Revised Proposal

Attachment 10.01

Tariff Structure Statement

January 2019

Content

1 ABOUT THIS TARIFF STRUCTURE STATEMENT

1.1 Introduction

We submit this Tariff Structure Statement to the Australian Energy Regulator (AER) in accordance with the requirements of the National Electricity Rules.

We also submit Explanatory Notes explaining our reasons for proposing the tariff structures in this document and explaining how they comply with the National Electricity Rules.

This Tariff Structure Statement is a revision of the statement we submitted with our Regulatory Proposal in April 2018 and responds to the AER's Draft Decision released on 1 November 2018 and feedback from customers.

1.2 Structure of this Tariff Structure Statement

This Tariff Structure Statement has the following sections:

- Section 2 presents our tariff classes and assignment policies.
- Section 3 presents our tariff structures and charging parameters.
- Section 4 summarises our approach to setting tariffs.
- Section 5 provides our indicative pricing schedule for the 2019-24 regulatory period.
- Section 6 provides a checklist identifying how the Tariff Structure Statement Rule Requirements are met.

The accompanying Explanatory Notes in Appendix A provide more detail on this Tariff Structure Statement including an overview of the changes, our network and customers, our customer consultation, our pricing reform, our pricing principles and our customer impacts.

1.3 Feedback

We welcome feedback from our customers and stakeholders. Please provide feedback to:

pricing@ausgrid.com.au or

Network Pricing Manager
Ausgrid
GPO Box 4009
Sydney NSW 2001

Customers may also comment via Ausgrid's Facebook page at www.facebook.com/Ausgrid or via twitter.com/Ausgrid.

2 TARIFF CLASSES AND ASSIGNMENT POLICIES

This section sets out the tariff classes we divide customers for direct control services into and the policies and procedures we will apply to assign customers to tariff classes. It also sets out the policies and procedures for assigning customers to tariffs within each class.

2.1 Tariff classes

Table 2.1 below summarises our five network tariff classes, and the individual tariffs in each tariff class. For the first time, we include a set of demand tariffs for residential customers and for non-residential customers with less than 40 MWh energy consumption a year.

Table 2.1. Ausgrid's tariff class descriptions from 1 July 2019

Tariff Class	Definition	Primary Network Tariffs	Other Network Tariffs
Low Voltage	Applicable to separately metered low voltage (400V or 230V) connections, as measured at the metering point.	EA111 – Residential demand (introductory) EA115 – Residential TOU demand EA116 – Residential demand EA251 – Small business demand (introductory) EA255 – Small business TOU demand EA256 – Small business demand EA302 – LV 40-160 MWh EA305 – LV 160-750 MWh EA310 – LV >750 MWh EA333 – Embedded network	*Secondary* EA030 – Controlled load 1 EA040 – Controlled load 2 EA041 – Controlled load 3 EA042 – Controlled load 4 *Closed** EA010 – Residential non-TOU *closed* EA025 – Residential TOU *closed* EA050 – Small business non-TOU *closed* EA225 – Small business TOU *closed* EA325 – LV Connection (standby) *closed*
High Voltage	Applicable to any connection at high voltage (11kV) level, as measured at the metering point.	EA370 – HV Connection (system) EA380 – HV Connection (substation)	EA360 – HV Connection (standby) *closed* Individually calculated tariffs
Sub-transmission	Applicable to any connection at a sub-transmission voltage (132/66/33kV), as measured at the metering point.	EA390 – ST Connection (system) EA391 – ST Connection (substation)	Individually calculated tariffs
Unmetered	Applicable to any LV connection that is defined as an unmetered supply by Ausgrid in consultation with AEMO as per clause S7.2.3 (Item 5) of the Rules.	EA401 – Public lighting EA402 – Constant unmetered EA403 – EnergyLight	
Transmission	Applicable to any site that is connected to the electricity transmission network.	EA501 – Transmission tariff	Individually calculated tariffs

Note: *Closed* means only available for customers already assigned to the tariff.

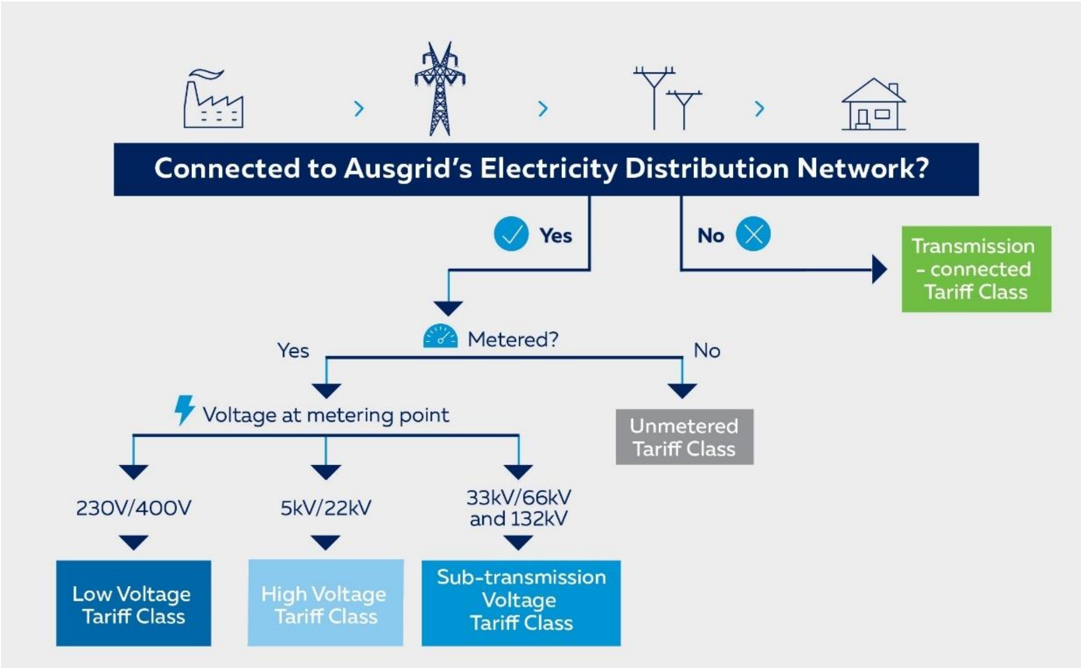
2.2 Assignment of customers to tariff classes

This section explains our proposed approach to assigning customers to tariff classes and to the individual tariffs in each tariff class. We describe our proposed tariffs and the charging parameters in Section 3.

Because our existing approach to assigning customers to tariff classes is consistent with the principles set out in the Rules, as previously approved by the AER, we are not proposing to make any changes to our existing approach.

Figure 2.1 shows our existing approach for assigning customers to a tariff class.

Figure 2.1. Overview of tariff class assignment procedure



2.3 Assignment of customers to a tariff within the tariff class

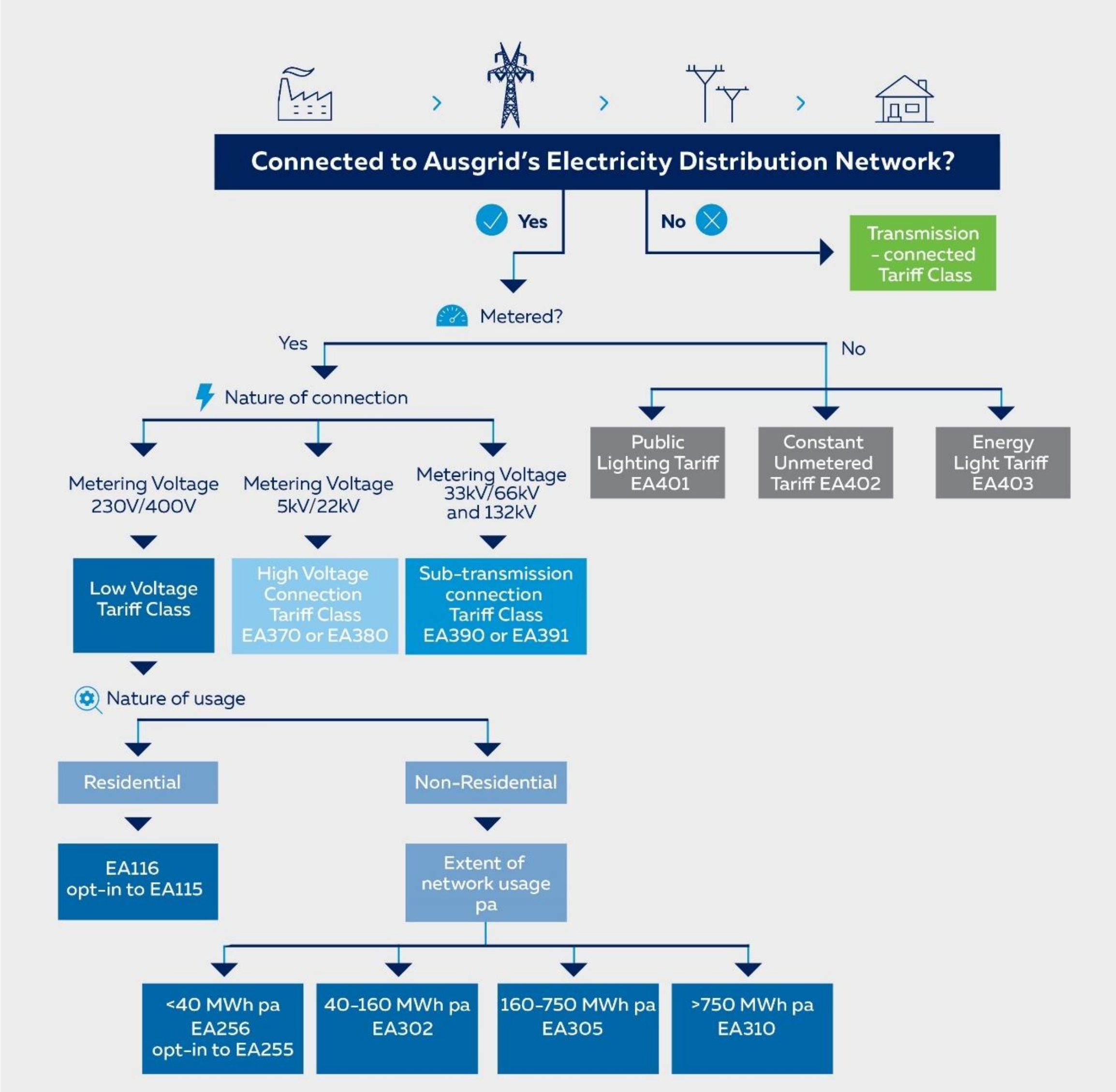
Our assignment of customers to a tariff within the tariff class reflects:

- the type of customer: new or existing, and residential or non-residential
- the type of meter the customer has: accumulation, interval or smart
- the tariff existing customers are assigned to
- the extent of usage.

Figure 2.2 summarises our procedure for assigning new retail customers to a default tariff and for reassigning existing retail customers to another tariff.

We propose to assign retail customers to a tariff according to the nature of their connection, extent of their usage and metering type, consistent with the requirements of the Rules. We will continue to consider the customer bill impacts of assigning or reassigning customers to tariffs and depart from our proposed procedure to avoid unacceptable customer bill impacts from year to year, consistent with the customer impact principle in the Rules.

Figure 2.2. Ausgrid's default tariff assignment procedure for new customers



Definition of residential and non-residential customers

As defined in our ES7 Network Price Guide (Attachment 10.06), a residential customer is 'A customer that is assigned to the low voltage tariff class that uses their connection to Ausgrid's electricity network for domestic purposes (e.g. watching television, personal computer usage) except where the use of the network is predominantly for the purpose of obtaining a commercial financial gain.'

A non-residential customer is any customer not defined as a residential customer.

For the avoidance of doubt, strata house lights and common areas are classified as non-residential customers.

Definition of small business customers

In this Tariff Structure Statement, a Low Voltage non-residential customer with less than 40 MWh usage a year is a small business customer.

Definition of medium and large business customers

In this Tariff Structure Statement, a Low Voltage non-residential customer with more than 40 MWh usage a year is a medium or large business customer.

Definition of existing and new customers

A ‘new customer’ is defined as a newly energised connection, i.e., a connection that is energised on or after 1 July 2019.

An ‘existing customer’ is defined as a customer that exists at the time that Ausgrid undertakes the annual review and assessment for the 2019/20 pricing proposal.

2.3.1 Assignment in Low Voltage tariff class

Customers in the Low Voltage class are assigned to a tariff based on the nature of usage (residential or non-residential), then, for non-residential customers, based on the extent of network usage a year, as shown in Figure 2.2.

Medium and large business customers

There is no change to assignment for non-residential customers with more than 40 MWh usage a year.

Residential and small business customers: Existing customers

Figure 2.3 summarises assignment for residential customers from 1 July 2019 by meter and tariff type. Figure 2.4 summarises assignment for non-residential customers with up to 40 MWh usage a year.

