assets are generally for the sole use of a single connection and are typically not shared by multiple connections. In circumstances where the network coupling point, and/or identification of dedicated connection assets, is unclear or contested, Energex will consider other information, including but not limited to, the customer's metering point to make a determination about the network coupling point.
- b. The average power used during the 30 minute period is used to calculate demand.

**Table 2-4 - Tariffs and tariff structures for LV customers with consumption greater than 100 MWh/year**

Tariff	Tariff description	Tariff structure	Charging parameter	Implementation
Large Demand	Tariffs available to LV customers with	Supply charge	Unit: \$/day. Quantity: Days in billing	NTC8100: Optional tariff.

Tariff	Tariff description	Tariff structure	Charging parameter	Implementation
(NTC8100) Small Demand (NTC8300)	consumption greater than 100 MWh per year.  LV customers with consumption less than 100 MWh per year may voluntarily access these tariffs.  Customers must have appropriate Type 1-4 metering to access these tariffs.		period.	NTC8300: Default tariff.
		Demand charge	Unit: \$/kVA/month.  Quantity: Maximum kVA demand measured over a 30 minute period during the billing period. <sup>a</sup>	
		Usage charge	Unit: c/kWh.  Quantity: kWh in billing period.	
LV Demand Time-of-Use (NTC7200) <sup>b</sup>	Tariff available to LV customers with consumption greater than 100 MWh per year.  LV customers with consumption less than MWh per year may voluntarily access this tariff.  Customers must have appropriate Type 1-4 metering to access this tariff.	Supply charge	Unit: \$/day.  Quantity: Days in billing period.	Tariff offered from 1 July 2018 on a voluntary basis.
		Usage charge	Unit: c/kWh.  Quantity: kWh in billing period.	
		Demand charge	Unit: \$/kVA/month.  Quantity: Maximum kVA demand measured over a 30 minute period during charging window	
		Excess demand charge	Unit: \$/kVA/month.  Quantity: The maximum of: <ul style="list-style-type: none"> <li>• Zero,</li> <li>• Maximum kVA demand measured as a single peak over a 30 minute period outside the peak charging windows defined in Table 2-10, minus the peak demand quantity as described above.<sup>a</sup></li> </ul>	

Notes:

- a. The average power used during the 30 minute period is used to calculate demand.
- b. New tariff offered from 1 July 2018.

**Table 2-5 - SCS tariffs and tariff structures for residential customers**

Tariff	Tariff description	Tariff structure	Charging parameter	Implementation
Residential Flat (NTC8400)	This tariff is the default tariff for residential customers regardless of their size and cannot be used in conjunction with Residential Time-of-Use (NTC8900).	Supply charge	Unit: \$/day. Quantity: Days in billing period.	Default tariff.
		Usage charge	Unit: c/kWh. Quantity: kWh in billing period.	
Residential Time-of-Use (NTC8900)	This tariff is available to residential customers regardless of their size and cannot be used in conjunction with Residential Flat (NTC8400). Customers must have a time-of-use capable meter to access this tariff.	Supply charge	Unit: \$/day. Quantity: Days in billing period.	Optional tariff.
		Usage charge	Unit: c/kWh. Quantity: kWh in billing period. Peak, shoulder and off-peak timeframes defined in Table 2-9 .	
Residential Demand (NTC7000)	This tariff is available to residential customers regardless of their size and cannot be used in conjunction with Residential Flat (NTC8400). Customers must have appropriate Type 1-4 metering to access this tariff.	Supply charge	Unit: \$/day. Quantity: Days in billing period.	Optional tariff.
		Demand charge	Unit: \$/kW/month. Quantity: Maximum kilowatt demand measured as a single peak over a 30 minute period during peak charging window defined in Table 2-10. <sup>a</sup>  For the first 12 months on this tariff, eligible customers' chargeable demand will be capped. Terms and conditions are provided in Appendix 3 of the Energex 2018-19 Annual Pricing Proposal.	

Tariff	Tariff description	Tariff structure	Charging parameter	Implementation
		Usage charge	Unit: c/kWh. Quantity: kWh in billing period.	
Residential Lifestyle (NTC6400) <sup>b</sup>	<p>Residential Lifestyle offers a flatter electricity bill based on smoothing of the underlying network peak charges. Customers must have a digital (type 4) meter installed and consent to monthly billing in order to access this tariff.</p> <p>This tariff is based on a network tariff where the cost of using the network is primarily linked to customer usage during the summer peak window set out in Table 2-11.</p> <p>Customers can pay for their network usage during the summer peak window through a fixed monthly charge that buys the right to use the network to transport up to an agreed amount of electricity during each summer peak window (Band 2 to 5). The option remains to pay entirely on a pay as you go basis (choosing Band 1)</p>	Network access allowance	Monthly charge based on customer's nominated band. The bands are set out in Table 2-12.	<p>The tariff is designed to operate with a smart meter.</p> <p>Once choice of access band is made, customers cannot choose a lower band until they have been on the chosen band for a full 12 months. Customers, however, can choose to move to increase their network access allowance by moving to a higher band at anytime.</p>
		Summer peak top-up charge	<p>The summer peak top-up charge is applied to the single maximum daily energy consumed above the threshold associated with the nominated band during the billing period.</p> <p>The summer peak top-up rate is the same regardless of the chosen band.</p> <p>There is no top up charge for exceeding the agreed allowance anytime outside of the summer peak window.</p> <p>Once the allocation is exceeded, the increased amount remains available for the rest of the month and then resets back to the original nominated allowance at the start of the following month.</p> <p>Applies to network use during the summer peak charging window defined in Table 2-11.</p>	
		Usage flat	Unit: c/kWh Quantity: kWh in billing period.	



Tariff	Tariff description	Tariff structure	Charging parameter	Implementation
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Notes:

- a. The average power used during the 30 minute period is used to calculate demand.
- b. New tariff offered from 1 July 2018.

**Table 2-6 - SCS tariffs and tariff structures for LV business customers with consumption less than 100 MWh/year**

Tariff	Tariff description	Tariff structure	Charging parameter	Implementation
Business Flat (NTC8500)	This tariff is the default tariff for business customers with consumption less than 100 MWh per year.	Supply charge	Unit: \$/day. Quantity: Days in billing period.	Default tariff.
		Usage charge	Unit: c/kWh. Quantity: kWh in billing period.	
Business Time-of-Use (NTC8800)	This tariff is available to business customers with consumption less than 100 MWh per year.  Customers must have time-of-use-capable metering installed to access this tariff.	Supply charge	Unit: \$/day. Quantity: Days in billing period.	Optional tariff.
		Usage charge	Unit: c/kWh. Quantity: kWh in billing period.  Peak and off-peak timeframes defined in Table 2-9 .	
Business Demand (NTC7100)	This tariff is available to business customers with consumption less than 100 MWh/year and cannot be used in conjunction with Business flat (NTC8500).  Customers must have appropriate Type 1-4 metering to access this tariff.	Supply charge	Unit: \$/day. Quantity: Days in billing period.	Optional tariff offered from 1 July 2017.
		Demand charge	Unit: \$/kW/month. Quantity: Maximum kilowatt demand measured as a single peak over a 30 minute period during peak charging window defined in Table 2-9 . <sup>a</sup>	
		Usage charge	Unit: c/kWh. Quantity: kWh in billing period.	

Note:

- a. The total power used during the 30 minute period is used to calculate demand.

The terms and conditions for unmetered supplies can be found in Appendix 1 of the Energex 2018-19 Annual Pricing Proposal.<sup>11</sup>

**Table 2-7 - Tariffs and tariff structures for unmetered tariff**

Tariff	Tariff structure	Charging parameter	Implementation
Unmetered (NTC9600)	Usage charge	Unit: c/kWh. Quantity: kWh in billing period.	Default tariff.

**Table 2-8 - Secondary tariffs and tariff structures for load control tariffs**

Tariff	Tariff structure	Charging parameter	Implementation
Super Economy (NTC9000) <sup>a</sup> Economy (NTC9100) <sup>a</sup>	Usage charge	Unit: c/kWh. Quantity: kWh in billing period.	Optional secondary tariff.
Smart Control (NTC7300)	Usage charge	Unit: c/kWh. Quantity: kWh in billing period.	Optional secondary tariff in conjunction with the residential demand tariff, NTC7000 – Residential Demand.

Note:

a. This tariff cannot be used in conjunction with NTC7000.

The terms and conditions for secondary tariffs can be found in Appendix 2 of the Energex 2018-19 Annual Pricing Proposal.<sup>12</sup>

Energex's charging timeframes for time-of-use usage and time-of-use demand tariffs are included in Table 2-2 to Table 2.10.

**Table 2-9 – Time-of-use usage charging timeframes**

Tariff	Network Tariff Code	Charging timeframes	Weekdays <sup>a</sup>	Weekends
Residential Time-of-Use	NTC8900	Off-Peak	10pm – 7am	10pm – 7am
		Shoulder	7am – 4pm, 8pm – 10pm	7am – 10pm
		Peak	4pm – 8pm	No peak

<sup>11</sup> Energex website - Pricing Publications page for residential customers: <https://www.energex.com.au/home/our-services/pricing-And-tariffs/residential-customers/pricing-publications>; or Pricing Publications page for business customers: <https://www.energex.com.au/home/our-services/pricing-And-tariffs/business-customers/pricing-publications>.