Figure 2.3. Assignment for residential customers from 1 July 2019

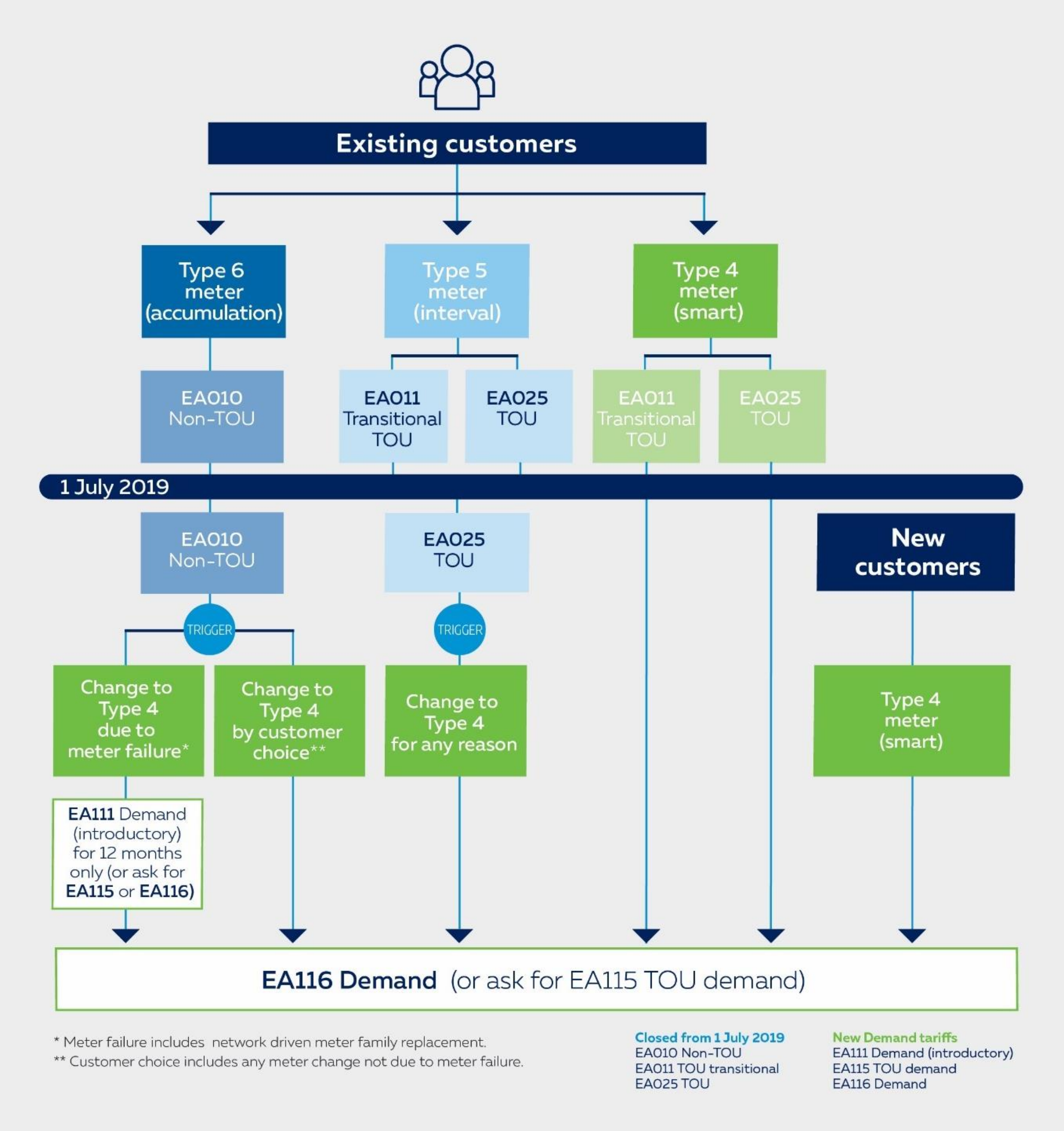


Figure 2.4. Assignment for small business customers from 1 July 2019

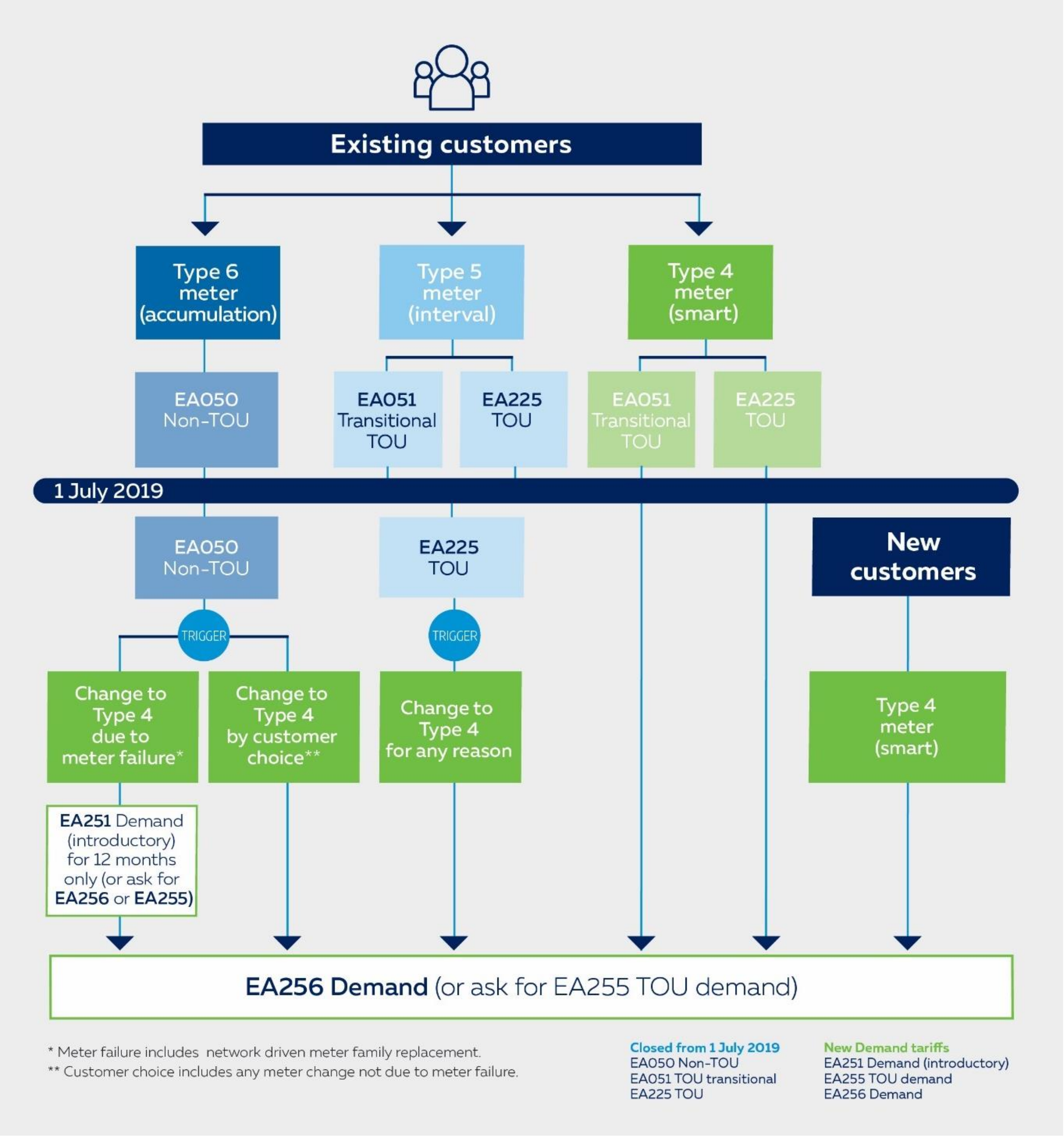


Table 2.2 summarises assignment for existing customers. At 1 July 2019,

- existing customers with a Type 6 (accumulation) meter will remain on their current tariff, either EA010 Residential non-TOU or EA050 Small business non-TOU
- existing customers with a Type 5 (interval) meter will remain on or be assigned to EA025 Residential TOU or EA225 Small business TOU
- existing customers with a Type 4 (smart) meter will be assigned to EA116 Residential demand or EA256 Small business demand.

Residential customers assigned to EA116 have the option to request reassignment to EA115 Residential TOU demand. Non-residential customers assigned to EA256 have the option to request reassignment to EA255 Small business TOU demand.

Table 2.2. Existing customers – reassignment to tariffs at 1 July 2019

Tariff 30 June 2018	Meter type 30 June 2018	Tariff from 1 July 2019	Options
Residential customers			
EA010	Type 6 (accumulation)	EA010 – Residential non-TOU *closed*	
EA011	Type 5 (interval)	EA025 – Residential TOU *closed*	
	Type 4 (smart)	EA116 – Residential demand	Can ask to be reassigned to EA115
EA025	Type 5 (interval)	EA025 – Residential TOU *closed*	
	Type 4 (smart)	EA116 – Residential demand	Can ask to be reassigned to EA115
Small business (Non-residential customers up to 40 MWh usage a year)			
EA050	Type 6 (accumulation)	EA050 – Small business non-TOU *closed*	
EA051	Type 5 (interval)	EA225 – Small business TOU *closed*	
	Type 4 (smart)	EA256 – Small business demand	Can ask to be reassigned to EA255
EA225	Type 5 (interval)	EA225 – Small business TOU *closed*	
	Type 4 (smart)	EA256 – Small business demand	Can ask to be reassigned to EA255

Note: *Closed* means only available for customers already assigned to the tariff.

Residential and small business customers: Customers changing meter

Table 2.3 describes assignment for customers who change their meter to a Type 4 (smart) meter, depending on whether the customer initiates an action which results in a meter change or the change is due to meter failure (including network-driven meter family replacement). From 1 December 2017, under the Australian Energy Market Commission's Power of Choice set of regulations, any new or replacement meter will be a Type 4 (smart) meter.

Table 2.3. Existing customers – reassignment to tariffs after meter change after 1 July 2019

Meter change	Customer type	Existing tariff	Tariff after meter change	Options
Due to customer-initiated action	Residential	EA010, EA025	EA116 – Residential demand	EA115 – Residential TOU demand
	Small business	EA050, EA225	EA256 – Small business demand	EA255 – Small business TOU demand
Due to meter failure	Residential	EA010	EA111 – Residential demand (introductory) for 12 months then EA116 – Residential demand	EA115 – Residential TOU demand
		EA025	EA116 – Residential demand	
	Small business	EA050	EA251 – Small business demand (introductory) for 12 months then EA256 – Small business demand	EA255 – Small business TOU demand
		EA225	EA256 – Small business demand	

Note: Small business is a non-residential customer with up to 40 MWh usage a year.

Residential and small business customers: New connections after 1 July 2019

From 1 July 2019, new residential customers will be assigned to the new default tariff EA116 Residential demand, with the option to be reassigned to EA115 Residential TOU demand.

From 1 July 2019, new small business customers will be assigned to the new default tariff EA256 Small business demand, with the option to be reassigned to EA255 Small business TOU demand.

2.3.2 Assignment in High Voltage and Subtransmission tariff classes

Existing customers and new customers in the High Voltage or Subtransmission tariff classes will be assigned to a default TOU capacity tariff following our tariff assignment procedure in Figure 2.2.

If customers satisfy the eligibility criteria, we will reassign customers connected to our electricity transmission network to an individually calculated site-specific network tariff or, in some circumstances, a substation connected tariff, as part of our annual pricing process. Our policy on individually calculated tariffs is provided in our document ES7 Network Price Guide available on our website.

2.3.3 Principles

Principles for assignment, reassignment, notification and management include:

- We document and update procedures in our ES7 Network Price Guide available on our website.
- We may reassign a customer to another tariff if we become aware that an existing customer's characteristics have changed and it is no longer appropriate for the customer to remain assigned to the current tariff.
- We will notify a customer's retailer in writing of the tariff to which a customer has been assigned or reassigned, prior to the assignment or reassignment occurring.
- We will advise customers and retailers of the process for objecting to a proposed reassignment.
- Customers may be able to request a change to their network tariff within the same tariff class (such as to an available opt-out tariff) by applying through their retailer.
- When a customer's meter is replaced, the retailer should notify us of the change so we can assign the customer to an appropriate network tariff.

Attachment 10.02 describes our procedure for assignment (unchanged from our Initial Proposal).

Attachment 10.06 is our proposed ES7 Network Price Guide, to apply from July 2019.

3 STRUCTURES AND CHARGING PARAMETERS

This section sets out the structure of our tariffs and the charging parameters for each of our tariffs. Indicative prices for each year of the regulatory period are in Section 5.

3.1 Tariff structures and charging parameters

Table 3.1 below summarises all network tariffs by type of charging parameter. The four types of charging parameter are:

- network access charge
- energy consumption charge
- demand charge
- capacity charge.

The energy consumption and demand charges may vary by time of day and/or by season, with different time periods applied to residential and non-residential customers.

The definitions of time periods used in the charging parameters for the demand charge and Time of Use (TOU) energy consumption charge are summarised for residential customers and small business customers in Tables 3.2 to 3.6. Time periods for the capacity charge and TOU energy consumption charge for medium to large Low Voltage, High Voltage and Subtransmission business customers are presented in Tables 3.7 and 3.8.

Tables 3.9 to 3.13 in the following sections show the tariff structures and charging parameters for each of the five tariff classes:

- Low Voltage (LV) tariff class
- High Voltage (HV) tariff class
- Subtransmission (ST) tariff class
- Transmission tariff class
- Unmetered tariff class.

Table 3.1. Ausgrid's network tariffs by charging parameter from 1 July 2019

Tariff Class	Tariff Code	Tariff Name	Network Access Charge	Energy consumption charge				Demand charge		Capacity charge	
				Non-TOU	Peak	Shoulder	Off-peak	High season	Low season	Peak	Peak
			c/day	c/kWh	c/kWh	c/kWh	c/kWh	c/kW/day	c/kW/day	c/kW/day	c/kVA/day
Low Voltage	EA010	Residential non-TOU *closed*	✓	✓							
	EA025	Residential TOU *closed*	✓		✓	✓	✓				
	EA111	Residential demand (introductory)	✓		✓	✓	✓	✓	✓		
	EA115	Residential TOU demand	✓		✓	✓	✓	✓	✓		
	EA116	Residential demand	✓		✓	✓	✓	✓	✓		
	EA030	Controlled load 1	✓	✓							
	EA040	Controlled load 2	✓	✓							
	EA041	Controlled load 3	To be determined in consultation with stakeholders								
	EA042	Controlled load 4	To be determined in consultation with stakeholders								
	EA050	Small business non-TOU *closed*	✓	✓							
	EA225	Small business TOU *closed*	✓		✓	✓	✓				
	EA251	Small business demand (introductory)	✓		✓	✓	✓	✓	✓		
	EA255	Small business TOU demand	✓		✓	✓	✓	✓	✓		
	EA256	Small business demand	✓		✓	✓	✓	✓	✓		
	EA302	LV 40-160 MWh	✓		✓	✓	✓			✓	
	EA305	LV 160-750 MWh	✓		✓	✓	✓				✓
	EA310	LV >750 MWh	✓		✓	✓	✓				✓
	EA325	LV Connection (standby) *closed*	✓		✓	✓	✓				✓
	EA333	Embedded network	To be determined in consultation with stakeholders								
High Voltage	EA360	HV Connection (standby) *closed*	✓		✓	✓	✓				✓
	EA370	HV Connection (system)	✓		✓	✓	✓				✓
	EA380	HV Connection (substation)	✓		✓	✓	✓				✓
Sub-transmission	EA390	ST Connection (system)	✓		✓	✓	✓				✓
	EA391	ST Connection (substation)	✓		✓	✓	✓				✓
Unmetered	EA401	Public lighting		✓							
	EA402	Constant unmetered		✓							
	EA403	EnergyLight		✓							
Transmission	EA501	Transmission-connected	✓		✓	✓	✓				✓

Note: See Tables 3.2 to 3.13 for definitions of each charging parameter for each tariff.

Definition of time periods for residential customers

The time period definitions used in the charging parameters for the demand charge for residential customers are summarised in Table 3.2 below.

Table 3.2. Demand charge: charging windows for residential customers

Demand window	Time period definition
High season (8 months)	• From 2 pm to 8 pm on working weekdays during 1 November to 31 March (inclusive) – the 'summer months' • From 5 pm to 9 pm on working weekdays during 1 June to 31 August (inclusive) – the 'winter months'.
Low season (4 months)	• From 2 pm to 8 pm on working weekdays during 1 April to 31 May and 1 September to 31 October (inclusive) – the non-summer and non-winter months.

The time period definitions used in the charging parameters for the time of use energy consumption charge are summarised in Table 3.3 below.

Table 3.3. Energy consumption charge: TOU charging windows for residential customers

Time period	Time period definition
Peak period	• From 2 pm to 8 pm on working weekdays during 1 November to 31 March (inclusive) – the 'summer months' • From 5 pm to 9 pm on working weekdays during 1 June to 31 August (inclusive) – the 'winter months'.

Shoulder period	The shoulder period applies from 7 am to 10 pm every day, except where a peak period applies during that period.
	Specifically, it applies:
	• on all weekends and public holidays from 7 am to 10 pm
	• on working weekdays in the 'summer months':
	  ○ from 7 am to 2 pm and from 8 pm to 10 pm
	• on working weekdays in the 'winter months':
	  ○ from 7 am to 5 pm and from 9 pm to 10 pm
	• on working weekdays in the non-summer and non-winter months:
	  ○ from 7 am to 10 pm.

Off-peak period	All other times that are not Peak or Shoulder: 10 pm to 7 am.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3 am on the first Sunday in October to 2 am on the first Sunday in April.

Definitions for the two existing controlled loads and two new placeholder controlled load tariffs are summarised in Table 3.4 below. EA041 is intended for residential and small business customers, while EA042 is intended for medium and large business customers.

Table 3.4. Time period definitions for controlled load tariffs

Controlled load	Time period definition
EA030 Controlled load 1	Supply is usually available for 6 hours duration between 10 pm and 7 am.
EA040 Controlled load 2	Supply is usually available for 16 hours a day including more than 6 hours between 8 pm and 7 am and more than 4 hours between 7 am and 5 pm.
EA041 Controlled load 3	To be determined in consultation with stakeholders See Explanatory Notes – Section A.4
EA042 Controlled load 4	To be determined in consultation with stakeholders See Explanatory Notes – Section A.4

Definition of time periods for small business customers

The time period definitions used in the charging parameters for the demand charge for small business customers are summarised in Table 3.5 below.

Table 3.5. Demand charge: charging windows for small business customers

Demand window	Time period definition
High season (8 months)	• From 2 pm to 8 pm on working weekdays during 1 November to 31 March (inclusive) – the 'summer months' • From 2 pm to 8 pm on working weekdays during 1 June to 31 August (inclusive) – the 'winter months'.
Low season (4 months)	• From 2 pm to 8 pm on working weekdays during 1 April to 31 May and 1 September to 31 October (inclusive) – the non-summer and non-winter months.

Note: Small business is a non-residential customer with up to 40 MWh usage a year.

The time period definitions used in the charging parameters for the Time of Use (TOU) energy consumption charge for small business customers are summarised in Table 3.6 below.

Table 3.6. Energy consumption charge: TOU charging windows for small business customers

Time period	Time period definition
Peak period	• From 2 pm to 8 pm on working weekdays during 1 November to 31 March (inclusive) – the 'summer months' • From 2 pm to 8 pm on working weekdays during 1 June to 31 August (inclusive) – the 'winter months'.
Shoulder period	The shoulder period applies from 7 am to 10 pm every working weekday, except where a peak period applies during that period. Specifically, it applies: • on working weekdays in the 'summer' and 'winter' months: o from 7 am to 2 pm and from 8 pm to 10 pm • on working weekdays in the non-summer and non-winter months: o from 7 am to 10 pm.
Off-peak period	All other times that are not Peak or Shoulder: 10 pm to 7 am on working weekdays all year, and 24 hours on all weekends and public holidays all year.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3 am on the first Sunday in October to 2 am on the first Sunday in April.

Definition of time periods for medium to large Low Voltage, High Voltage and Subtransmission customers

The time period definitions used in the charging parameters for the capacity charge for medium to large Low Voltage, High Voltage and Subtransmission business customers are summarised in Table 3.7.

Table 3.7. Capacity charge: charging window for medium to large Low Voltage, High Voltage and Subtransmission business customers

Capacity window	Time period definition
All year round	• From 2 pm to 8 pm on working weekdays.

Note: Medium to large Low Voltage business customer is a non-residential customer with more than 40 MWh usage a year.

The time period definitions used in the charging parameters for the consumption charge are summarised in Table 3.8.

Table 3.8. Energy consumption charge: TOU charging windows for medium to large Low Voltage, High Voltage and Subtransmission business customers

Time period	Time period definition
Peak period	• From 2 pm to 8 pm on working weekdays during 1 November to 31 March (inclusive) – the 'summer months' • From 2 pm to 8 pm on working weekdays during 1 June to 31 August (inclusive) – the 'winter months'.
Shoulder period	The shoulder period applies from 7 am to 10 pm every working weekday, except where a peak period applies during that period. Specifically, it applies: • on working weekdays in the 'summer' and 'winter' months: ○ from 7 am to 2 pm and from 8 pm to 10 pm • on working weekdays in the non-summer and non-winter months: ○ from 7 am to 10 pm.
Off-peak period	All other times that are not Peak or Shoulder: 10 pm to 7 am on working weekdays all year, and 24 hours on all weekends and public holidays all year.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3 am on the first Sunday in October to 2 am on the first Sunday in April.

3.2 Proposed charging parameters

The following sections outline the proposed charging parameters for the tariffs within each tariff class. The proposed prices for each of the parameters for each year of the regulatory period are presented in Section 5.

3.2.1 Low Voltage tariff class

Table 3.9 summarises the charging parameters for the tariffs in the Low Voltage tariff class including six new tariffs from 1 July 2019. The three new residential demand tariffs and the three new small business demand tariffs each have six charging parameters including two demand charges. Section 5 shows the indicative prices for the charging parameters for all tariffs. Some parameters are set at the same price level, resulting in either a flat energy consumption charge or a flat demand charge. Price levels for charging parameters vary for different tariffs.

Table 3.9a summarises three placeholder tariffs in the Low Voltage tariff class: EA041 Controlled load 3, EA042 Controlled load 4 and EA333 Embedded network. No customers are assigned to these tariffs from 1 July 2019. The structure and charging parameters for the proposed new placeholder tariffs are not defined and will be developed through further research and extensive engagement and consultation with stakeholders. See Section A.4 of the Explanatory Notes.

Table 3.9. Low Voltage tariff class – charging parameters

Tariff type	Component*	Measure	Charging parameter*
Closed EA010 Residential non-TOU, EA050 Small business non-TOU	Network access charge	c/day	Fixed daily charge
	Energy consumption charge – Flat	c/kWh	Network use of system charge for energy consumed anytime during the day
Closed EA025 Residential TOU, EA225 Small business TOU	Network access charge	c/day	Fixed daily charge
	Energy consumption charge – Peak	c/kWh	Network use of system charge for energy consumed during the peak period*
	Energy consumption charge – Shoulder	c/kWh	Network use of system charge for energy consumed during the shoulder period*
	Energy consumption charge – Off-peak	c/kWh	Network use of system charge for energy consumed during the off-peak period*
EA116 Residential demand, EA256 Small business demand EA115 Residential TOU demand, EA255 Small business TOU demand EA111 Residential demand (introductory), EA251 Small business demand (introductory)	Network access charge	c/day	Fixed daily charge
	Energy consumption charge – Peak	c/kWh	Network use of system charge for energy consumed during the peak period*
	Energy consumption charge – Shoulder	c/kWh	Network use of system charge for energy consumed during the shoulder period*
	Energy consumption charge – Off-peak	c/kWh	Network use of system charge for energy consumed during the off-peak period*

Tariff type	Component*	Measure	Charging parameter*
	Demand charge – High season	c/kW/day	Network use of system charge applied to the maximum kW demand[1] over any half hour interval in the demand window in a High season month*
	Demand charge – Low season	c/kW/day	Network use of system charge applied to the maximum kW demand[1] over any half hour interval in the demand window in a Low season month*
EA302 LV 40-160 MWh pa	Network access charge	c/day	Fixed daily charge
	Energy consumption charge – Peak	c/kWh	Network use of system charge for energy consumed during the peak period[#]
	Energy consumption charge – Shoulder	c/kWh	Network use of system charge for energy consumed during the shoulder period[#]
	Energy consumption charge – Off-peak	c/kWh	Network use of system charge for energy consumed during the off-peak period[#]
	Capacity charge – Peak	c/kW/day	Network use of system charge for the maximum kW demand[1] over any half hour interval between 2 pm and 8 pm on a working weekday in the previous 12 months
EA305 LV 160-750 MWh pa, EA310 LV >750 MWh pa *Closed* EA325 LV Connection (standby)	Network access charge	c/day	Fixed daily charge
	Energy consumption charge – Peak	c/kWh	Network use of system charge for energy consumed during the peak period[#]
	Energy consumption charge – Shoulder	c/kWh	Network use of system charge for energy consumed during the shoulder period[#]
	Energy consumption charge – Off-peak	c/kWh	Network use of system charge for energy consumed during the off-peak period[#]
	Capacity charge – Peak	c/kVA/day	Network use of system charge for the maximum kVA demand[1] over any half hour interval between 2 pm and 8 pm on a working weekday in the previous 12 months
EA030 Controlled load 1, EA040 Controlled load 2	Network access charge	c/day	Fixed daily charge
	Energy consumption charge	c/kWh	A secondary network use of system charge that applies to separately metered loads, only available with a primary network use of system tariff

Note: [1] Demand is based on the highest energy consumption recorded in a 30-minute interval.
*See Tables 3.2 and 3.3 for definitions of peak, shoulder and off-peak periods for energy consumption charges, and time periods for demand charges for residential tariffs, and Tables 3.5 and 3.6 for small business tariffs.
[#] See Table 3.8 for definitions of peak, shoulder and off-peak periods for energy consumption charges for medium to large business customer tariffs (non-residential > 40 MWh usage a year).

Table 3.9a. Low Voltage tariff class – charging parameters for placeholder tariffs

Tariff type	Components	Measure	Charging parameter
EA041 Controlled load 3	Network access charge	c/day	Fixed daily charge
	Energy consumption charge	c/kWh	A secondary network use of system charge that applies to separately metered loads, only available with a primary network use of system tariff for residential and small business customers
	Demand or capacity charge	To be determined in consultation with stakeholders	
EA042 Controlled load 4	Network access charge	c/day	Fixed daily charge
	Energy consumption charge	c/kWh	A secondary network use of system charge that applies to separately metered loads, only available with a primary network use of system tariff for medium and large business customers
	Demand or capacity charge	To be determined in consultation with stakeholders	
EA333 Embedded network	Network access charge	To be determined in consultation with stakeholders	
	Energy consumption charge	To be determined in consultation with stakeholders	
	Demand or capacity charge	To be determined in consultation with stakeholders	

3.2.2 High Voltage tariff class

Table 3.10 summarises the charging parameters for the two tariffs in the High Voltage tariff class.

Table 3.10. High Voltage tariff class – charging parameters

Tariff type	Components	Measure	Charging parameter
EA370 HV Connection (system), EA380 HV Connection (substation) *Closed* EA360 HV Connection (standby)	Network access charge	c/day	Fixed daily charge
	Energy consumption charge – Peak	c/kWh	Network use of system charge for energy consumed during the peak period*
	Energy consumption charge – Shoulder	c/kWh	Network use of system charge for energy consumed during the shoulder period*
	Energy consumption charge – Off-peak	c/kWh	Network use of system charge for energy consumed during the off-peak period*
	Capacity charge – Peak kVA	c/kVA/day	Network use of system charge applied to the maximum kVA demand[1] recorded over any half hour interval between 2 pm and 8 pm on a working weekday in the previous 12 months

Note: See Table 3.8 for definitions of peak, shoulder and off-peak periods.
[1] Demand is based on the highest energy consumption recorded in a 30-minute interval.

3.2.3 Subtransmission tariff class

Table 3.11 summarises the charging parameters for the two tariffs in the Subtransmission tariff class.

Table 3.11. Subtransmission tariff class – charging parameters

Tariff type	Component	Measure	Charging parameter
EA390 ST Connection (system), EA391 ST Connection (substation)	Network access charge	c/day	Fixed daily charge
	Energy consumption charge – Peak	c/kWh	Network use of system charge for energy consumed during the peak period*
	Energy consumption charge – Shoulder	c/kWh	Network use of system charge for energy consumed during the shoulder period*
	Energy consumption charge – Off-peak	c/kWh	Network use of system charge for energy consumed during the off-peak period*
	Capacity charge – Peak kVA	c/kVA/day	Network use of system charge applied to the maximum kVA demand[1] recorded over any half hour interval between 2 pm and 8 pm on a working weekday in the previous 12 months

Note: See Table 3.8 for definitions of peak, shoulder and off-peak periods.
[1] Demand is based on the highest energy consumption recorded in a 30-minute interval.

3.2.4 Transmission tariff class

Table 3.12 summarises the charging parameters for the single tariff in the Transmission tariff class.

Table 3.12. Transmission tariff class – charging parameters

Tariff type	Component	Measure	Charging parameter
EA501 Transmission connected	Network access charge	c/day	Fixed daily charge
	Energy consumption charge – Peak	c/kWh	Network use of system charge for energy consumed during the peak period*
	Energy consumption charge – Shoulder	c/kWh	Network use of system charge for energy consumed during the shoulder period*
	Energy consumption charge – Off-peak	c/kWh	Network use of system charge for energy consumed during the off-peak period*
	Capacity charge – Peak kVA	c/kVA/day	Network use of system charge applied to the maximum kVA demand[1] recorded over any half hour interval between 2 pm and 8 pm on a working weekday in the previous 12 months

Note: See Table 3.8 for definitions of peak, shoulder and off-peak periods.
[1] Demand is based on the highest energy consumption recorded in a 30-minute interval.

3.2.5 Unmetered tariff class

Table 3.13 summarises the single charging parameter for the three tariffs in the Unmetered tariff class.

Table 3.13. Unmetered tariff class – charging parameters

Tariff type	Component	Measure	Charging parameter
EA401 Public lighting EA402 Constant unmetered EA403 EnergyLight	Energy consumption charge	c/kWh	Network use of system charge for energy consumed

4 APPROACH TO SETTING TARIFFS

Our approach to setting tariffs is to ensure:

- Revenue is between standalone and avoidable cost for each tariff class.
- Our tariffs reflect estimated long run marginal cost.
- Our tariffs reflect the efficient costs of providing the services.
- Our tariffs mitigate the impact on customers.