<sup>12</sup> Available on the Australian Energy Regulator's website and on the Energex website.

Tariff	Network Tariff Code	Charging timeframes	Weekdays <sup>a</sup>	Weekends
Business Time-of-Use	NTC8800	Off-Peak	9pm – 7am	Anytime
		Peak	7am – 9pm	No peak
ICC, CAC	NTC1000 NTC4000 NTC4500 NTC3000	Off-Peak	11pm – 7am	Anytime
		Peak	7am – 11pm	No peak

Note:

a. Include government specified public holidays.

**Table 2-10 - Time-of-use demand charging windows**

Tariff	Network Tariff Code	Charging timeframes	Workdays <sup>a</sup>	Weekends
Residential Time-of-Use	NTC7000	Off-Peak	8pm – 4pm	Anytime
		Peak	4pm – 8pm	No peak
Business Time-of-Use	NTC7100 NTC7200 NTC7400	Off-Peak	9pm – 9am	Anytime
		Peak	9am – 9pm	No peak

Note:

a. Workdays are weekdays but exclude government specified public holidays.

The charging timeframes for the top-up summer peak charge is set out in Table 2.11.

**Table 2-11 – Residential Lifestyle tariff summer charging window**

Tariff	Network Tariff Code	Charging timeframes	Season	Days <sup>a</sup>
Residential Lifestyle	NTC6400	Summer peak window	November to March	Any day 4pm-9pm

Note:

a. Include weekdays, weekends and government specified public holidays during summer peak window.

The customer's nominated access bands for the Residential Lifestyle tariff is found in Table 2-12.

**Table 2-12 – Residential Lifestyle Tariff Network Access Band**

<b>Network access allowance</b>	<b>Summer peak window (SPW) network allowance in the band</b>
Access Band 1	0 kWh. Does not include any allowance for use of the network to transport electricity during the summer peak window
Access Band 2	Includes network access allowance to transport up to 5 kWh in each daily summer peak window
Access Band 3	Includes network access allowance to transport up to 10 kWh in each daily summer peak window
Access Band 4	Includes network access allowance to transport up to 15 kWh in each daily summer peak window
Access Band 5	Includes access to the network to transport up to 20 kWh in each daily summer peak window

## **2.4 Assignment and re-assignment of customers to tariff classes and tariffs**

The principles and provisions governing the assignment and re-assignment of customers to or between tariff classes and tariffs are outlined in clause 6.18.4 of the NER and the AER's Final Decision.<sup>13</sup> Our tariff class and tariff assignment policy and procedures are set out in the approved Energex 2017-20 TSS.<sup>14</sup> To comply with the NER and provisions outlined in the Final Decision, our process for tariff class and tariff assignment ensures no direct control services customer can take supply without being a member of at least one tariff class.

Where a new customer connection request is received and no tariff is nominated, using the tariff assignment process, the customer will be allocated first to a tariff class and then to the most appropriate default tariff. In these instances, we will take into account the following connection characteristics:

- The nature and extent of the customer's usage.
- The nature of the customer's connection to the network (i.e. significant amount and/or capacity of connection assets).
- Whether remotely-read interval or other similar metering technology has been installed at the customer's premises as a result of a regulatory obligation or requirement.

In addition to the above, the following procedures apply:

- Customers with similar connection and usage profiles are treated equally.

<sup>13</sup> AER's Final Decision on Energex's 2015-20 Determination, October 2015.

<sup>14</sup> Energex, Tariff Structure Statement 1 July 2017 to 30 June 2020, February 2017, Chapter 5.

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- Allocation of a customer with micro-generation facilities to a tariff will be made on the same basis as other connections in so far as they have similar usage profile.
  - Where a new tariff is applied to a customer, Energex's standard practice is to apply the tariff from the next billing period.
  - New connections with no previous load history will be assigned to the appropriate default tariff based on their network agreement specifications, expected energy usage, supply voltage and meter type.
  - Instead of the default tariff, a customer will be assigned to a specific tariff for which they are eligible if requested by their electricity retailer or electrical contractor.
  - In accordance with clauses 6.18.4(a)(4) and 6.18.4(b) of the NER, assignment of customers to tariff classes and tariffs is reviewed periodically to assess if the tariff assignment is still applicable, given potential changes in usage. A change in connection voltage means that the connection is treated as if it is a new connection and the assignment process will be followed to assign the customer to a suitable tariff class.

#### **2.4.1 Assignment of generation customers**

Previously, NTC3000-EG 11kV tariff was assigned to customers who are predominantly generation customers with generation capacity greater than 30kVA. On 1 July 2015, this tariff was grandfathered with no access to new customers.

New generation customers with an installed capacity greater than 30 kVA are assigned to one of the tariffs within the ICC or CAC tariff classes depending on the voltage level of the network they are coupled to and the nature of their connection to the network.

#### **2.4.2 Zone Substation Feed**

When assigning a tariff to customers coupled to the 11kV network, we consider the feeder (either underground or overhead) which connects the customer's distribution site to the zone substation. This allows us to establish whether the customer is a 'bus customer' or a 'line customer'. A bus connection exists where the feeder is dedicated to a single connection.

In considering whether the customer is to be assigned to an 11kV Bus (NTC4000) or 11kV Line (NTC4500) tariff, we review the following:

- Identifying the feeder which connects the customer's site to the zone substation
- Verifying the number of attached connections on the identified feeder
- Confirming as to whether any network reconfigurations have been undertaken resulting in the feeder becoming dedicated to the single connection or shared with multiple connections
- The extent to which the feeder is available for connection by other customers in the future.

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## 3 SCS revenue determination

### 3.1 Overview

As previously discussed in Section 1.4, SCS are services that are central to electricity supply and therefore relied upon by most customers. Energex's SCS are regulated under a revenue cap form of price control. Revenue cap regulation limits the total revenue Energex receives each year. The revenue cap (or Total Annual Revenue or TAR) for any given year reflects Energex's efficient revenue requirement as determined by the AER, plus revenue adjustments. The resulting revenue cap is then recovered from our customers through the distribution charge, transmission charge and jurisdictional scheme charge.

### 3.2 Revenue Recovery

Each year, we determine our total network revenue that needs to be recovered from our customers.

Clause 6.4.3(a) of the NER requires the revenue requirement<sup>15</sup> to be determined based on the building block approach calculated in the AER's Post Tax Revenue Model (PTRM). The main components in the PTRM include:

- Regulatory depreciation (return of capital) which is determined using the straight line approach adjusted annually for inflation
- Return on capital reflecting the financing and investments costs relating to our investment in network assets
- O&M expenditure
- Tax allowance.

The annual revenue is then smoothed using the annual smoothing factor (known as the X factor) as per the PTRM and other annual revenue adjustments are applied, namely:

- The difference between forecast and actual inflation
- The updated return on debt
- Incentive scheme revenue adjustments (rewards or penalties) in recognition of our service performance
- Annual adjustments for previous years' under or over revenue recovery resulting from the difference between the actual revenue recovered and the maximum total revenue that Energex is allowed to recover in any particular year
- Any cost pass through amounts associated with the occurrence of any prescribed and nominated pass through events.

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<sup>15</sup> Also known as the "Annual Revenue Requirement" (ARR).

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The annual smoothed expected revenue plus the above adjustments become the Total Annual Revenue (TAR) which will be recovered through our distribution network charges (also known as Distribution Use of System (DUOS) charges (refer to Section 4.1 below)).

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## 4 Establishing tariff charges

The total network charges customers are charged for their use of the distribution and transmission networks are known as Network Use of System (NUOS) charges. NUOS charges are comprised of the following components:

- Distribution Use of System (DUOS) – This charge refers to the network charge attributable to the use of the distribution network. The calculation of DUOS revenue is detailed above in Section 3.2 and its allocation to tariff classes and tariffs is outlined in Section 4.1 below.
- Designated Pricing Proposal Charge (DPPC) – This charge refers to charges incurred for the use of the transmission network. It was previously referred to as Transmission Use of System (TUOS). The allocation of DPPC to tariffs is set out in Chapter 5.
- Jurisdictional Scheme – This charge refers to the amounts imposed on Energex through legislative obligations and mainly includes Solar Bonus Scheme payments. Jurisdictional Scheme amounts are discussed in Section 5.2.