Our Explanatory Notes (Section A.5) and attachments provide more information on our pricing principles.

4.1 Revenue is between standalone and avoidable cost for each tariff class

We are required under Section 6.18.5(a) of the Rules to develop annual indicative prices over the regulatory control period that are free of economic subsidy at the tariff class level. We satisfy this obligation by demonstrating that these prices are expected to produce distribution use of system (DUOS) revenue at the tariff class level in each year that lies on or between:

- an upper bound representing the standalone cost of serving the retail customers who belong to that class; and
- a lower bound representing the avoidable cost of not serving those retail customers.

We have estimated the annual standalone and avoidable costs of electricity distribution service provision at the tariff class level over the regulatory control period on the basis of a detailed disaggregated analysis of our annual cost to serve.

See our Explanatory Notes (Section A.5) for more information on how we have calculated standalone and avoidable costs.

Table 4.1 shows how expected DUOS revenue is between avoidable cost and standalone cost for each tariff class for each year of the regulatory period.

Table 4.1. Comparison of Ausgrid's expected DUOS outcome vs standalone and avoidable cost by tariff class – indicative pricing schedule ($m)

	2019/20			2020/21			2021/22			2022/23			2023/24		
Tariff Class	Avoidable cost	Expected DUOS revenue	Stand alone cost	Avoidable cost	Expected DUOS revenue	Stand alone cost	Avoidable cost	Expected DUOS revenue	Stand alone cost	Avoidable cost	Expected DUOS revenue	Stand alone cost	Avoidable cost	Expected DUOS revenue	Stand alone cost
Low Voltage	255.52	1379.67	1430.06	281.67	1384.08	1492.28	309.38	1389.81	1544.63	335.42	1393.45	1602.60	342.35	1398.60	1621.77
High Voltage	15.73	53.96	903.11	17.95	55.15	932.56	20.17	56.70	953.43	22.24	57.84	979.61	22.36	59.31	989.08
Subtransmission	26.59	40.44	339.67	31.33	44.12	353.93	37.21	46.15	366.49	43.20	50.08	380.97	44.20	52.14	385.54
Unmetered	1.54	9.39	1176.07	1.75	8.73	1212.36	1.96	8.10	1237.21	2.16	8.12	1269.34	2.18	8.21	1281.59

Note: Excludes GST.

4.2 Our tariffs reflect estimated long run marginal cost

Our approach to calculating long run marginal cost is the same as the Tariff Structure Statement in our Initial Proposal.

Our Explanatory Notes (Section A.5) and attachments provide more information.

4.3 Our tariffs reflect the efficient costs of providing services

Our approach to setting tariffs is to set prices that are cost reflective. Prices for consumption and demand charges are lower when there is more excess capacity and the cost of additional demand is low. In contrast, prices are higher when increased demand may require additional investment, and the cost of greater demand is high.

Our time windows and seasons are based on our analysis of both residential and business customers across our network, and a commitment to postage-stamp or location-neutral pricing. We aim to signal to our customers those times of the day and year when the cost of greater demand is high.

4.4 Our tariffs mitigate impacts on customers

The proposed assignment policy and tariffs include a demand (introductory) tariff for 12 months to mitigate the impacts on existing residential and small business customers with a Type 6 (accumulation) meter being reassigned to a new demand tariff through upgrade to a Type 4 (smart) meter triggered by meter failure. The demand (introductory) tariffs give customers an opportunity to understand their patterns of usage for 12 months before being reassigned to the default demand tariff.

Customers assigned to the demand (introductory) tariff have the option to be reassigned to another demand tariff.

Customers can ask their retailer to reassign them to another eligible tariff, and the retailer then passes this request to Ausgrid. We will be working with both customers and retailers to ensure the new tariffs are explained, including options for alternative demand tariffs.

Section A.6 of our Explanatory Notes has more information on our analysis of the expected bill impacts of our new demand tariffs and our new prices, and Section A.7 discusses complementary measures.

5 INDICATIVE PRICING SCHEDULE

This section presents our indicative network use of system tariffs for each year of the 2019-24 regulatory period.

5.1 Our indicative pricing schedules

Tables 5.1 to 5.5 present our indicative pricing schedules for each year of the regulatory period.

Attachments 10.10,10.11 and 10.13 present the Distribution Use of System, Transmission Use of System and Climate Change Fund components of the pricing schedules for each year.

5.2 Explaining variations to indicative prices

We are required to explain any material variations between the indicative prices in the Tariff Structure Statement and the prices in our annual pricing proposal. While we do not expect there to be material variations, our indicative pricing schedule will vary depending on the latest available data for our price modelling including revenue and consumption. Our energy volume forecast in Attachment 10.15 is based on information available as at the end of October 2018, which does not include complete consumption data for 2017/18 due to the timing of quarterly billing.

For our next annual pricing proposal in April 2019 we will update the econometric model for our energy volume forecast with the latest version of Gross State Product and Household Disposable Income released by the Australian Bureau of Statistics on 16 November 2018. We will also have complete annual consumption data for 2017/18, including the contribution of all tariffs to maximum demand, to inform our annual pricing proposal in April 2019.

Table 5.1. Ausgrid's network tariffs by charging parameter (exclusive of GST) – Indicative – 2019/20

Tariff Class	Tariff Code	Tariff Name	Network Access Charge	Energy consumption charge				Demand charge		Capacity charge	
				Non-TOU	Peak	Shoulder	Off-peak	High season	Low season	Peak	Peak
			c/day	c/kWh	c/kWh	c/kWh	c/kWh	c/kW/day	c/kW/day	c/kW/day	c/kVA/day
Low Voltage	EA010	Residential non-TOU *closed*	37.1624	8.5923							
	EA025	Residential TOU *closed*	46.1155		23.5336	5.9127	3.8293				
	EA111	Residential demand (introductory)	37.1624		8.1794	8.1794	8.1794	1.0195	1.0195		
	EA115	Residential TOU demand	46.1155		23.5336	4.4199	3.0859	4.0779	4.0779		
	EA116	Residential demand	37.1624		3.0293	3.0293	3.0293	20.3897	10.1949		
	EA030	Controlled load 1	0.1511	1.8541							
	EA040	Controlled load 2	11.0659	4.7786							
	EA050	Small business non-TOU *closed*	123.6110	8.4650							
	EA225	Small business TOU *closed*	121.8728		21.5007	8.2616	3.0752				
	EA251	Small business demand (introductory)	121.8728		8.1466	8.1466	8.1466	1.0195	1.0195		
	EA255	Small business TOU demand	121.8728		18.7851	7.8759	2.4396	4.0779	4.0779		
	EA256	Small business demand	121.8728		5.1193	5.1193	5.1193	20.3897	15.2923		
	EA302	LV 40-160 MWh	511.4501		5.2190	2.5097	1.0974			32.8110	
	EA305	LV 160-750 MWh	1652.3676		4.7825	2.3938	1.0917				32.8110
	EA310	LV >750 MWh	2498.9571		4.2844	2.3167	1.1051				32.8110
	EA325	LV Connection (standby) *closed*	2385.9270		9.2597	7.5889	2.2358				0.3655
High Voltage	EA360	HV Connection (standby) *closed*	2078.1322		9.1696	5.0827	2.8337				0.6442
	EA370	HV Connection (system)	4939.4120		3.2136	1.9695	1.2435				19.9643
	EA380	HV Connection (substation)	4939.4120		2.9166	1.8031	1.1201				17.1291
Sub-transmission	EA390	ST Connection (system)	6187.2634		2.3546	1.7591	1.1633				6.3676
	EA391	ST Connection (substation)	6187.2634		1.9920	1.4949	1.0467				5.6058
Unmetered	EA401	Public lighting		7.3966							
	EA402	Constant unmetered		8.9130							
	EA403	EnergyLight		6.7912							
Transmission	EA501	Transmission-connected	22938.4457								0.7367

Table 5.2. Ausgrid's network tariffs by charging parameter (exclusive of GST) – Indicative – 2020/21

Tariff Class	Tariff Code	Tariff Name	Network Access Charge	Energy consumption charge				Demand charge		Capacity charge	
				Non-TOU	Peak	Shoulder	Off-peak	High season	Low season	Peak	Peak
			c/day	c/kWh	c/kWh	c/kWh	c/kWh	c/kW/day	c/kW/day	c/kW/day	c/kVA/day
Low Voltage	EA010	Residential non-TOU *closed*	38.0635	8.6361							
	EA025	Residential TOU *closed*	47.2337		24.0865	5.9202	3.8696				
	EA111	Residential demand (introductory)	38.0635		8.2591	8.2591	8.2591	1.0442	1.0442		
	EA115	Residential TOU demand	47.2337		24.0865	4.3387	3.0643	4.1768	4.1768		
	EA116	Residential demand	38.0635		2.9995	2.9995	2.9995	20.8842	10.4421		
	EA030	Controlled load 1	0.1547	1.8459							
	EA040	Controlled load 2	11.3342	4.7704							
	EA050	Small business non-TOU *closed*	126.6084	8.3556							
	EA225	Small business TOU *closed*	124.8280		21.9986	7.9001	2.9507				
	EA251	Small business demand (introductory)	124.8280		7.9394	7.9394	7.9394	1.0442	1.0442		
	EA255	Small business TOU demand	124.8280		19.2171	7.4366	2.4070	4.1768	4.1768		
	EA256	Small business demand	124.8280		4.6391	4.6391	4.6391	20.8842	15.6631		
	EA302	LV 40-160 MWh	409.1600		5.6363	2.6785	1.1367			33.6066	
	EA305	LV 160-750 MWh	1404.5124		5.1891	2.5634	1.1380				33.6066
	EA310	LV >750 MWh	2559.5536		4.7480	2.5327	1.1878				33.6066
	EA325	LV Connection (standby) *closed*	2443.7828		9.4842	7.7729	2.2900				0.3744
High Voltage	EA360	HV Connection (standby) *closed*	2128.5243		10.5800	6.3880	3.4586				0.6598
	EA370	HV Connection (system)	5059.1865		3.2909	1.9861	1.2489				20.4484
	EA380	HV Connection (substation)	5059.1865		2.9931	1.8451	1.1602				17.5444
Sub-transmission	EA390	ST Connection (system)	6337.2968		2.4304	1.7908	1.1842				6.5220
	EA391	ST Connection (substation)	6337.2968		1.9232	1.5144	1.0659				5.7417
Unmetered	EA401	Public lighting		7.4004							
	EA402	Constant unmetered		8.9119							
	EA403	EnergyLight		6.8832							
Transmission	EA501	Transmission-connected	23494.6742								0.7546

Table 5.3. Ausgrid's network tariffs by charging parameter (exclusive of GST) – Indicative – 2021/22

Tariff Class	Tariff Code	Tariff Name	Network Access Charge	Energy consumption charge				Demand charge		Capacity charge	
				Non-TOU	Peak	Shoulder	Off-peak	High season	Low season	Peak	Peak
			c/day	c/kWh	c/kWh	c/kWh	c/kWh	c/kW/day	c/kW/day	c/kW/day	c/kVA/day
Low Voltage	EA010	Residential non-TOU *closed*	38.9865	8.7437							
	EA025	Residential TOU *closed*	48.3791		24.6647	5.8802	3.9095				
	EA111	Residential demand (introductory)	38.9865		8.3483	8.3483	8.3483	1.0695	1.0695		
	EA115	Residential TOU demand	48.3791		24.6647	4.2077	3.0175	4.2781	4.2781		
	EA116	Residential demand	38.9865		2.9815	2.9815	2.9815	21.3906	10.6953		
	EA030	Controlled load 1	0.1585	1.8493							
	EA040	Controlled load 2	11.6090	4.7738							
	EA050	Small business non-TOU *closed*	129.6785	8.2031							
	EA225	Small business TOU *closed*	127.8550		22.5009	7.5876	2.8347				
	EA251	Small business demand (introductory)	127.8550		7.8543	7.8543	7.8543	1.0695	1.0695		
	EA255	Small business TOU demand	127.8550		19.6520	7.0915	2.3484	4.2781	4.2781		
	EA256	Small business demand	127.8550		4.3985	4.3985	4.3985	21.3906	16.0429		
	EA302	LV 40-160 MWh	327.3280		5.8206	2.7502	1.1798			34.4215	
	EA305	LV 160-750 MWh	1193.8356		5.3825	2.6449	1.1887				34.4215
	EA310	LV >750 MWh	2621.6196		4.9653	2.6428	1.2582				34.4215
	EA325	LV Connection (standby) *closed*	2503.0414		9.7142	7.9614	2.3456				0.3835
High Voltage	EA360	HV Connection (standby) *closed*	2180.1383		12.2943	7.9932	4.2248				0.6758
	EA370	HV Connection (system)	5181.8654		3.4110	2.0325	1.2785				20.9443
	EA380	HV Connection (substation)	5181.8654		3.0828	1.8909	1.2009				17.9698
Sub-transmission	EA390	ST Connection (system)	6490.9683		2.5188	1.8378	1.2196				6.6801
	EA391	ST Connection (substation)	6490.9683		1.9828	1.5434	1.0947				5.8809
Unmetered	EA401	Public lighting		7.5699							
	EA402	Constant unmetered		8.6416							
	EA403	EnergyLight		6.9904							
Transmission	EA501	Transmission-connected	24064.3906								0.7729

Table 5.4. Ausgrid's network tariffs by charging parameter (exclusive of GST) – Indicative – 2022/23

Tariff Class	Tariff Code	Tariff Name	Network Access Charge	Energy consumption charge				Demand charge		Capacity charge	
				Non-TOU	Peak	Shoulder	Off-peak	High season	Low season	Peak	Peak
			c/day	c/kWh	c/kWh	c/kWh	c/kWh	c/kW/day	c/kW/day	c/kW/day	c/kVA/day
Low Voltage	EA010	Residential non-TOU *closed*	39.9319	8.8605							
	EA025	Residential TOU *closed*	49.5522		25.2450	5.9140	3.9952				
	EA111	Residential demand (introductory)	39.9319		8.5180	8.5180	8.5180	1.0955	1.0955		
	EA115	Residential TOU demand	49.5522		25.2450	4.2017	3.0439	4.3819	4.3819		
	EA116	Residential demand	39.9319		2.9872	2.9872	2.9872	21.9093	10.9546		
	EA030	Controlled load 1	0.1623	1.8410							
	EA040	Controlled load 2	11.8906	4.7654							
	EA050	Small business non-TOU *closed*	132.8231	8.0695							
	EA225	Small business TOU *closed*	130.9553		23.0241	7.1873	2.6993				
	EA251	Small business demand (introductory)	130.9553		7.6934	7.6934	7.6934	1.0955	1.0955		
	EA255	Small business TOU demand	130.9553		20.1061	6.6165	2.2497	4.3819	4.3819		
	EA256	Small business demand	130.9553		4.0759	4.0759	4.0759	21.9093	16.4319		
	EA302	LV 40-160 MWh	278.2288		5.8861	2.7549	1.1987			35.2562	
	EA305	LV 160-750 MWh	1074.4520		5.4642	2.6631	1.2157				35.2562
	EA310	LV >750 MWh	2685.1906		5.0742	2.6920	1.3041				35.2562
	EA325	LV Connection (standby) *closed*	2563.7370		9.9498	8.1544	2.4024				0.3928
High Voltage	EA360	HV Connection (standby) *closed*	2233.0040		14.2198	9.8061	5.0891				0.6922
	EA370	HV Connection (system)	5307.5192		3.4675	2.0364	1.2803				21.4521
	EA380	HV Connection (substation)	5307.5192		3.1267	1.9027	1.2179				18.4056
Sub-transmission	EA390	ST Connection (system)	6648.3661		2.5669	1.8512	1.2275				6.8421
	EA391	ST Connection (substation)	6648.3661		2.0226	1.5534	1.1045				6.0235
Unmetered	EA401	Public lighting		7.5808							
	EA402	Constant unmetered		8.6702							
	EA403	EnergyLight		7.3662							
Transmission	EA501	Transmission-connected	24647.9219								0.7916

Table 5.5. Ausgrid's network tariffs by charging parameter (exclusive of GST) – Indicative – 2023/24

Tariff Class	Tariff Code	Tariff Name	Network Access Charge	Energy consumption charge				Demand charge		Capacity charge	
				Non-TOU	Peak	Shoulder	Off-peak	High season	Low season	Peak	Peak
			c/day	c/kWh	c/kWh	c/kWh	c/kWh	c/kW/day	c/kW/day	c/kW/day	c/kVA/day
Low Voltage	EA010	Residential non-TOU *closed*	40.9002	9.0450							
	EA025	Residential TOU *closed*	50.7538		25.8454	6.0087	4.1306				
	EA111	Residential demand (introductory)	40.9002		8.7069	8.7069	8.7069	1.1220	1.1220		
	EA115	Residential TOU demand	50.7538		25.8454	4.2181	3.0947	4.4881	4.4881		
	EA116	Residential demand	40.9002		2.9992	2.9992	2.9992	22.4405	11.2203		
	EA030	Controlled load 1	0.1662	1.8384							
	EA040	Controlled load 2	12.1789	4.7628							
	EA050	Small business non-TOU *closed*	136.0439	8.0048							
	EA225	Small business TOU *closed*	134.1308		23.5675	6.9437	2.6258				
	EA251	Small business demand (introductory)	134.1308		7.6670	7.6670	7.6670	1.1220	1.1220		
	EA255	Small business TOU demand	134.1308		20.5788	6.1141	2.1551	4.4881	4.4881		
	EA256	Small business demand	134.1308		3.7580	3.7580	3.7580	22.4405	16.8304		
	EA302	LV 40-160 MWh	250.4059		5.8646	2.7200	1.2248			36.1111	
	EA305	LV 160-750 MWh	1020.7294		5.4665	2.6467	1.2506				36.1111
	EA310	LV >750 MWh	2750.3031		5.1122	2.7130	1.3599				36.1111
	EA325	LV Connection (standby) *closed*	2625.9044		10.1910	8.3522	2.4607				0.4023
High Voltage	EA360	HV Connection (standby) *closed*	2287.1515		16.6904	12.1589	6.2076				0.7090
	EA370	HV Connection (system)	5436.2199		3.5902	2.0743	1.3036				21.9723
	EA380	HV Connection (substation)	5436.2199		3.2014	1.9222	1.2325				18.8519
Sub-transmission	EA390	ST Connection (system)	6809.5807		2.6599	1.8953	1.2559				7.0080
	EA391	ST Connection (substation)	6809.5807		2.0777	1.5743	1.1251				6.1696
Unmetered	EA401	Public lighting		7.6770							
	EA402	Constant unmetered		8.8183							
	EA403	EnergyLight		7.6095							
Transmission	EA501	Transmission-connected	25245.6031								0.8108

6 COMPLIANCE CHECKLIST

Tables 6.1 to 6.7 show how the tariffs in our Tariff Structure Statement comply with the requirements of Chapter 6 of the Rules.

Table 6.1. Regulatory proposal and proposed tariff structure statement – 6.8.2 – Submission of tariff structure statement

Rule provision	Amending clause	Requirement	Section in main TSS	Other documents
6.8.2(a)	11.73.2(a)	A Distribution Network Service Provider must, whenever required to do so under paragraph (b), submit to the AER a regulatory proposal and a proposed tariff structure statement related to the distribution services provided by means of, or in connection with, the Distribution Network Service Provider's distribution system.	Entire TSS	
6.8.2(b)	11.73.2(a)	A regulatory proposal and a proposed tariff structure statement must be submitted: by 8 January 2019.	Entire TSS	
6.8.2(c)	11.73.2(a)	A proposed tariff structure statement must be accompanied by information that contains a description (with supporting materials) of how the proposed tariff structure statement complies with the pricing principles for direct control services.	Entire TSS	Explanatory Notes
6.8.2(c1a)	11.73.2(a)	The proposed tariff structure statement must be accompanied by an overview paper which includes a description of how the Distribution Network Service Provider has engaged with retail customers and retailers in developing the proposed tariff structure statement and has sought to address any relevant concerns identified as a result of that engagement		Regulatory Proposal
6.8.2(d1)		The tariff structure statement must be accompanied by an indicative pricing schedule.	Section 5	
6.8.2(d2)		The tariff structure statement must comply with the pricing principles for direct control services.	Entire TSS	Explanatory Notes
6.8.2(e)		If more than one distribution system is owned, controlled or operated by a Distribution Network Service Provider, then, unless the AER otherwise determines, a separate tariff structure statement is to be submitted for each distribution system.	Not applicable	
6.8.2(f)		If, at the commencement of this Chapter, different parts of the same distribution system were separately regulated, then, unless the AER otherwise determines, a separate tariff structure statement is to be submitted for each part as if it were a separate distribution system.	Not applicable	

Table 6.2. Distribution Pricing Rules – 6.18.1A –Tariff Structure Statement

Rule provision	Amending clause	Requirement	Section in main TSS	Other documents
6.18.1A(a)(1)		The tariff structure statement must include the tariff classes into which retail customers for direct control services will be divided during the relevant regulatory control period.	Section 2	
6.18.1 A(a)(2)		The tariff structure statement must include the policies and procedures the Distribution Network Service Provider will apply for assigning retail customers to tariffs or reassigning retail customers from one tariff to another (including any applicable restrictions).	Section 3	
6.18.1A(a)(3)		The tariff structure statement must include the structures for each proposed tariff.	Section 3	
6.18.1A(a)(4)		The tariff structure statement must include the charging parameters for each proposed tariff.	Section 3	
6.18.1A(a)(5)		The tariff structure statement must include a description of the approach that the Distribution Network Service Provider will take in setting each tariff in each pricing proposal during the relevant regulatory control period in accordance with clause 6.18.5 (pricing principles).	Section 4	Explanatory Notes
6.18.1A(b)		The tariff structure statement must comply with the pricing principles for direct control services.	Entire document	
6.18.1A(e)		A tariff structure statement must be accompanied by an indicative pricing schedule which sets out, for each tariff for each regulatory year of the regulatory control period, the indicative price levels determined in accordance with the tariff structure statement.	Section 5	

Table 6.3. Distribution Pricing Rules – 6.18.3 –Tariff Classes

Rule provision	Amending clause	Requirement	Section in main TSS	Other documents
6.18.3(b)		Each customer for direct control services must be a member of 1 or more tariff classes.	Section 2	
6.18.3(c)		Separate tariff classes must be constituted for retail customers to whom standard control services are supplied and retail customers to whom alternative control services are supplied (but a customer for both standard control services and alternative control services may be a member of 2 or more tariff classes).	Section 2	
6.18.3(d)		A tariff class must be constituted with regard to: (1) the need to group retail customers together on an economically efficient basis; and (2) the need to avoid unnecessary transaction costs.	Section 2	

Table 6.4. Distribution Pricing Rules – 6.18.4 – Principles governing assignment or re-assignment of retail customers to tariff classes and assessment and review of basis of charging

Rule provision	Requirement	Section in main TSS	Other documents
6.18.4(a)	In formulating provisions of a distribution determination governing the assignment of retail customers to tariff classes or the re-assignment of retail customers from one tariff class to another, the AER must have regard to the following principles:		
6.18.4(a)(1)	Retail customers should be assigned to tariff classes on the basis of one or more of the following factors: (i) the nature and extent of their usage; (ii) the nature of their connection to the network; (iii) whether remotely-read interval metering or other similar metering technology has been installed at the retail customer's premises as a result of a regulatory obligation or requirement;	Section 2	
6.18.4(a)(2)	Retail customers with a similar connection and usage profile should be treated on an equal basis;	Sections 2 and 3	
6.18.4(a)(3)	However, retail customers with micro-generation facilities should be treated no less favourably than retail customers without such facilities but with a similar load profile;	Sections 2 and 3	
6.18.4(a)(4)	A Distribution Network Service Provider's decision to assign a customer to a particular tariff class, or to re-assign a customer from one tariff class to another should be subject to an effective system of assessment and review. Note: If (for example) a customer is assigned (or reassigned) to a tariff class on the basis of the customer's actual or assumed maximum demand, the system of assessment and review should allow for the reassignment of a customer who demonstrates a reduction or increase in maximum demand to a tariff class that is more appropriate to the customer's load profile.	Sections 2 and 3	
6.18.4(b)	If the charging parameters for a particular tariff result in a basis of charge that varies according to the usage or load profile of the customer, a distribution determination must contain provisions for an effective system of assessment and review of the basis on which a customer is charged.	Section 3	

Table 6.5. Distribution Pricing Rules – 6.18.5 – Application of the Pricing Principles

Rule provision	Requirement	Section in main TSS	Other documents
6.18.5(a)	The network pricing objective is that the tariffs that a Distribution Network Service Provider charges in respect of its provision of direct control services to a retail customer should reflect the Distribution Network Service Provider's efficient costs of providing those services to the retail customer.	Entire TSS	
6.18.5(b)	Subject to paragraph (c), a DNSP's tariffs must comply with the pricing principles set out in paragraphs (e) to (j).	Section 4	
6.18.5(c)	A Distribution Network Service Provider's tariffs may vary from tariffs which would result from complying with the pricing principles set out in paragraphs (e) to (g) only: (1) to the extent permitted under paragraph (h); and (2) to the extent necessary to give effect to the pricing principles set out in paragraphs (i) to (j).	Section 4	
6.18.5(d)	A Distribution Network Service Provider must comply with paragraph (b) in a manner that will contribute to the achievement of the network pricing objective.	Entire TSS	

Table 6.6. Distribution Pricing Rules – 6.18.5 – Application of the Pricing Principles

Rule provision	Requirement	Section in main TSS	Other documents
6.18.5(e)	For each tariff class, the revenue expected to be recovered must lie on or between: (1) an upper bound representing the stand alone cost of serving the retail customers who belong to that class; and (2) a lower bound representing the avoidable cost of not serving those retail customers.	Section 4	Explanatory Notes
6.18.5(f)	Each tariff must be based on the long-run marginal cost of providing the service to which it relates to the retail customers assigned to that tariff with the method of calculating such cost and the manner in which that method is applied, to be determined having regard to: (1) the costs and benefits associated with calculating, implementing and applying that method as proposed; (2) the additional costs likely to be associated with meeting demand from retail customers that are assigned to that tariff at times of greatest utilisation of the relevant part of the distribution network; and (3) the location of retail customers that are assigned to that tariff and the extent to which costs vary between different locations in the distribution network.	Section 4	Attachment 10.03 (LRMC model)
6.18.5(g)	The revenue expected to be recovered from each tariff must: (1) reflect the Distribution Network Service Provider's total efficient costs of serving the retail customers that are assigned to that tariff; (2) when summed with the revenue expected to be received from all other tariffs, permit the Distribution Network Service Provider to recover the expected revenue for the relevant services in accordance with the applicable distribution determination for the Distribution Network Service Provider; and (3) comply with sub-paragraphs (1) and (2) in a way that minimises distortions to the price signals for efficient usage that would result from tariffs that comply with the pricing principle set out in paragraph (f).	Section 4	Explanatory Notes

Table 6.7. Distribution Pricing Rules – 6.18.5 – Application of the Pricing Principles (continued)

Rule provision	Requirement	Section in main TSS	Other documents
6.18.5(h)	A Distribution Network Service Provider must consider the impact on retail customers of changes in tariffs from the previous regulatory year and may vary tariffs from those that comply with paragraphs (e) to (g) to the extent the Distribution Network Service Provider considers reasonably necessary having regard to: (1) the desirability for tariffs to comply with the pricing principles referred to in paragraphs (f) and (g), albeit after a reasonable period of transition (which may extend over more than one regulatory control period); (2) the extent to which retail customers can choose the tariff to which they are assigned; and (3) the extent to which retail customers are able to mitigate the impact of changes in tariffs through their usage decisions.	Section 4	
6.18.5(i)	The structure of each tariff must be reasonably capable of being understood by retail customers that are assigned to that tariff, having regard to: (1) the type and nature of those retail customers; and (2) the information provided to, and the consultation undertaken with, those retail customers.	Section 3	
6.18.5(j)	A tariff must comply with the Rules and all applicable regulatory instruments.	Entire TSS	

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APPENDIX A – EXPLANATORY NOTES

These Explanatory Notes provide additional information to support our Tariff Structure Statement.

APPENDIX A – EXPLANATORY NOTES

A.1 Overview

Why a revised Tariff Structure Statement?

Our initial Tariff Structure Statement was submitted in April 2018. It proposed our initial approach to tariff structures, charging parameters and indicative pricing to comply with the National Electricity Rules and provide safe and reliable electricity to our customers. Recognising that a quarter of our 1.7 million customers are already on a cost reflective Time of Use tariff, we initially proposed an increase in the fixed daily charge to access our network, and lower variable charges. We proposed a demand tariff with a demand charge that would not come into effect until we conducted further research on its structure and impacts.

Following feedback from consumer representatives, stakeholder submissions to our Initial Proposal and in response to the AER's Draft Decision, we have undertaken a significant engagement process with the customer representative groups that form our Pricing Working Group to co-design a substantially revised approach. Our revised Tariff Structure Statement reflects that approach, avoiding increases to fixed charges (in real terms) and introduces demand tariffs for residential and small business customers. Our tariffs and assignment policies are revised so that the default assignment is to the most cost reflective tariff, a new seasonal demand tariff with a flat energy charge, with an opt out available to another cost reflective tariff which has a seasonal Time of Use (TOU) structure and a small non-seasonal demand component.