### 4.1 DUOS charging component

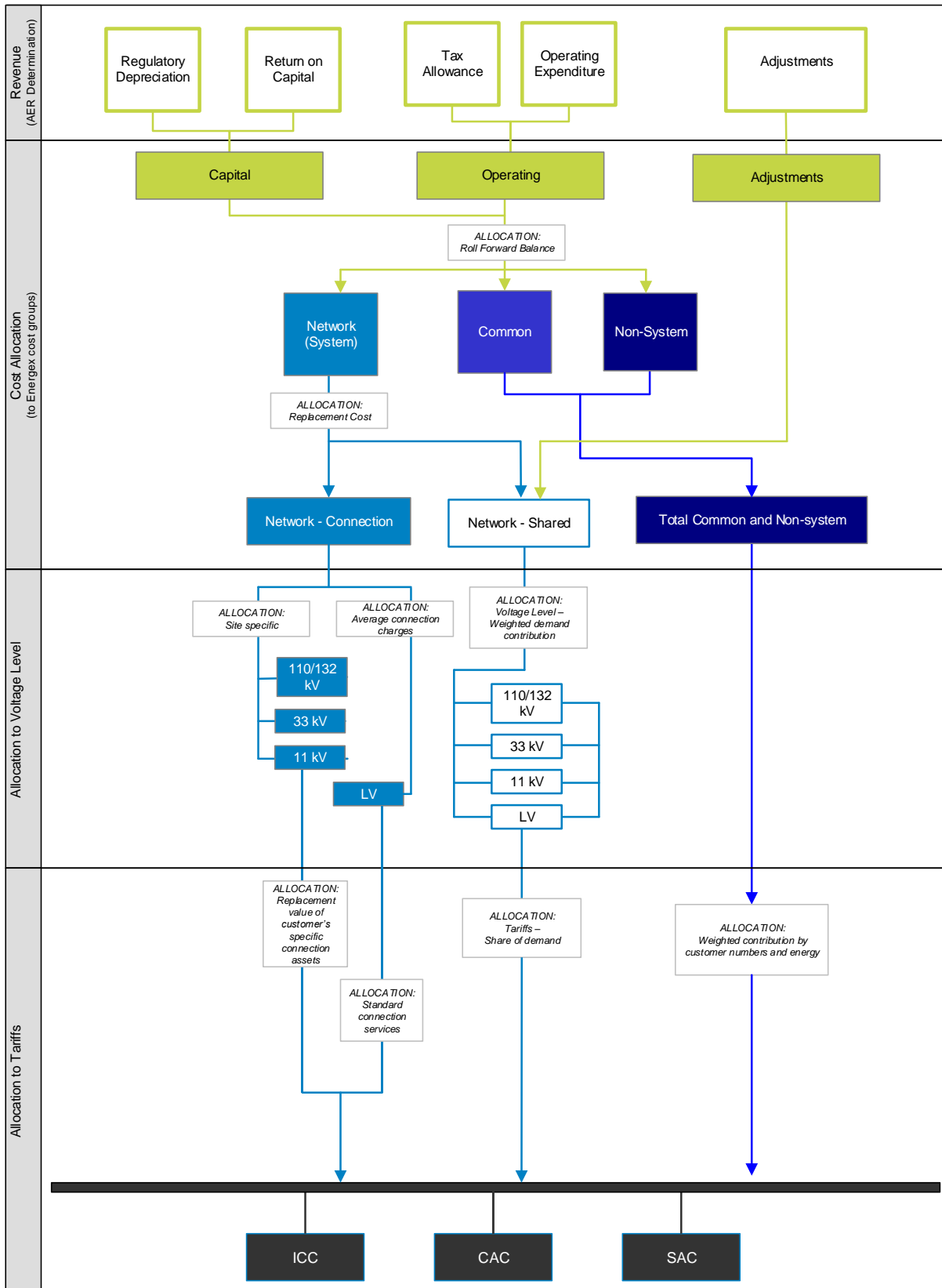
#### Step 1 – Allocation to cost groups

The DUOS charging component recovers the costs associated with connection services and/or the use of the distribution network for the conveyance of electricity (i.e. SCS).

The TAR is allocated to the network voltage levels and then to tariffs in accordance with Figure 4-1.



**Figure 4-1 Revenue allocation to tariff classes**



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The initial step in the revenue allocation process is to apportion the TAR between Energex's cost groups – System (network), and Common and Non-system - in accordance with the percentages derived using the values of the asset categories included in Energex's Regulatory Asset Base (RAB).

#### System (Network) costs:

System costs are the directly attributable costs associated with the provision of network connection and distribution services. These costs are allocated between connection assets and shared network assets based on the replacement value of the network assets.

The percentage allocated to 'System' is approximately 94 per cent, reflecting the majority of our assets being network related.

#### Common services and non-system costs:

Common services are costs associated with those system assets that benefit the system as a whole and are not directly related to any single customer or group of customers. Assets included in this category are reactive plant, load control, control centres and communications.

Non-system costs include items such as corporate support (e.g. CEO, Finance, Human Resources and Legal), customer services, IT and communications, motor vehicles and occupancy costs that are not directly attributable to the operation and maintenance of the network but which are associated with network service delivery. These costs are grouped together because the cost drivers for this set of costs are consistent and it would be impractical to manage a cost allocation stream for each of the specific components.

### **Step 2 – Allocation of system (network) costs to voltage levels and tariffs**

The allocation of System costs is done on a two-stage basis:

- 1) We allocate the System costs to the connection charge component of each tariff;
- 2) The remaining costs (known as Shared Network costs) are allocated to the voltage levels and tariffs on the basis of a weighted mixture of demand contributions.

The approach used to allocate the System costs is further detailed below.

#### Daily supply (connection) charges

Daily supply charges are calculated differently for high voltage and LV customers.

For ICC and CAC customers, daily supply charges are done on an individual basis based on the replacement value of each customer's dedicated assets. Contributed connection assets only incur an O&M charge while non-contributed asset incur a capital (return on the assets and depreciation) and an O&M charge. The approach used to calculate these charges is detailed in Section 4.2.

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For SAC customers, daily supply charges are based on the estimated costs of a standard connection service for each tariff, plus a share of the Shared Network costs. This approach ensures a greater level of stability in LV customer charges. Further details are provided in Section 4.2.2 below.

### Shared Network

Shared Network costs are the remaining costs once the daily supply charges have been deducted from the System costs plus the revenue adjustments noted in Section 3.2.

These costs are allocated to each voltage level and tariff using a weighted allocation methodology based on:

- The tariff's contribution to network peak demand referred to as the 'Coincident Peak Demand' or 'CPD contribution'. CPD is considered a good proxy for each tariff's contribution to the network augmentation. The CPD figures used in the Shared Network cost allocation model are from 2015-16; and
- The tariff's forecast average monthly maximum demands (AMMD) measured in kW. AMMD represents the customer's use of the network. The AMMD figures used in the model are updated every year.

The use of weightings in the allocation of the Shared Network costs reflects the need to balance cost reflectivity as it reflects each tariff's contribution to the network costs whilst considering price stability.

In addition, for the ICC tariff class the proportion of shared network costs is allocated to each customer on the basis of the replacement value of the system assets which are directly attributed to them. These system assets are traced from the substation the customer is connected to back to the Powerlink connection point.

It should also be noted that, in allocating the Shared Network costs from the 33kV network down to the LV network, each voltage level is apportioned a share of the upstream shared network costs.

### **Step 3 - Allocation of common services and non-system costs:**

The allocation of common and non-system costs to tariff classes is done using an allocation based on the weighted contribution of customer numbers (75 per cent) and total forecast energy (25 per cent). These weightings reflect the fact that customer numbers are the primary driver of service and non-system costs.

## **4.2 Calculation of DUOS charges**

Following the revenue allocation to tariffs, costs must be allocated to tariffs and ultimately to charging parameters in the following order of priority:

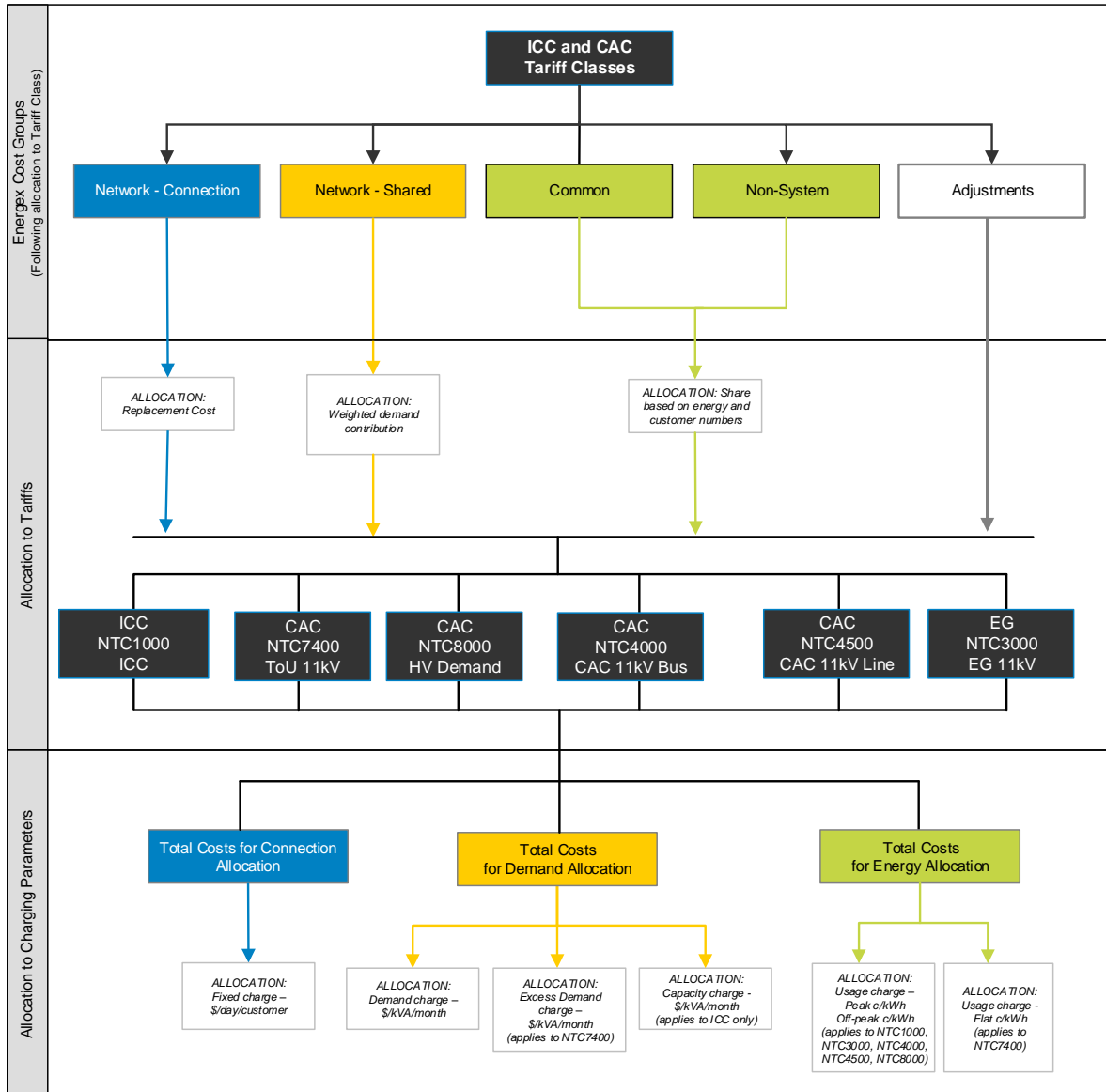
- Supply charges
- Demand charges

- Capacity charges
- Usage (volume) charges.

#### 4.2.1 ICC and CAC tariffs

The revenue allocation for the ICC and CAC tariffs down to each charging parameter is illustrated in Figure 4-2 below.

**Figure 4-2 Revenue allocation to ICC and CAC tariffs**



#### Step 1 – Calculation of the daily supply (connection) charge

For large customers on an ICC or CAC network tariff, the costs associated with the provision of connection services are charged through their daily supply charges on a site-specific basis.

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Daily supply charges consist of capital, and O&M costs associated with the provision of connection services. These costs are allocated to each individual large customer using the replacement value of their dedicated connection assets.

Connection assets are identified and assigned to each individual large customer based on information obtained from Energex's network panel diagrams and connection agreements. Connection assets can be contributed (customer funded then gifted to Energex) or non-contributed (Energex funded). Contributed connection assets only incur an O&M charge while non-contributed assets incur a capital and an O&M charge.

The replacement value of a customer's connection assets is determined based on the type and quantity of the connection assets at a particular customer site multiplied by a corresponding 'standard estimate' value. Standard estimates are an estimation of the amount of time, money and resources required to install and provide network assets, and are based on project management data and work breakdown structures encompassing labour hours, material requirements and contractor units costed at current labour, inventory and contractor rates. Corporate on-costs and overheads are added to the standard estimates in accordance with on the AER approved cost allocation methodology (CAM).

The rationale for using standard estimates rather than book values to allocate connection costs is as follows:

- Unlike asset book values, standard estimate values are expected to remain stable over time. It should be noted, however, that standard estimates are adjusted from time to time to reflect up-to-date information.
- The asset values are used in pricing for the sole purpose of allocating costs and, therefore, are not meant to be an exact reflection of the actual age and condition of each individual customer's assets. Generic in nature, standard estimates provide a high level value of connection assets when the specific particularities of each site are unknown or irrelevant.
- Assuming that a customer's connection requirements have not changed, allocating connection charges on the basis of the connection assets' replacement values provides greater stability in customer bills over time. If the book values of connection assets were used, a customer's connection charges could significantly increase when their connection assets are replaced, potentially creating financial distress for customers who did not plan for such an eventuality.
- Calculating fixed charges on the specific age and written down values of each individual connection asset is too granular. The costs of maintaining such information outweighs the benefits.
- The approach adopted by Energex aligns with the pricing principles set out in the NER. Indeed, the NER require us to develop network prices which are stable and do not widely fluctuate over time. This permits customers to make informed investment decisions and provides a degree of predictability for budgeting purposes.

Our daily supply charges should be regarded as the costs associated with the provision of connection services, rather than the provision of specific assets. The service requirements (capacity and reliability) of customers are not dependent on the age and condition of the

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assets. The level of service required by customers should be the same regardless of whether an asset is new or not. Should an asset show signs of deteriorating reliability, we will conduct greater levels of maintenance on the existing assets, or will refurbish or replace the assets without increasing the customer's connection charges.

Our allocation of connection costs to customers on the basis of the replacement value of their connection assets strikes a balance between cost reflectivity and simplicity while ensuring customers' charges are kept stable.

### Step 2 – Calculation of the demand charge

Demand charge is calculated as a \$/kilowatt (kW) or \$/kilovolt amperes (kVA) rate for the maximum (or peak) demand recorded at a customer's point of connection. For all tariffs except the ICCs, the charge is based on the Long Run Marginal Cost (LRMC). Refer to Appendix 1 for further discussion on LRMC.

The pure LRMC demand values are applied to the newly introduced cost reflective demand tariffs.

Regarding legacy tariffs, the demand charges are being transitioned over time toward the pure LRMC values. Currently the pure LRMC demand values are lower than the current demand rates of the legacy tariffs. According to the LRMC principles, the legacy tariffs are presently 'over-signalling' the demand component of network usage.

### Step 3 - Calculation of the capacity charge

Each ICC is allocated a share of the upstream shared network based on the ratio of the customer's capacity relative to the total capacity of the respective supply (substation). The ratio is then applied to the replacement cost of the traced system assets within the supply network to which the ICC is connected (see Shared Network Allocation detailed in page 27 above).

The ratio of capacity of the respective supply (substation) is based on the following formula: the customer's capacity divided by the capacity of the substation it is supplied from. In determining the customer's capacity, we use either the customer's contracted or agreed capacity or our forecast of the customer's maximum demand which is based on historical demand and any up-to-date customer related information which might assist in improving our forecast.

There may be instances when an ICC customer takes action to improve their capacity relative to other ICC customers connected to that substation. If the charge is derived using our demand forecast, the customer's reduced demand will flow through to the forecast and will ultimately be reflected in their future capacity charges. If the charge is derived using contracted or agreed capacity the customer's capacity used for pricing purposes may not change unless requested by the customer. In this case we will conduct a review of the new information brought to our attention and will determine whether the customer's requested change is justified.

If an ICC customer connected to a substation takes no action but the relative capacity of other ICC customers connected to that substation increases, the customer's ratio will not

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change as the customer's capacity has not changed and their share of the shared network costs will remain the same.

#### Step 4 – Calculation of the usage (volume) charge

For the ICC tariff, the common services and non-system costs which are allocated to the ICC tariff are charged on a cent per kilowatt hour (c/kWh) basis via the usage charging parameter.