Our new approach aligns with the AER's position expressed in its Issues Paper and in its Draft Decision of 1 November 2018.[1] The AER recognises that Ausgrid is one of the more advanced distributors in the National Electricity Market in the penetration of cost reflective pricing and the cost reflectivity of existing tariffs. The new demand tariffs put Ausgrid at the forefront of the national tariff reform process being undertaken in the long-term interest of all users of our shared energy system. Demand tariffs are a powerful tool that can deliver long-term savings to the energy bills of all customers.

Four key reasons we are changing our approach to pricing:

1. In their Retail Electricity Pricing Inquiry of July 2018, the **Australian Competition and Consumer Commission (ACCC)** recommended the industry fast track the introduction of cost reflective network tariffs, with mandatory assignment of demand tariffs for all customers with metering capable of supporting them.
2. Throughout this regulatory determination process **customer representatives** have advocated strongly for the accelerated introduction of demand tariffs.
3. In their draft determination **the AER** supported the ACCC and customer advocate views, recommending that we introduce demand tariffs with an opt out to another cost reflective tariff.
4. **We** believe this change is in the best long-term interest of our customers, and will make a significant contribution to unlocking new energy delivery models and lowering whole of system costs for all electricity consumers.

The majority of residential and small business customers will be immediately better off under our new demand tariffs, however, in the short term the network bills for some customers may increase. Whether customers experience bill reductions or increases under the new demand tariffs will depend on how retailers pass through the price signal, the nature of each customer's load profile, and the extent to which customers respond to price signals and shift or flatten their load including the impact of any complementary measures offered to customers to help them in this process (see Section A.7 for measures).

To ensure this reform achieves its objective it will benefit from cooperation from retailers and support from government in helping customers who might be adversely affected by the

[1] Australian Energy Regulator (2018) *Draft Decision Ausgrid Distribution Determination*, November 2018, www.aer.gov.au

reform access targeted assistance. We will also develop information and education materials for customers who might be affected by the new tariffs to explain the drivers of the network bill for particular groups of customers and suggest measures to help customers save under our new network tariffs.

Our revised Tariff Structure Statement aligns with the position of the Australian Competition and Consumer Commission (ACCC). The ACCC strongly supported cost reflective pricing in Recommendation 14 of its Retail Electricity Pricing Inquiry of July 2018[2]:

> 14. The ACCC considers that steps should be taken to accelerate the take up of cost-reflective network pricing. Governments should agree to mandatory assignment of cost-reflective network pricing on retailers, ending existing opt-in and opt-out arrangements. Mandatory assignment of the network tariff should apply for all customers of a retailer that have metering capable of supporting cost-reflective tariffs (that is, a smart or interval meter). Retailers should not be obligated to reflect the cost-reflective network tariff structure in their customers' retail tariffs, but should be free to innovate in the packaging of the network tariff as part of their retail offer. Given the potential for negative bill shock outcomes from any transition to cost-reflective network tariffs should retailers pass these network tariffs through to customers, governments should legislate to ensure transitional assistance is provided for residential and small business customers. This assistance should focus on maximising the benefits, and reducing the transitional risks, of the move to cost-reflective pricing structures. This includes:
>
> - a compulsory 'data sampling period' for consumers following installation of a smart meter
> - a requirement for retailers to provide a retail offer using a flat rate structure
> - additional targeted assistance for vulnerable consumers.
>
> Demand tariffs, which charge retailers based on their customers' maximum demand during pre-determined typical system peak times, represent an appropriate structure for the initial mandatorily assigned network tariffs. This tariff structure provides a balance of the objectives of cost reflectivity, simplicity and price certainty.

In addition, as noted by the AER, customer representative groups have pushed for the accelerated adoption of cost reflective pricing[3]. After multiple working sessions with our Pricing Working Group a co-designed pricing strategy emerged that met the specifications outlined in their Pricing Directions document (Attachment 10.14):

> A key group of stakeholders, including the Consumer Challenge Panel (CCP), Energy Consumers Australia (ECA), Public Interest Advocacy Centre (PIAC) and Total Environment Centre (TEC) have advocated for cost reflective tariffs in their paper, Pricing Directions. Pricing Directions calls for prioritising a transition to demand or capacity tariffs, and argues that where there is an opt-out default cost tariff system, the opt-out option should not be to a flat energy charge (and no demand charge).

What is our revised approach?

In our revised Tariff Structure Statement, our guiding principles and objectives for pricing are unchanged (Table A1.1). Our overarching principle for pricing reform is to reduce customers' bills by lowering whole of system costs and make sure that our network costs are shared fairly between our customers. Our analysis shows that our revised approach meets the National Electricity Rules and balances objectives.

Many elements of our tariff structures are unchanged from their current 2018/19 structure. Our existing cost reflective seasonal TOU tariff will continue for customers with a Type 5 (interval) meter, but will be closed to new connections. Our existing non-cost reflective tariff will also continue for customers with a Type 6 (accumulation) meter, but is also closed to new connections. Our existing tariffs for High Voltage, Subtransmission and Transmission customers will continue.

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[2] Australian Competition and Consumer Commission (2018) *Restoring Electricity Affordability and Australia's Competitive Advantage: Retail Electricity Pricing Inquiry – Final Report*, July 2018, www.accc.gov.au

[3] Australian Energy Regulator (2018) *Issues Paper: NSW Electricity Distribution Determinations: Ausgrid, Endeavour Energy, Essential Energy 2019 to 2024*, June 2018, www.aer.gov.au

Table A1.1. How pricing promotes affordable, sustainable and reliable network services

Objective	How can pricing promote these outcomes?
Affordable	• Rewards customers who actively manage their contribution to peak demand and place a low cost burden on the shared system. • Encourages customers to use our network when the cost of doing so is low, leading to lower rates overall. • Promotes fairer outcomes between customers with different characteristics (such as those with and without distributed energy resources or peaky load). • Ensures all customers make a fair contribution to the cost of the network service they use. • Gives customers more choice and control over how they are billed for access to the grid while still promoting the development of more innovative retail products to further increase the choices available.
Reliable	• Reduces incidences of spikes in demand that can lead to network outages. • Encourages a more responsive demand-side to deliver the reliability outcomes that our customers expect at a lower cost.
Sustainable	• Unlocks new potential energy sources for customers who cannot currently benefit from distributed energy resources, by levelling the playing field for shared energy schemes such as community solar and storage. • Encourages customers to use distributed energy resources in a way that helps them to better manage their consumption at peak and non-peak periods, and lowers grid costs for all. • Encourages the adoption of electric vehicles without unnecessarily increasing grid costs. • Promotes the lowest cost transition to a lower carbon economy.

Demand tariffs a key element of our revised approach

Our revised Tariff Structure Statement proposes to introduce a set of three demand tariffs from 1 July 2019 for residential and small business customers including:

- a demand tariff
- a demand (introductory) tariff
- a TOU demand tariff.

Demand tariffs (tariffs that include a demand charge) will help us reduce peak demand. Reducing peak demand, which is the principal driver of our future costs, will reduce costs for all customers in the long term. Our demand tariffs provide a more equitable way to recover our total network costs and send price signals to adjust network use.

Our **demand** tariff:

- has a network access charge, a flat energy consumption charge, and a two rate (seasonal) demand charge
- is the default tariff for new connections and meter change (to a smart meter) initiated by a customer.

Customers with an existing smart meter will be reassigned to this tariff on 1 July 2019.

Our **demand (introductory)** tariff:

- has a network access charge, a flat energy consumption charge, and a seasonal demand charge set to the same low level in both seasons (effectively a flat demand charge)
- mirrors the behaviour of our legacy flat energy tariffs, while introducing time of use consumption windows, and (very small) seasonal demand charges – to allow customers to understand their consumption and demand patterns without experiencing any material changes to their bill
- is available for 12 months only for existing customers when they replace their accumulation meter due to meter failure including network-driven meter family replacement
- serves as a sampling tariff to help customers learn and adjust their behaviour before facing a cost reflective demand tariff.

Our **TOU demand** tariff:

- has a network access charge, a seasonal time of use energy consumption charge and a seasonal demand charge set to the same low level in both seasons (effectively a flat demand charge)
- is for any customer with a smart meter as an opt out alternative tariff to the default tariff
- mirrors the behaviour of our existing TOU tariffs, while introducing a moderate demand charge component, as an important foundational building block for future tariff reform.

Charging parameters of demand tariffs

Each demand tariff has three components with six charging parameters, although some of the parameters may have the same price:

- a fixed daily charge (in cents per day)
- an energy consumption charge, charged in three periods: peak, shoulder and off-peak (in cents per kWh of energy consumption)
- a demand charge, charged for maximum 30 minute kW demand a month in the demand window in two seasons: High season months and Low season months (in cents per kW demand per day). The demand charge (in cents per kW per day):
    - is applied to the maximum kW demand over any 30 minute period within the defined demand window on a working weekday in each month, with the resulting charge applied for each day in the month (before being reset for the next month)
    - is based on the definition of a demand window for measuring the maximum demand which is aligned with a corresponding definition of a time of use time period window for peak energy consumption
    - varies by season, being higher in a High season month, and lower in a Low season month, with the definition of seasonality aligned with a corresponding season for a time of use time period
    - the time window for time of use peak energy and maximum demand varies by season for residential customers (2-8 pm in ‘summer’ months, 5-9 pm in ‘winter’ months), but does not vary for small business customers (2-8 pm in all months of the year).

Our demand (introductory) tariff and TOU demand tariff have the same charging parameters as the demand tariff, with the only differences being the prices associated with each component.

Planning for future tariffs

We also propose three placeholder tariffs to allow us to respond to changes in network use anticipated to occur in the regulatory period: two more flexible controlled load tariffs and an embedded network tariff. No customers will be assigned to the placeholder tariffs from 1 July 2019. We will develop the specification of the tariffs in consultation with stakeholders including our Pricing Working Group and then include the details in an annual pricing proposal.

Summary of major pricing reforms

Table A1.2 summarises our major pricing reforms for the 2019-24 regulatory period.

Table A1.2. Summary of major pricing reforms over the 2019-24 period

Proposed reform	Description	Benefits for our customers
Introduce demand tariffs	Introduce a set of demand tariffs (tariffs which include a demand charge component) for residential and small business customers: • **a demand tariff** as a default assignment for new connections and customer-initiated meter replacement or upgrade • **a time of use demand** tariff as a second cost reflective option • **a demand (introductory)** tariff as a sampling tariff to ease the transition to a demand tariff where a customer's meter change to a smart meter is due to failure of an accumulation meter	• Ensures customers retain greater control of the network component of their bills while moving to cost reflective tariffs • Gives customers choice about how they are charged for their energy • Encourages customers to invest in cost effective distributed energy resources that help them to better manage their consumption at peak periods • Promotes fairer outcomes between customers with different demand characteristics (those with and without distributed energy resources, or peaky load) • Provides greater certainty for those considering or making investments in new technology • Gives customers new to cost reflective charging mechanisms time to learn about and adjust their usage patterns, but does not confuse customers with a 12 month sampling period where this is unlikely to be beneficial (such as new connections or customers that experience a step change in their demand profile when they install distributed energy resources) • Accelerates the development of more innovative retail tariffs that manage the risk of both wholesale and network costs for customers
Simplify the default tariffs	Streamline current tariff structures and make our tariffs easier for customers to understand	• Makes it easier for our customers to understand and make choices
Align charging windows for small business customers	Align charging windows for seasonal time of use peak energy, seasonal peak demand charges and annual capacity charge to 2-8 pm on working weekdays	• Provides more cost reflective peak price signals • Enables easier understanding and better management of peak demand • Achieves consistency within the business tariff segment

Proposed reform	Description	Benefits for our customers
Plan new controlled load tariffs and embedded network tariff	Introduce new, more flexible controlled load tariffs and an embedded network tariff as placeholders, with no customers assigned from 1 July 2019, and with specifications to be developed in consultation with the Pricing Working Group and other stakeholders	• Prepares the network and customers for the introduction of electric vehicle charging and increasing use of smart appliances, allowing customers to get more value from their investments while protecting other customers from incurring cost increases • Prepares for increased use of embedded networks and reduces the cost impacts of this on other network connected customers • Allows for further research and engagement and consultation with customers and stakeholders on the specifications of the tariffs

Who is affected by the revised approach, and how?

Only some of our customers will be affected by the introduction of the set of demand tariffs. The type of impact will depend on customers' usage patterns and willingness and ability to make changes to their usage patterns.

Our allowed revenue for the first year of the 2019-24 regulatory period is lower than the revenue we recovered through tariffs in 2018/19. The lower revenue requirement translates into price reductions for our customers. While distributing these savings to our customers, we are adjusting our current revenue shares embedded in particular tariffs to move them closer to the efficient level. This means some tariffs are receiving a smaller share of savings, if their current contribution to the system peak demand exceeds the share of revenue funded by the tariff, adjusted for the relative growth in customer numbers on this tariff. By moving tariffs closer to their contribution to peak demand we are improving the cost allocation method and the fairness of our tariff structure.

Our customers' bills have several components: generation, network, green schemes and retail. Based on the indicative pricing in our revised Tariff Structure Statement, the average reduction in the network component of the bill in 2019/20 of a typical residential customer using 5,000 kWh a year on our most common tariff, EA010 non-Time of Use tariff, is expected to be 12% (Table A1.3) and for a typical small business customer using 10,000 kWh a year it is 12% (Table A1.4). Table A1.5 shows the network component of the bill in 2019/20 for a typical customer on each of our two medium business tariffs and for a typical large business customer. The final prices for each tariff will continue to be determined on an annual basis.

Table A1.3. Impacts on typical residential customer bills in 2019/20

Tariff	Usage MWh pa	Network component of bill in 2019/20	Percentage and $ change from 2018/19	Bill with 10% reduction in demand
Existing: EA010 Non-Time of Use	5	$565	-12% (-$75)	
Existing: EA025 Time of Use	5	$556	0% (-$2)	
New: EA116 Demand	5	$504		$482
New: EA115 Time of Use demand	5	$554		$549

Note: Excludes GST. Percentage change not available for new tariffs as they did not exist in 2018/19.