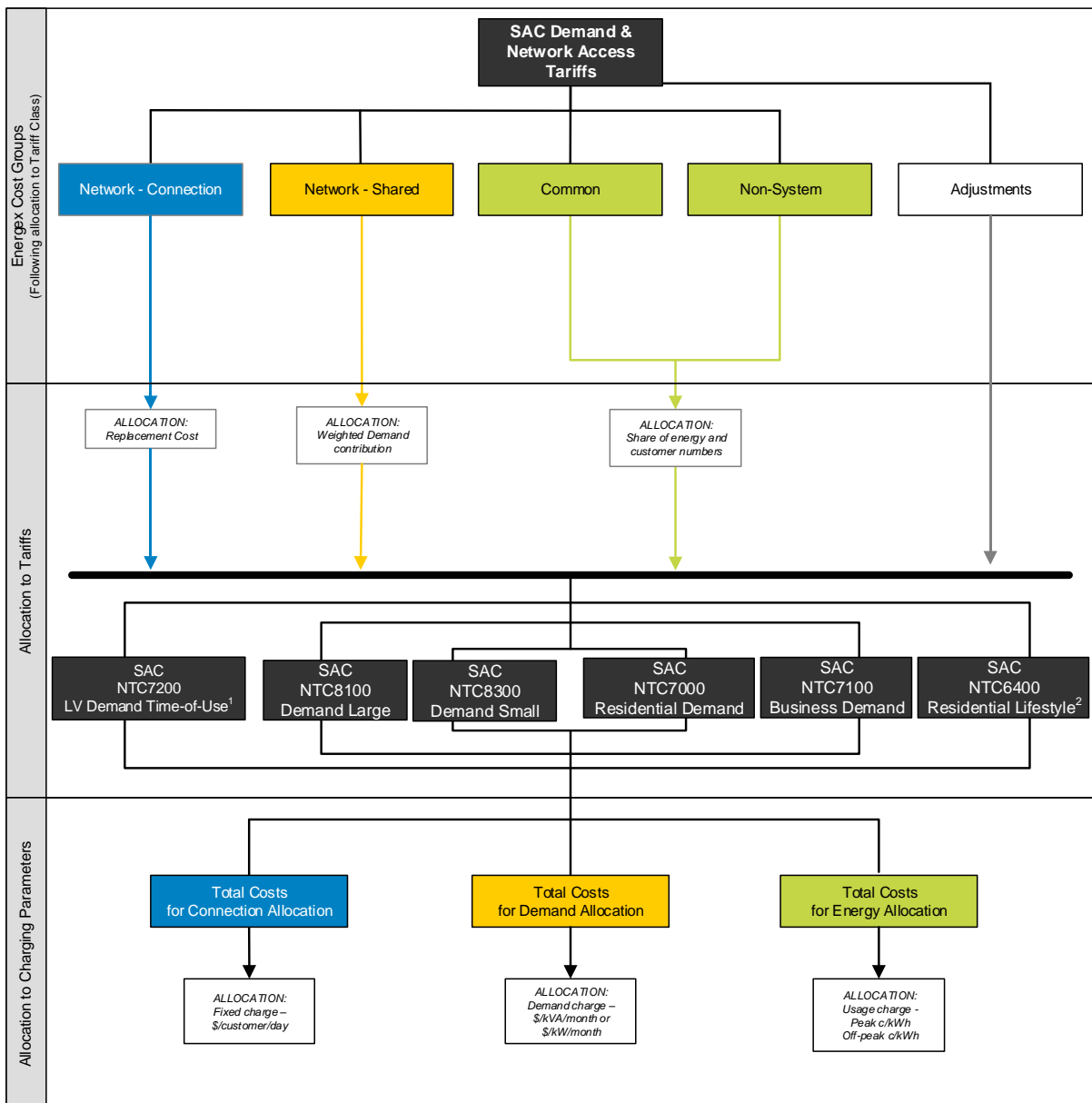
For the CAC tariffs, the common services and non-system costs are combined with the residual costs (residual costs are the costs left after the allocation of the shared network costs to the demand charging parameters) and allocated on a volumetric basis through the usage charging parameter.

The usage rates for each tariff are derived using the estimated tariff consumption for the forthcoming year.

#### **4.2.2 SAC tariffs**

The revenue allocation for the SAC tariffs down to each charging parameter is illustrated in Figure 4-3 and Figure 4-4 below.

**Figure 4-3 Revenue allocation to SAC demand and network access tariffs**

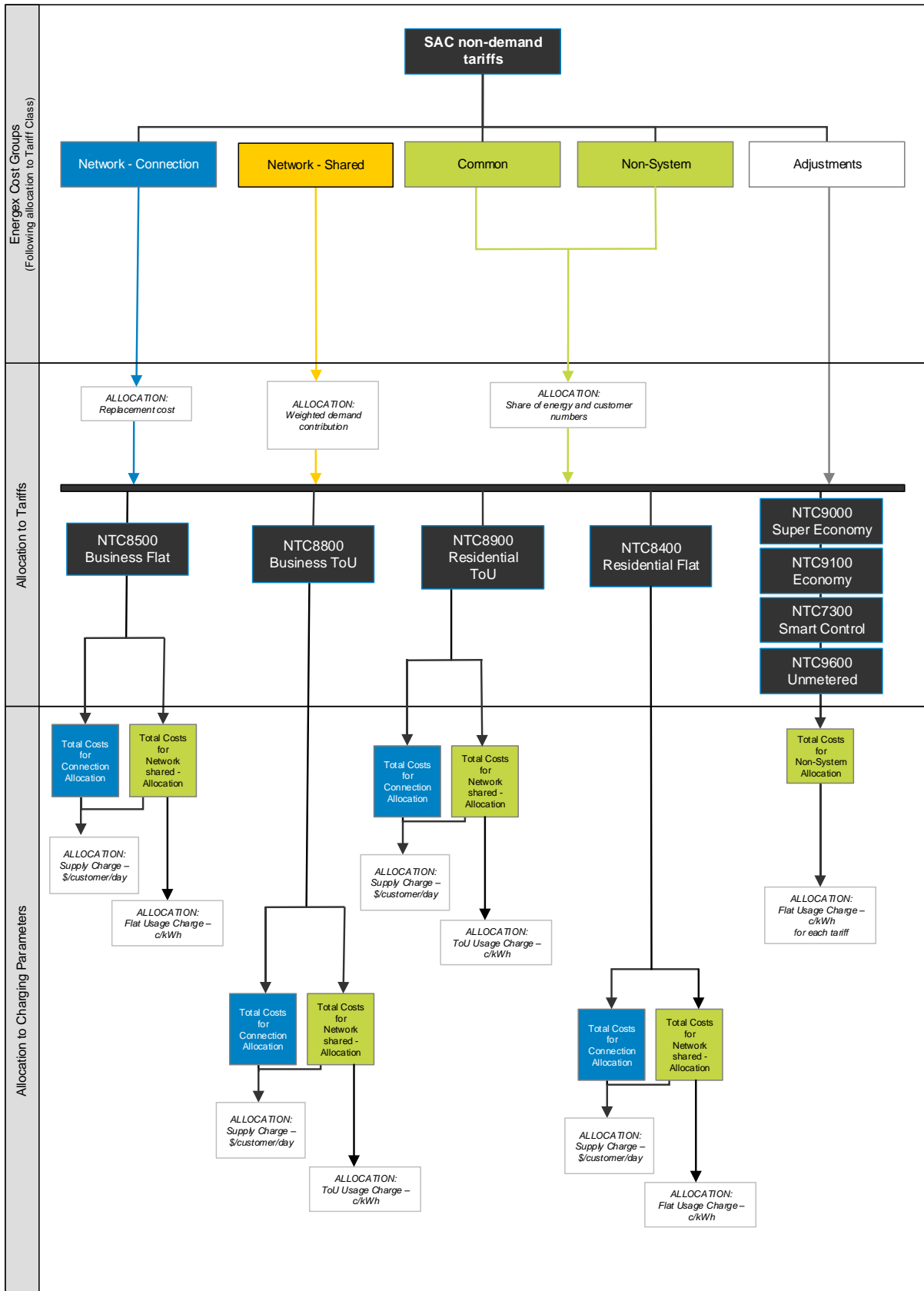


**Note:**

1. New demand-based tariff introduced on 1 July 2018
2. New network access tariff introduced on 1 July 2018



Figure 4-4 Revenue allocation to SAC volume-based tariffs



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### Step 1 – Calculation of the daily supply charge

With the exception of the Residential Lifestyle tariff, the daily supply charges for the tariffs in the SAC tariff class are not based on each individual customer's actual connection assets but, rather, on the estimated customer capacity requirements. This approach ensures transaction costs are minimised.

It should be noted that the SAC daily supply charges also include some level of residual costs. This provides greater stability in revenue recovery from this tariff class. SAC customers tend to have low supply charges relative to their Shared Network costs, this results in higher residual costs to be recovered from the usage charges which, being dependent on volumes, can experience significant fluctuations. Including some of the residual costs to the supply charge reduces the risk of volatility to SAC customers.

### Step 2 – Treatment of LRMC in the SAC tariff charges

#### Calculation of the demand charge for SAC demand tariffs

The approach we use to calculate the demand charge for SAC demand tariffs is the same as that detailed for ICC and CAC tariffs in Section 4.2.1 above (Step 2).

Calculation of the Residential Lifestyle tariff charges LRMC is used in the calculation of both the network access allowance bands in \$/month and the summer peak top-up charge in \$/kWh/month.

The monthly network access allowance (band) charges are comprised of a mixture of (1) LRMC and (2) residual revenue recovery in the following manner:

- The diversified monthly LRMC value in \$ per kW per month is converted into a monthly volumetric unit value in \$ per kWh per month which is multiplied by each band's upper kWh monthly limit, plus
- 75 per cent of the residual costs have been set to be fixed (the other 25 per cent is recovered through the volume [usage] charge). . The residual component of the fixed charge is the same for all network access bands.

The summer peak top-up charge (expressed as \$/kWh/month) is based on the pure LRMC value and is applied to the maximum single day volume consumed between 4pm to 9pm **above** the nominated network access band during a summer peak month (November to March). It is derived based on recovering an annual LRMC value over the smaller five month summer peak season (November to March).

### Step 3 – Calculation of the usage charge

With the exception of the Residential Lifestyle tariff, the approach used to calculate the usage charge for SAC tariffs is the same as that detailed for the CAC tariffs in Section 4.2.1 above (Step 4). For the Residential Lifestyle tariff, 25% of the residual costs have been set to be recovered through the volume (usage) charge.

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## 5 DPPC (or TUOS) and Jurisdictional Schemes

In addition to the costs relating to the distribution network, we recover the following costs:

- Designated Pricing Proposal Charge (DPPC) – Costs incurred for the use of the transmission network.
- Jurisdictional Scheme – The amounts imposed on Energex through legislative obligations.

The allocation of these costs to tariffs and charging parameters is discussed below.

### 5.1 Recovery of DPPC amounts

We are allowed to recover Powerlink's transmission network costs from our customers via a separate charge: Designated Pricing Proposal Costs (DPPC) charge.<sup>16</sup>

The revenue to be recovered by Powerlink is determined by the AER and passed through to our customers through network charges.

Due to timing reasons, Energex's transmission cost recovery included in our pricing proposal is based on a forecast of DPPC revenue for each year, adjusted for over or under recoveries two years later. The over or under-recovery mechanism enables Energex to recover from (or return to) our customers for each regulatory year the difference between the forecast and actual DPPC revenue from two years prior.

The allocation of DPPC to ICC customers is based on the direct pass-through of Powerlink advised charges.

For CAC and SAC tariffs, the allocation is done based on a combination of demand and volume proportions of each tariff relative to the total combined CAC and SAC tariff classes.

Once DPPC revenue has been allocated to each tariff, it is further broken down into the charging parameters within each tariff. For example, for CAC tariffs DPPC is allocated in the following order of priority:

1. Demand charge in \$/kVA per month
2. Daily supply (fixed) charge in \$ per day
3. Usage (volume) charge in cents per kilowatt hour (c/kWh).

The order of revenue recovery from the above charging parameters matters because under the revenue cap mechanism, it is the last of the charge parameters that becomes the element that is used to recover the 'residual' revenue.

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<sup>16</sup> DPPC was previously known as Transmission Use of System (TUOS) charges.

### 5.1.1 DPPC demand charge

In compliance with the pricing principles set out in the NER, we pass on DPPC in a manner that is non-distortionary to the pricing signal. Accordingly, the DPPC demand charge is used to signal the incremental cost of augmenting the transmission network.

The DPPC demand charge (\$/kVA/month or \$/kW/month) for new cost reflective tariffs is set to 100 per cent DPPC LRMC while legacy tariffs are on a transition path towards the pure diversified transmission LRMC.<sup>17</sup> This value is multiplied by the customer's total billable kVA or kW demand forecast to derive the total revenue allocated for recovery from DPPC demand charges.

Once the DPPC LRMC-based demand revenue has been calculated, the remaining revenue needs to be recovered from the daily supply (fixed) and usage (volume) charges.

### 5.1.2 DPPC daily supply (fixed) charges

For CAC tariffs, the DPPC costs allocated to the daily supply charges is based on forecast demand for each connection as a proxy for capacity. Total DPPC revenue allocated to daily supply charges for each tariff is divided by the total forecast demand for the tariff and then divided by 12 to derive a \$/kVA/month rate for the tariff. This rate is multiplied by the forecast monthly kVA demand for each connection, multiplied by 12, and divided by 365 to obtain the site specific daily rate. In summary, the DPPC daily supply rate is 'pegged' to (forecast) demand. The higher the forecast demand is the higher the DPPC daily supply rate will be.

For SAC tariffs, the DPPC costs allocated to the daily supply charges is based on historical levels adjusted for the annual Powerlink revenue levels.

For the Residential Lifestyle tariff, DPPC is recovered from both the capacity allowance charges and the usage (volume) charge.

### 5.1.3 Usage (volume) charges

'Residual revenue' (total tariff allocated DPPC revenue minus the amount of DPPC revenue recovered from the demand charge minus the amount of DPPC revenue recovered from the daily charge) is divided by total forecast volume for the tariff to obtain a c/kWh usage rate for the tariff.

## 5.2 Jurisdictional schemes

Jurisdictional schemes are certain programs implemented by state governments that place legislative obligations on DNSPs. For Queensland, this includes:

<sup>17</sup> Long run marginal cost (LRMC) is a price signal based on the estimated future cost of augmenting the network to provide sufficient capacity for one additional customer to connect to the network or an additional MW of demand. LRMC is considered to be a variable cost which can be avoided if future peak demand (the main driver of network augmentation investment) is reduced.

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- The Solar Bonus Scheme (SBS) – this scheme obligates Energex to pay a feed-in tariff (FiT) for energy supplied into its distribution network from specific micro-embedded generators
  - Energy Industry Levy – Energex is obligated under its Distribution Authority to pay a proportion of the Queensland Government’s funding commitments for the Australian Energy Market Commission for the work it performs under the National Energy Retail Law.

Energex is able to recover jurisdictional scheme amounts from customers via a separate Jurisdictional Scheme charge.

It should be noted that on 31 May 2017 we received a direction from the Queensland Government not to pass on the jurisdictional scheme charges to customers in our network tariffs. The Queensland Government will instead subsidise the cost of the scheme until at least 2020. Consequently, from 1 July 2017 the jurisdictional scheme rates in our network tariffs will be set to zero.

# Appendix 1: Long run marginal cost

Clause 6.18.5(f) of the NER requires Energex to incorporate long run marginal cost (LRMC) into its network tariffs. LRMC represents the future cost of augmenting the network has sufficient capacity to service forecast additional demand. The NER define this economic concept in Chapter 10 as follows:

*The cost of an incremental change in demand for direct control services provided by a Distribution Network Service Provider over a period of time in which all factors of production required to provide those direct control services can be varied.*

The NER do not prescribe any particular approach to be used by DNSPs in calculating LRMC. However, the NER require the method of calculating LRMC to have regard to:

- The costs and benefits associated with calculating, implementing and applying that method as proposed
- 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 part of the distribution network
- 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.

The remainder of this Appendix 1 details the approach used by Energex in setting DUOS LRMC.

## Energex's approach

Energex has estimated LRMC values at voltage level using the Average Incremental Cost (AIC) method. This is consistent with the approach used by other DNSPs.

The AIC approach captures the average change in expenditure arising from increases in peak demand. Energex believes that the adoption of the AIC approach aligns with other electricity distributors.

### Equation A3.1 - LRMC: average incremental cost method

$$\text{LRMC (AIC)} = \frac{\text{PV(Capex)} + \text{PV(Opex)}}{\text{PV(Incremental Demand)}}$$

where:

'PV (Capex)' and 'PV (Opex)' represent the Present Value (PV) costs associated with meeting future additional demand.

The augmentation capex values include the costs associated with the future growth and compliance requirements relating to:

- Sub-transmission assets (HV)
- 11kV distribution assets (11kV)
- Up-rated ground, padmount and pole top transformers (LV).

Energex uses its forecast augmentation program including the program approved by the AER in its Interim Decision for the 2015-20 regulatory control periods<sup>18</sup> It should be noted

<sup>18</sup> It should be noted that these values were further adjusted to reflect the AER's Final Decision on augmentation values.

that the augmentation costs beyond the 2015-20 regulatory control period are based on the final year of the regulatory control period, held constant.

The AER's assessment of Energex's initial TSS proposal found that the approach used by Energex to estimating LRMC was consistent with achievement of compliance with the distribution pricing principles. However it was noted that Energex had not incorporated any forward looking replacement expenditure in its LRMC estimate. While the NER did not prescribe which costs should and should not be included in LRMC estimates, the AER suggested that Energex consider incorporating replacement capex (and associated opex) to LRMC estimates in future TSSs.<sup>19</sup>

Recognising not all customers contribute to network peaks at the same time; Energex applies diversity factors to the LRMC values. This adjustment to the LRMC values ensures customers are not overly compensated or penalised for their contribution to the network peaks. Energex's estimated diversity factors for the 2017-20 period are included in Table A3.1 below.

**Table A3.1 - LRMC diversity factors**

Diversity	Tariff	Tariff description	Diversity factor
CAC	NTC3000	EG-11kV	0.8000
	NTC4000	CAC-11kV Bus	0.8000
	NTC4500	CAC-11kV Line	0.8000
	NTC7400	Demand ToU 11kV	0.8000
	NTC8000	HV Demand	0.8000
SAC	NTC8100	Large Demand	0.7750
	NTC8300	Small Demand	0.7500
	NTC7200	LV Demand ToU	0.7750
	NTC8500	Business Flat	0.7000
	NTC8800	Business ToU	0.7000
	NTC7100	Business Demand	0.7000
	NTC8400	Residential Flat	0.6500
	NTC8900	Residential ToU	0.6500
	NTC7000	Residential Demand	0.6500
	NTC9000	Super Economy	1.0000
	NTC9100	Economy	1.0000
	NTC7300	Smart Control	1.0000
	NTC9600	Unmetered	1.0000

<sup>19</sup> Australian Energy Regulator, Draft Decision Tariff Structure Statement proposal – Energex & Ergon Energy, August 2016, pages 56-7.

The LRMC values are based on the Net Present Value of the augmentation capex and associated opex (inclusive of capitalised overheads and on-costs) from 2015 to 2023.

### **ICCs and LRMC**

LRMC is not considered relevant to the ICCs because the network has been developed to meet their current and future capacity requirements. So long as they remain within their authorised capacity, the ICCs' demand will not cause network augmentation. Conversely, a decrease in demand will not result in a reduction in network (capex and opex) costs. The costs of meeting an ICC's capacity needs are largely fixed.