Table A1.4. Impacts on typical small business customer bills in 2019/20

Tariff	Usage MWh pa	Network component of bill in 2019/20	Percentage and $ change from 2018/19	Bill with 10% reduction in demand
Existing: EA050 Non-Time of Use	10	$1,298	-12% (-$169)	
Existing: EA225 Time of Use	10	$1,268	-2% (-$27)	
New: EA256 Demand	10	$1,240		$1,212
New: EA255 Time of Use demand	10	$1,251		$1,245

Note: Excludes GST. Percentage change not available for new tariffs as they did not exist in 2018/19.

Table A1.5. Impacts on typical medium and large business customer bills in 2019/20

Tariff	Usage MWh pa	Network component of bill in 2019/20	Percentage and $ change from 2018/19
Existing: EA302 40-160 MWh pa	70	$6,795	-13% (-$1,047)
Existing: EA305 160-750 MWh pa	300	$25,376	-10% (-$2,717)
Existing: EA310 >750 MWh pa	1,000	$61,646	-4% ($2,270)

Note: Excludes GST. Usage is for a 'typical' customer on each tariff.

Many elements of our existing structures will remain the same as in 2018/19 and many customers will see no change to the structure of their tariff. The demand tariffs with a new demand charge will only apply to customers with a Type 4 (smart) meter. Customers with a Type 6 (accumulation) or Type 5 (interval) meter will not be affected until their meter changes.

Our revised approach will affect new customers from 1 July 2019, and when existing customers change their meter to a Type 4 (smart) meter. The number of customers currently on each tariff type by meter type is summarised in Table A2.1 in Section A.2. The number and proportion of our customers on a demand tariff will increase over time.

Customers on our current tariffs who require assistance with their bills are likely to continue to require assistance if they are assigned to a demand tariff with a demand charge, but may have more control over their bill. We will work with these customers and stakeholders to minimise the impact of a change to a demand tariff on customers in need of assistance. We will work with the Energy and Water Ombudsman of NSW (EWON), and the NSW government to assist eligible customers' access exiting rebate schemes such as the Low Income Household Rebate, Energy Accounts Payment Assistance, Family Energy Rebate, Life Support Rebate and Medical Energy Rebate.

Our revised approach continues our technology neutral position and does not distort customers' decision making or attempt to pick technology winners.

How will the revised approach work and meet the Rules?

We are introducing the set of demand tariffs to accelerate the take up of cost reflective network pricing. However, the extent to which demand tariffs have the intended effect to reduce network peaks depends on strong and effective communication with stakeholders including customers, retailers and third party technology providers.

To the extent that retailers choose to pass the structure of the underlying demand tariff to our customers (or a version that includes some form of the new demand component), customers will need to understand how their demand tariff works, and how they can change their usage to have more control over their bill.

In addition to the information retailers choose to provide their customers, either on their bills or by other channels, customers will be able to download information about their usage and demand directly from our website.

Third party technology providers can play an important role in providing tools to help customers on a demand tariff with a maximum 30 minute peak demand charge understand their demand and manage it.

Retailers may choose to offer customers products that mask the structure of the underlying network tariff. As long as retailers remain exposed to the cost reflective price signal, the incentive to reduce demand, and hence cost on the shared grid, still exists and will ultimately be facilitated by the competitive market, and hence meet the objectives of the reform.

However retailers respond, we will be working closely with customer groups, retailers and government to ensure the introduction of demand tariffs is appropriately communicated to customers.

Our revised Tariff Structure Statement, Explanatory Notes and accompanying attachments together explain how our revised approach including residential and small business demand tariffs meets the National Electricity Rules to ensure prices are cost reflective.

When will the revised approach be implemented?

We will introduce the new set of demand tariffs from 1 July 2019 for existing customers with a Type 4 (smart) meter, and from 1 July 2019 onwards for new customers (new connections), and to existing customers when they change their meter.

As the AER is expected to make a final determination on our revised Tariff Structure Statement in April 2019, we only have a short window of time before 1 July 2019 to communicate the change to directly affected customers, retailers and other stakeholders.

We expect the number of customers affected will increase over time after 1 July 2019 throughout the five-year regulatory period, allowing communication strategies to be reviewed and expanded over time.

We believe communications about new demand tariffs will be most effective in the context of an ongoing sector-wide energy literacy campaign for all customers, closely supported by all key stakeholders including the AER, the energy sector (distributors and retailers), customer advocates, other stakeholders including the Energy and Water Ombudsman of NSW and government representatives.

As part of communications, we also support the Australian Competition and Consumer Commission's Recommendation 38 to improve energy literacy of vulnerable customers[4]:

> In addition to existing funding, the Australian Government and the relevant state or territory government should fund (to a value of $5 per household in each NEM region, or $43 million NEM-wide, per annum) a

[4] Australian Competition and Consumer Commission (2018) *Restoring Electricity Affordability and Australia's Competitive Advantage: Retail Electricity Pricing Inquiry—Final Report*, July 2018, www.accc.gov.au

grant scheme for consumer and community organisations to provide targeted support to assist vulnerable consumers to improve energy literacy. This grant scheme should be modelled on the approach taken by the Queensland Council of Social Services in administering the Switched on Communities program. This targeted support will assist vulnerable consumers to participate in the retail electricity market and choose an offer that suits their circumstances.

What happens next?

We recognise that introducing demand tariffs will be a big change for some of our customers and requires a comprehensive communication campaign from all stakeholders.

We support the Australian Competition and Consumer Commission's Recommendation 14[5] in its Retail Electricity Pricing Inquiry of July 2018 that governments should appropriately fund communication campaigns around the benefits of cost reflective pricing and smart meters to build community acceptance and awareness of individual and community wide benefits, as well as customer awareness of their rights.

We are continuing to work with customer advocates including the Energy and Water Ombudsman of NSW and our Pricing Working Group to support communication of our tariff changes. We are working with retailers on the implementation of the proposed new tariffs. We are discussing our changes with our fellow distributors in NSW, Endeavour Energy and Essential Energy, to ensure a consistent approach where possible, recognising the differences between networks.

In communicating the changes to our customers, we will emphasise:

- why we are changing and how it will benefit customers by ensuring affordable, reliable and sustainable electricity supply
- how customers can manage their bills and what tools and information are available to assist them
- options and procedures for customers to choose an alternative demand tariff
- complementary measures and assistance available for customers in need.

All communications will include further engagement with retailers (once they have had more time to consider and plan their response to the introduction of the new network tariffs) and where possible will involve joint or retailer led communications that minimise the risk of conflicting messages.

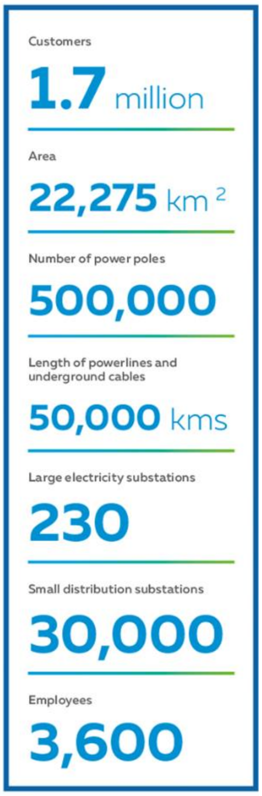
The timing of the AER's final determination in April 2019 and our proposed introduction of the demand tariffs from 1 July 2019 provides only limited time to communicate changes to customers and other stakeholders.

[5] Australian Competition and Consumer Commission (2018) *Restoring Electricity Affordability and Australia's Competitive Advantage: Retail Electricity Pricing Inquiry—Final Report,* July 2018, www.accc.gov.au

A.2 Our network and our customers

Our electricity distribution network

Ausgrid is a key element of the electricity supply chain that delivers electricity to customers' premises. We are often called 'the poles and wires'. Once power is generated, it is transported as high-voltage electricity over long distances by TransGrid.



Our network then transforms it into lower voltage electricity at subtransmission and zone substations. This electricity is again transformed at local distribution substations, so it can be supplied to customers' premises. We manage more than 230 subtransmission and zone substations, 30,000 distribution substations, 50,000 kilometres of power lines and 500,000 power poles. These assets, along with our depots and other properties, are known as our regulated asset base and are worth approximately $15.7 billion.

Our customers – meter types and tariffs

The 1.7 million customers connected to the Ausgrid network have a diverse set of needs and preferences. Our customers range from small residential households consuming about 5 megawatt hours (MWh) a year to large industrial customers consuming more than 40 gigawatt hours (GWh) a year.

Residential customers are 90% of our customers, but businesses account for 66% of energy consumption. Our customers have a range of meter types, and therefore a range of tariffs, depending on whether the meter supports a more cost reflective tariff. For instance, over 500,000 customers of our 1.7 million customers are on a TOU or TOU capacity tariff. The number of our customers with interval or better metering is expected to increase to over 1 million in 2024.

Table A2.1 summarises our residential and small business customers by meter type and tariff.

Table A2.1. Customers by tariff and meter type in 2018/19

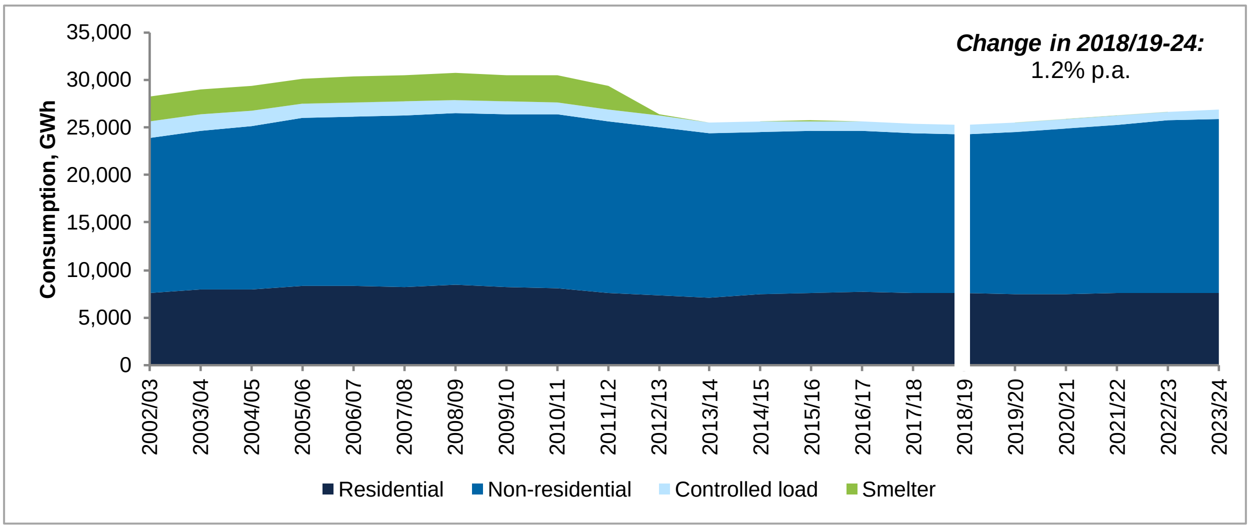
Customer and current tariff	Type 6 (Accumulation)	Type 5 (Interval)	Type 4 (Smart)	Total
Residential				
EA010 Non-TOU	1,075,000	0	0	1,075,000
EA011 Transitional TOU	0	80,000	70,000	150,000
EA025 TOU	0	285,000	50,000	335,000
Total residential customers	**1,075,000**	**365,000**	**120,000**	**1,560,000**
Small business				
EA050 Non-TOU	67,000	0	0	67,000
EA051 Transitional TOU	0	2,000	1,200	3,200
EA225 TOU	0	66,000	3,000	69,000
Total small business customers	**67,000**	**68,000**	**4,200**	**139,200**

Note: Residential customers rounded to nearest thousand.

Forecast energy consumption

Figure A2.1 shows our historical and forecast energy consumption by segment.

Figure A2.1. Ausgrid: Historical and forecast energy consumption



Source: Attachment 10.15 Energy Volume Forecast, January 2019.

Integrating pricing and demand management

Over the last 15 years, we have developed a suite of demand management, or non-network, solutions to complement network pricing to manage customer demand and maintain supply reliability, at least cost. The demand management solutions currently available include the use of embedded generation, customer power factor correction, dynamic peak rebate offers and direct load control of customer appliances, such as hot water systems, pool pumps and air conditioners.

The load control of air conditioners offers significant opportunities to reduce network costs since air conditioning load is a significant driver of peak demand. Our CoolSaver air conditioner demand response trial[6] has both proven the viability of the demand response technology introduced as part of Australian Standard AS4755, and the willingness of customers to reduce their demand when given an incentive. Changes in technology, such as energy storage, smart meters and energy management systems, are expected to increase the number of viable, cost effective solutions available.

Our demand management solutions are supported by our network pricing structures, which encourage customers to make efficient decisions on how they use the network and provide a foundation for introducing demand management programs. Our existing network pricing and demand management solutions complement each other in several ways:

- **Controlled load pricing**, in conjunction with load control equipment, can be used to shift appliance usage from peak periods to off-peak periods. Ausgrid has around 500,000 customers on controlled load tariffs, which contributes to an overall system peak demand reduction of 300 MW in winter and 100 MW in summer. These tariffs offer the potential for modifications in scheduling where specific local needs are identified.
- **Time of use capacity pricing** is mandatory for all medium to large business customers (>40 MWh a year), and accounts for approximately half of the electricity consumption from all our customers. Importantly, these capacity charges provide a price signal to encourage customer investment in power factor correction, one of the lowest cost demand management solutions that can be implemented, and the availability of interval data supports the use of a dynamic peak rebate offer to customers.
- **Time of use tariffs –** Ausgrid first introduced time of use pricing over ten years ago and over 500,000 of our 1.7 million customers are on a time of use or time of use capacity tariff. Although the lack of remote communications from Type 5 metering has hampered the introduction of more innovative tariff options to certain customer segments, the expansion of smart meters in the coming years is expected to offer significant opportunities for demand management. Rebate offers like the dynamic peak rebate or air conditioner load control may help defer network investment. The number of customers with interval or better metering is expected to increase to over 1 million in 2024.

We will continue to monitor the use of cost reflective tariffs, including our new demand tariffs, and assess the impact on customer usage patterns. Where customer demand is projected to change at a rate different from the past, we will develop and introduce a post model adjustment procedure to include in our demand forecast.

We note that as the number of customers on time of use or time of use capacity tariffs has grown steadily from close to zero in 2004 to over 500,000 residential and business customers in 2019, we now have 75% of our total energy volume in 2019 consumed by customers with cost reflective pricing in place. With our revised Tariff Structure Statement, we expect this coverage to increase to approximately 85% of our total energy volume by the end of the regulatory period in 2023/24. As the coverage of cost reflective network prices across total energy volume is expected to grow at a slower rate than the historical trend, we expect the historical econometric and spatial trends used to derive our demand forecast capture the demand response effect associated with cost reflective network pricing.