## Appendix 2: Cost reflective tariffs

### NTC7200 – LV Demand Time-of-Use tariff

In accordance with the TSS, from 1 July 2018 a new voluntary cost reflective tariff, NTC7200 – LV Demand Time-of-Use, will be offered to LV large customers with consumption greater than 100 MWh per year. Since 1 July 2015, SAC large customers have been exposed to kVA-based demand charging. In response to customers' and stakeholders' expectations, the new tariff introduces time-of-use to the demand charging parameter.

The tariff structure of NTC7200 is as follows:

- Fixed charge (\$/day)
- Usage charge (c/kWh)
- Demand charge (\$/kVA/month)
- Excess demand charge (\$/kVA/month).

The charging window for the new cost reflective tariff NTC7200 is between 9am and 9pm workdays. The rationale for selecting this window is detailed in the TSS.

In addition to having a time-of-use demand charging parameter, we propose to include an excess demand rate. This excess demand rate will be cheaper than the peak demand rate, reflecting the fact that off-peak network usage is less likely to contribute to network augmentation requirements. This change would encourage customers with discretionary load to move their network usage into off-peak hours.

The excess charge is based on the maximum of:

- Zero,
- Maximum kVA demand measured as a single peak over a 30 minute period between 9 pm and 9 am on workdays or anytime on non-workdays, minus the peak demand quantity.

Small customers may voluntarily access this tariff. Customers must have appropriate Type 1-4 metering to access this tariff.

### NTC6400 – Residential Lifestyle tariff

The main feature of the Lifestyle Tariff is to create a link between the cost of using the network and a customer's daily usage (expressed in kWh) of the network between 4pm and 9pm on any day in the summer season of November to March (the summer peak window). Customers can pay for their network usage during the summer peak window entirely on a pay as you use basis (choosing Band 1) or on a smoothed basis by paying a higher monthly charge (nominating Bands 2 to 5) that buys the right to access the network up to an agreed allocation of energy during the summer peak window.

If a customer's use of the network exceeds the summer peak window allocation, a top-up charge will apply. There is no top-up charge for use of the network anytime outside of the summer peak window (April to October).

The Residential Lifestyle tariff consists of three charging parameters:

- A network access allowance (a fixed charge in \$/month, which varies depending on the customer's nominated network access band for the summer peak window (see Table 2-11)
- A summer peak top-up charge (in \$/kWh)
- A usage charge (in \$/kWh, applied to all metered consumption for the billing period).

### **NTC7400 – Demand ToU 11kV**

As of 1 July 2017, we are offering a new voluntary cost-reflective tariff (NTC7400 – Demand ToU 11kV) only available to 11 kV line customers that share a feeder. This new tariff is not suitable for customers with a coupling point at an 11kV substation with a dedicated feeder as these customers' particular connection characteristics impact the way costs are allocated to them.

The tariff structure of NTC7400 is as follows:

- Supply charge (\$/day/\$M-CAV and \$/day/\$M-NCCAV)
- Demand charge (\$/kVA/month)
- Excess demand charge (\$/kVA/month)
- Usage charge (c/kWh).

The rationale for setting the elements forming part of the charging parameters for the new CAC tariff is provided below.

#### **Daily supply charge**

As part of the development of the 2017-20 TSS, we received feedback from customers that the ability to budget for future electricity costs is critical to business operations. The existing structure of the DUOS daily supply charge is individually calculated for each customer each year which makes it difficult for customers to forecast their charges. In response, we propose to charge a capital charge (\$/NCCAV/day), and an operation and maintenance charge (\$/CAV/day).

As a result of customers having a common capital charge and operation and maintenance charge, we expect to require far fewer network tariffs (ultimately reducing from about 400 tariffs to 1 tariff). This should improve customers' ability to estimate electricity costs over a longer period of time.

In order to provide customers with the ability to budget electricity charges in advance, it is also necessary to reform the pass through of transmission fixed charges. Consequently Energex proposes to not individually price DPPC fixed charges. The DPPC demand charge will be brought into alignment with transmission LRMC and will signal the incremental cost of augmenting the transmission network, and will match the structure of the DUOS demand charge.

## **ToU demand charge**

ToU demand tariff structure for CAC customers includes a peak demand charge during a peak period between 9 am and 9 pm weekdays. The rationale for this charging window is detailed in the Explanatory Notes accompanying the TSS (section 5.4.5).

## **Excess demand charge**

The new NTC7400 introduces the concept of excess demand charge to the CAC tariff class. This excess demand rate will be cheaper than the peak demand rate, reflecting the fact that off-peak network usage is less likely to contribute to network augmentation requirements. This change would encourage customers with discretionary load to move their network usage into off-peak hours. We anticipate that it will result in improved network utilisation and address the longer term drivers of network augmentation. Currently customers are charged the same price for demand regardless of when their maximum demand is placed on the network.

The excess charge is based on the maximum of:

- Zero,
- Maximum kVA demand measured as a single peak over a 30 minute period between 9 pm and 9 am on workdays or anytime on non-workdays, minus the peak demand quantity.

## Appendix 3: Glossaries

Table A. 1 – Acronyms and abbreviations

Abbreviation	Description
ACS	Alternative Control Service
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
CAC	Connection Asset Customers
Capex	Capital Expenditure
CPI	Consumer Price Index
DNSP	Distribution Network Service Provider
DPPC	Designated Pricing Proposal Charges (previously known as TUOS)
DUOS	Distribution Use of System
EG	Embedded Generators
FiT	Feed-in Tariff (Solar FiT) under the Queensland Solar Bonus Scheme
HV	High Voltage
ICC	Individually Calculated Customers
LRMC	Long Run Marginal Cost
LV	Low Voltage
NEL	National Electricity Law
NEM	National Electricity Market
NER	National Electricity Rules
NTC	Network Tariff Code
NUoS	Network Use of System
O&M	Operating and Maintenance Allowance (Opex)
Opex	Operating and Maintenance Expenditure
PV	Photovoltaic (Solar PV)
RAB	Regulatory Asset Base
SAC	Standard Asset Customers
SCS	Standard Control Service
STPIS	Service Target Performance Incentive Scheme
TAR	Total Annual Revenue
TNSP	Transmission Network Service Provider
ToU	Time of Use
TSS	Tariff Structure Statement
TUOS	Transmission Use of System

**Table A. 2 – Units of measurement used throughout this document**

Base Unit	Unit name	Multiples used in this document
h	hour	GWh, kWh, MWh
V	volt	kV, kVA, MVA
VA	volt ampere	kVA, MVA
var	var	kvar
W	watt	W, kW, kWh, MW

**Table A. 3 – Multiples of prefixes (units) used throughout this document**

Prefix symbol	Prefix name	Prefix multiples by unit	Prefixes used in this document
G	giga	$10^9$	GWh
M	mega	1 million or $10^6$	MW, MWh, MVA
k	kilo	1 thousand or $10^3$	kV, kVA, kvar, kW, kWh

**Table A. 4 – Definitions of terminology used throughout this document**

Term	Abbreviation / Acronym	Definition
Alternative Control Service	ACS	Customer specific or customer requested services. These services may also have potential for provision on a competitive basis rather than by the local DNSP.  This service class includes the provision, construction and maintenance of type 6 metering services, street lighting assets, and fee based and quoted services.
Australian Energy Market Commission	AEMC	A national, independent body that exists to make and amend the detailed rules for the NEM to ensure efficient, reliable and secure energy market frameworks which serve the long term interests of consumers.
Annual smoothed revenue	AR	Refer to AER, Final Decision Energex determination 2015-16 to 2019-20, Attachment 14 – Control Mechanism, October 2015.
Australian Energy Regulator	AER	The economic regulator of the NEM established under section 44AE of the <i>Competition and Consumer Act 2010</i> (Commonwealth).
Business hours	BH	8 am to 5 pm, Monday to Friday.
Capital expenditure	Capex	Expenditure typically resulting in an asset (or the amount Energex has spent on assets).
Charging parameter		The charges comprising a tariff. Parameters include demand, capacity, fixed and volume (flat or ToU) charges.
Common service		A service that ensures the integrity of a distribution system benefits all distribution customers and cannot reasonably be allocated on a locational basis.
Connection Asset Customers	CAC	Typically, those customers connected at 11 kV who are not allocated to the ICC tariff class.
Connection asset (Contributed or non-contributed)		Related to building connection assets at a customer's premises as well as the connection of these assets to the distribution network. Connection assets can be contributed (customer funded, then gifted to Energex) or non-contributed (Energex funded).
Connection point		The agreed point of supply established between a Network Service Provider and another Registered Participant, Non-Registered Customer or franchise customer. The meter is installed as close as possible to this location.
Coupled Customer		Refer to definition of Network Coupling Point. Refer to chapter 10 of the NER.
Daily supply charge (or Fixed charge)		For large customers, reflects the incremental costs that arise from the connection and management of the customer. For small customers, reflects the average capacity set aside on the shared network for a typical customer using the tariff.
Demand		The amount of electricity energy being consumed at a given time measured in either kilowatts (kW) or kilovolt amperes (kVA). The ratio between the two is the power factor.
Demand charge		This part of the tariff accounts for the actual demand a

Term	Abbreviation / Acronym	Definition
		customer places on the electricity network. The actual demand levied for billing purposes is the metered monthly maximum demand. The charge is applied as: <ul style="list-style-type: none"> <li>a fixed dollar price per kW per month or kVA per month for DPPC charges, and</li> <li>a fixed dollar price per kVA per month for DUOS charges (ICC, CAC and SAC demand based customers).</li> </ul>
Demand tariff		The tariff has been structured to include a demand component so the customer's actual demand is reflected in the price they pay for their electricity.
Designated Pricing Proposal Charge	DPPC	Refers to the charges incurred for use of the transmission network; previously referred to as Transmission Use of System (TUOS).
Distribution Use of System	DUOS	This refers to the network charges which recover the costs of providing Standard Control Services.
Economy		Secondary tariff whereby a customer's specified connected appliances are controlled by network equipment so that supply will be available for a minimum period of 18 hours per day during time periods set at the absolute discretion of Energex.
Embedded Generator	EG	In line with the ENA classification, EGs are generally those generators with an installed capacity as follows: <p>Medium: 1-5 MVA (LV or HV) or &lt; 1 MVA (HV)</p> <p>Large: &gt; 5 MVA</p>
Energy (or usage)		Refer to the definition of Usage below.
Feed-in Tariff	FiT	The rate that is to be paid for the excess energy generated by customers and fed back into the electricity grid under the Queensland Solar Bonus Scheme. The FiT rate is determined by the Queensland Government and is paid by the purchaser of the excess energy.
Final Determination		A distribution Determination document published by the AER in its role as Energex's economic regulator that provides for distribution charges to increase during Energex's Regulatory Control Period. In this proposal, reference to the Final Determination refers to the 2015-2020 AER Final Determination.
High Voltage	HV	Refers to the network at 11 kV or above.
Individually Calculated Customer	ICC	Typically those customers connected at 110 kV or 33 kV, or connected at 11 kV and with electricity consumption greater than 40 GWh per year at a single connection point or demand greater than or equal to 10 MVA, or where a customer's circumstances mean that the average shared network charge becomes meaningless or distorted.
Long Run	LRMC	An estimate of the cost (long term variable investment) of

Term	Abbreviation / Acronym	Definition
Marginal Cost		augmenting the existing network to provide sufficient capacity for one additional customer to connect to the network or an additional MW of demand.
Low Voltage	LV	Refers to the sub-11 kV network
Maximum demand		The maximum demand recorded at a customer's individual meter or the maximum demand placed on the electrical distribution network system at any time or at a specific time or within a specific time period, such as a month. Maximum demand is an indication of the capacity required for a customer's connection or the electrical distribution network.
National Electricity Law	NEL	The legislation that establishes the role of the AER as the economic regulator of the NEM and the regulatory framework under which the AER operates.
National Electricity Market	NEM	The interconnected electricity grid covering Queensland, New South Wales, Victoria, Tasmania, South Australia and the Australian Capital Territory.
National Electricity Rules	NER	The legal provisions (enforced by the AER) that regulate the operation of the NEM and the national electricity systems, the activities of market participants and the provision of connection services to retail customers.
Network Coupling Point	NCP	The point at which connection assets join a distribution network, used to identify the distribution service price payable by a customer.
Network Tariff Code	NTC	Energex's nominated code that represents the network tariff being charged to customers for network services.
Network Use of System	NUOS	The tariff for use of the distribution and transmission networks. It is the sum of both Distribution Use of System (DUOS) and Designated Pricing Proposal Charge (DPPC).
Non-demand tariff		The tariff is based around a fixed daily component and the actual usage (or energy), expressed in kWh, used by the customer.
Operating expenditure	Opex	Opex is the combined total of maintenance and operating costs. Maintenance Costs are those that are directly and specifically attributable to the repair and maintenance of network assets, while Operating Costs are those that relate to the day to day operations of Energex which are not maintenance costs.
Pricing principles		The pricing principles are established in clause 6.18.5 of the NER and provide guidance to Energex for setting tariffs.
Pricing Proposal		This document. Prepared by Energex in accordance with clause 6.18.2 of the NER. It is provided to the AER for approval and outlines how Energex will collect its revenue during the relevant regulatory year.
Queensland Government Solar Bonus Scheme	SBS FIT	A program that pays residential and other small energy customers for the surplus electricity generated from roof-top solar photovoltaic (PV) systems that is exported to the Queensland electricity grid.



Term	Abbreviation / Acronym	Definition
Regulatory Control Period		A standard Regulatory Control Period for DNSPs is a period of not less than 5 regulatory years. Energex's current Regulatory Control Period is 2015-20, commencing 1 July 2015.
Regulatory depreciation		Also referred to as the return of capital – the sum of the (negative) straight-line depreciation and the (positive) annual inflation effect on the opening regulatory asset base (RAB).
Service Target Performance Incentive Scheme	STPIS	A scheme developed and published by the AER in accordance with clause 6.6.2 of the NER, that provides incentives (that may include targets) for DNSPs (including Energex) to maintain and improve network performance.
Site-specific charge		This charge is calculated for a site and is specific to the individual connection point.
Small customer classification		As per tariff class assignment process for customers with consumption less than 100 MWh per year.
Solar Photovoltaic	Solar PV	A system that uses sunlight to generate electricity for residential use. The system provides power for the premises with any excess production feeding into the electricity grid.
Standard Asset Customer	SAC	Generally those customers connected to the LV network.
Standard Control Service	SCS	Distribution services that are central to electricity supply and therefore relied on by most (if not all) customers. This service classification includes network services (e.g. construction, maintenance and repair of the network), some connection services (e.g. small customer connections) and Type 7 metering services (i.e. unmetered connections such as traffic lights).
Tariff		The set of charges applied to a customer in the respective billing period. A tariff consists of one or more charging parameters that comprise the total tariff rate.
Tariff class		A class of customers for one or more <i>direct control services</i> who are subject to a particular tariff or particular tariffs (as per chapter 10 of the NER).
Tariff Schedule		The Tariff Schedule is published by Energex annually at the beginning of the financial year and outlines its tariffs for SCS and ACS. It also provides information about how Energex assigns customers to tariff classes and the internal review process undertaken if a customer requests a review of a decision. The Tariff Schedule applies for the duration of the relevant financial year.
Tariff Structure Statement	TSS	Document prepared in accordance with Part I of chapter 6 of the NER, setting out Energex's network price structures and indicative tariffs that will apply over each year of the regulatory control period. Energex submitted its 2017-20 TSS proposal to the AER in November 2015. Once approved, the TSS will take effect from 1 July 2017.
Time of use	ToU	Refers to tariffs that vary according to the time of day at which the electricity is consumed. The Time of Use (ToU) periods include Off-peak, Peak and Shoulder

Term	Abbreviation / Acronym	Definition
Total annual revenue	TAR	Refer to AER, Final Decision Energex determination 2015-16 to 2019-20, Attachment 14 – Control Mechanism, October 2015.
Transmission Use of System	TUOS	Superseded terminology for Designated Pricing Proposal Charges (DPPC) which are charges incurred for use of the transmission network.
Usage (or energy)		The amount of electricity consumed by a customer (or all customers) over a period of time. Energy is measured in terms of watt hours (Wh), kilowatt hours (kWh), megawatt hours (MWh) or gigawatt hours (GWh).
Usage charge		This part of the tariff seeks to reflect costs not directly allocated to network drivers and costs that are proportional to the size of the customer. The energy consumption (kWh) for the period, as recorded by the customer's meter, is utilised to calculate this part of the tariff charge. This charge is applied as a fixed amount (cents) per kilowatt hour (kWh), i.e. c/kWh.
Usage charge - Off-peak		This charge is applicable to those customers who are on a Residential and/or Business Time of Use (ToU) tariff. The energy consumption (kWh) during off-peak periods (refer to Off-peak Period for times), as recorded by the customer's meter, is utilised to calculate this part of the tariff. This charge is applied as a fixed amount (cents) per kilowatt hour (kWh), i.e. c/kWh.
Usage charge - Peak		This charge is applicable to those customers who are on a Residential and/or Business Time of Use (ToU) tariff. The energy consumption (kWh) during peak periods (refer to Peak Period for times), as recorded by the customer's meter, is utilised to calculate this part of the tariff. This charge is applied as a fixed amount (cents) per kilowatt hour (kWh) i.e. c/kWh.
Usage charge - Shoulder		This charge is applicable to those customers who are on a Residential Time of Use (ToU) tariff. The energy consumption (kWh) during shoulder periods (refer to Shoulder Period for times), as recorded by the customer's meter, is utilised to calculate this part of the tariff. This charge is applied as a fixed amount (cents) per kilowatt hour (kWh), i.e. c/kWh.
X Factor		Under the CPI – X form, prices or allowed revenues are adjusted annually for inflation (CPI) less an adjustment factor 'X'. The X Factor represents the change in real prices or revenues each year, so the DNSP can recover the costs that it expects to incur over the regulatory control period.