6 *CoolSaver* is an initiative in which Ausgrid installs a signal receiver in a customer's air conditioner that allows Ausgrid to remotely activate the air conditioner's in-built power saving modes. Customers receive an upfront and ongoing reward for joining CoolSaver. The program began in summer 2013/14, and was promoted in selected suburbs in the Central Coast, Lake Macquarie and Maitland parts of our network. The initial program was completed in summer 2016/17 and further details including an interim report are on our website here. During the 2019-24 regulatory period Ausgrid is planning to further explore demand response trials using modern energy efficient air conditioners that are internet enabled.

A.3 Our customer consultation

Our process for customer consultation on pricing reform includes our Customer Consultative Committee, and our new Pricing Working Group. Customers also provided feedback on our Initial Proposal during its development and through submissions to the AER.

Customer Consultative Committee

The Customer Consultative Committee is the main consultative body we use to provide customer and external stakeholder perspectives on our plans, policies and service delivery, our regulatory submissions and the regulatory framework; and ensure appropriate and effective customer and stakeholder engagement. Box A3.1 lists the current members and observers.

Box A3.1. Customer Consultative Committee members and observers

- Council on the Ageing NSW
- Energy & Water Ombudsman NSW
- Energy Consumers Australia
- Ethnic Communities Council NSW
- Major Energy Users
- NSW Council of Social Services
- Public Interest Advocacy Centre
- St Vincent de Paul Society
- Total Environment Centre
- Consumer Challenge Panel (observer)

Pricing Working Group

Since the submission of our Initial Proposal in April 2018, we have set up a new Pricing Working Group to guide our pricing reforms. The Pricing Working Group had multiple working sessions in late 2018 to discuss the pricing reforms in our Revised Proposal. The Pricing Working Group helped us develop the pricing strategy in our Tariff Structure Statement that fairly recovers the costs of providing network services, while also giving customers transparent price signals that enable them to benefit from more efficient use of the network. This strategy now includes demand tariffs for residential and small business customers.

Members of the Pricing Working Group are the AER Consumer Challenge Panel, Energy Consumers Australia, Energy Users Association Australia, NSW Business Chamber, Public Interest Advocacy Centre, St Vincent de Paul Society and Total Environment Centre.

The path towards cost reflective tariffs

The customer consultation on our Initial Proposal and in developing our Revised Proposal identified challenges in achieving cost reflective tariffs.

In our Initial Proposal and our Tariff Structure Statement, we did not propose residential and small business demand tariffs from 1 July 2019. Our initial engagement with customers and stakeholders made clear there were mixed, conflicting and strongly held views by customers, customer advocates, Ausgrid and pricing experts on whether demand price structures would deliver more affordable, reliable and sustainable outcomes for our customers.

In response to the AER's Draft Decision, stakeholder submissions to our Initial Proposal and the feedback received from consumer representatives, we accelerated our proposed tariff reform by proposing a set of demand tariffs for residential and small business customers from 1 July 2019.

Customer input on our Revised Proposal

Our Revised Proposal is compatible with *Pricing Directions: A Stakeholder Perspective* developed by Energy Consumers Australia, Public Interest Advocacy Centre, Consumer Challenge Panel and Total Environment Centre (Attachment 10.14, unchanged from our Initial Proposal).

We agree with Pricing Directions that the endpoint for pricing reform changes through time to reflect changing circumstances, new information and evolving customer preferences. We agree with Pricing Directions that it is important that our pricing strategy is adaptive to change as new information comes to light.

We are grateful for the efforts of Energy Consumers Australia, Public Interest Advocacy Centre, Consumer Challenge Panel and Total Environment Centre in developing *Pricing Directions: A Stakeholder Perspective* which provides guidance on the design of an efficient pricing structure and the matters that networks should take into account when designing them.

We thank the Pricing Working Group for their support and working with us to create the Tariff Structure Statement in our Revised Proposal.

A.4 Our pricing reform

Cost reflective pricing and balancing objectives

We are committed to transitioning to efficient, cost reflective tariffs in a manner that best promotes the long-term interests of our customers, but recognise the efficient pricing outcome is constantly changing. Our customers' preferences and technology are changing, altering the way our customers use our network, the costs imposed on our network, and the most efficient means of providing the services our customers expect. In practical terms, tariff efficiency is an objective that we may be constantly working towards, without ever achieving in full, since it is always changing.

Cost reflective pricing must both:

- signal to customers future network costs that could be avoided and
- recover the historical cost of the network in a manner that has as little distortionary effect on customer behaviour as possible.

Encouraging efficient use of the network

Cost reflective pricing encourages customers to use our network efficiently by signalling to them the future costs arising from further use of our network, which enables them to decide:

- whether using our network best meets their needs at the lowest possible cost; or
- whether investments in distributed energy resources and energy efficiency initiatives can better meet their needs at a lower cost, which benefits all customers.

Importantly, the level of future costs that could be avoided varies considerably across the day. We estimate that avoidable costs:

- are equal to approximately $56/kW during the peak period; but
- are very close to zero outside of the peak period, because there is excess capacity on our network at those times.

This means that, at a very high level, any changes to the network use outside the peak periods have very little impact on network operating costs. We established the peak periods for residential customers as 2-8 pm in summer and 5-9 pm in winter. Outside these periods, our tariffs should encourage customers to use the network, as there is little or no additional network cost.

For example, the additional network costs imposed by customers running their air conditioners on hot summer nights after 8 pm (when there is excess capacity on our network) is low. If this is something customers value, we do not want to unnecessarily discourage them from using our network by sending price signals that are much above the cost reflective level.

Our current non-peak variable energy charges – the shoulder and off-peak price – overstate the very low level of future avoidable network costs in the shoulder and off-peak periods.

Therefore, our pricing reforms which include reducing shoulder and off-peak energy prices will better reflect the additional costs of providing network services at those times, which will encourage the efficient use of our network and increase our capacity utilisation. In passing through savings for the first year of the 2019-24 regulatory period, we reduced shoulder and off-peak energy consumption prices where possible.

Encouraging efficient investments in new technologies

Cost reflective price signals also play an important role in assisting our customers to make efficient investments in distributed energy resources (DER) and undertake efficiency-enhancing activities. This is particularly important in the context of rapidly changing technology. One of the objectives of the tariff reform is to remove the distortions that current tariff structures have for optimal investment in new technologies. The tariffs should also enable a fair allocation of residual costs between customers with similar load profile irrespective of technology.

Network prices feed into customers' investment decisions signalling the hypothetical network bill savings that can be achieved from an investment in DER. While not all customers invest in DER for purely economic reasons, an economically rational customer would invest in DER if they estimate benefits from this investment in Net Present Value terms.

To establish these likely benefits, the customer would typically evaluate the upfront cost of installing the technology with the amount and timing of the stream of savings they are likely to receive from the investment. Government policies and assumptions on their direction tend to heavily influence this evaluation, and hence the investment decision.

The savings are from the retail bill, as this is the only bill that the customer faces directly. These savings flow from the three components of the retail bill – network charges, wholesale energy and retail component. The degree to which changes in network charges are passed on to the customers by their retailers is an open question.

However, assuming that the retailer passes through the price signal embedded in the network charges, our network charges should encourage optimal investment in DER. That is, the savings in network charges to the DER customer at times where there are little savings in our network costs from the customer's DER, should be little if any. In principle, with fully cost reflective network pricing, customers will invest in DER when the cost of that investment is less, on a Net Present Value basis, than the avoided network costs plus generation and retail costs resulting from that investment (together equal to their total retail bill saving).

This is an efficient Net Present Value positive investment in DER meeting that customer's needs at a lower cost. The benefit from this customer investing in DER would accrue to other customers as well if the future network costs are lower to all customers.

However, if our prices are above cost reflective levels then we signal to customers that the future network costs that could be avoided by an investment in DER are much higher than they really are. This means that a customer investing in DER may realise a network bill reduction that exceeds the resulting reduction in future network costs. This is an inefficient investment in DER since the costs avoided are lower than the costs of investment and, in this case, other customers incur the grid costs avoided by the customer with distributed energy resources.

Reductions in the use of our network outside the peak period generally result in very low, if any, avoided future network costs. However, our current shoulder price in particular is significantly above the cost reflective level. Since the vast majority of solar PV generation occurs outside the peak period, this means that future investors in solar PV will receive a network bill reduction that typically far exceeds the avoided future network costs. The difference must then be recovered from other customers, which creates inequities between adopters and non-adopters of solar PV and other DER.

On the other hand, introducing demand tariffs and lowering non-peak energy charges will encourage more efficient investment in distributed energy resources. New tariffs provide incentives to invest in DER targeted at reducing the use of our network during peak, rather than non-peak periods. For example, reducing shoulder charges encourages customers to install west-facing solar PV installations that better assist in reducing the use of the network later in the day, i.e., during peak periods. The demand charge peak period of 2-8 pm in summer creates incentives to install a battery to manage the maximum demand in peak period. Demand tariffs support take-up of smart home technologies. With more customers managing peak demand either by taking control of their load or letting a third party control that load for them, the network as a whole can manage the peak demand better, ensuring network stability, saving on future augmentation costs and delivering the best long-term outcome for all customers.

Introducing demand tariffs

We support customers having control of their network bills by changing their behaviour in a way that avoids future network costs. Customers can do this by reducing their use of the network during peak periods which drives our costs. For this reason, our costs are based on an estimate of the long run marginal cost of using the network during the peak period. We encourage customers to manage their network bill by changing their behaviour in a way that reduces their use of the network during the peak period which assists in avoiding future network costs.

Our new set of demand tariffs with a demand charge, explained in Section A.1, will encourage customers to reduce their peak demand and reduce future network costs for all customers.

Planning for new more flexible controlled load tariffs

We are planning for the introduction of new controlled load tariffs, which are more flexible than our existing controlled load tariffs, to recognise new future load such as electric vehicle charging and the increasing customer take up of smart appliances.

Two placeholder tariffs are proposed, by customer usage:

- Controlled load 3 for residential and small business customers (up to 40 MWh a year)
- Controlled load 4 for medium and large Low Voltage business customers (above 40 MWh a year).

These are placeholder tariffs at 1 July 2019, with no customers assigned to them. Specifications will be developed through further research and engagement and consultation with customers and stakeholders including our Pricing Working Group, and the tariffs will then be introduced in an annual pricing proposal.

Placeholder tariffs recognise that new demands on the network may require a different approach from traditional controlled load tariffs and new technology provides opportunities to interrupt supply by remote control based on localised need.

The Controlled load 3 tariff will likely be less frequently interrupted than our current Controlled load 2 tariff. It will be a secondary tariff open to residential and small business customers (up to 40 MWh a year), similar to our current controlled load tariffs. A new tariff will combine flexibility from the customer’s viewpoint (of making the charge available most of the time), with an ability of the network to control the system peak demand and shed load if required by interrupting the charge at some critical peak events. It might also have a demand or capacity based charge, to allow for the size of the connection to not be linked to the fixed network access charge. A similar placeholder tariff Controlled load 4 is proposed for medium to large Low Voltage business customers (above 40 MWh a year). This tariff is driven by the same rationale but can be priced at a different level, reflecting the different costs associated with larger spot loads.

We are planning research in collaboration with academia and industry, and extensive stakeholder consultation including our Pricing Working Group, to develop these tariffs further and offer them as part of an annual pricing proposal, from 2020/21 or 2021/22.

Planning for a new embedded network tariff

Embedded networks are private electricity networks that serve multiple customers and are connected to another distribution or transmission system in the national grid through a parent connection point.

As of 2018/19, there are an estimated 260 embedded networks in our distribution area and, based on current regulatory settings and connection application rates, we expect this number to continue to increase over time. We recognise that embedded networks are not currently regulated by the AER, but embedded networks have impacts on all our customers as they influence how the costs of the regulated network are shared between the customers that use it.

There are likely to be changes to regulation of embedded networks in the 2019-24 regulatory period which will result in better protections and access to more competitive retail offers for consumers in embedded networks. The AEMC recommended new regulatory arrangements for embedded networks in its final report in November 2017[7]. Following that report, a current review by the AEMC is identifying a package of law and rule changes required to implement these recommendations to update the regulatory frameworks that apply to embedded networks. The AEMC's draft report on updating the regulatory frameworks for embedded networks is expected to be released in late 2018[8] and the final report in mid 2019.

We note the AER's response to a recent proposal for an embedded network tariff[9]. For this reason, we propose a placeholder tariff for low voltage embedded networks, to recognise the AEMC review of law and rule changes for embedded networks which is currently underway and to be prepared for changes in the electricity market.

We note the AER's view that, if distributors believe that differences in network pricing across tariff classes are incentivising embedded networks, any proposal should be accompanied by detailed modelling establishing that the incentive exists and its existence is not in the long-term interests of consumers.

While this is an emerging issue and we have not yet quantified the degree of its impact on our existing customers, the impact is likely to be material. Box A4.1 provides an example of aggregating a set of existing residential NMIs into an embedded network and Box A4.2 provides three examples of business NMIs in an embedded network based on de-identified current customers. The examples illustrate there is a clear incentive to establish an embedded network. This incentive is particularly significant for a typical residential embedded network, where our worked example shows the embedded network operator will avoid in the order of 45% of the network charges that would normally be levied on those customers, while they eliminate almost none of the costs associated with supplying those customers from the shared grid, instead pushing the cost onto other customers of the regulated network.

Existence of these embedded networks is not in the long-term interests of the broader customer base who would be carrying the higher share of the residual costs after the establishment of the embedded network.

Our placeholder embedded network tariff has a structure with a network access charge, an energy consumption charge and a demand or capacity charge. The detail of the structure and charging parameters and the methodology to set prices for the tariff will be developed after further research on the characteristics of our current embedded networks and likely future growth, and consultation and engagement with the AER, stakeholders and customers, including both regulated customers and embedded network customers. We will present our

[7] Australian Energy Market Commission (2017) *Review of Regulatory Arrangements for Embedded Networks*, Final Report, 28 November 2017.
[8] At time of writing, this draft report was not yet available.
[9] Australian Energy Regulator (2018) *Draft Decision TasNetworks Distribution Determination Attachment 18 – Tariff Structure Statement,* p. 18-28 and 18-29.

methodology for charging parameters and prices as part of an annual proposal, from 2020/21 or 2021/22.

Box A4.1. Analysis of revenue impact from embedded network – residential

Modelling inputs
Interval data for 315 NMIs of residents in an apartment block each on a TOU network tariff.

The What If scenario
Total Network Use of System charges for the 315 individual NMIs on the 2018/19 seasonal TOU tariff (EA025) vs as a single embedded network on a large business tariff of EA310 >750 MWh a year.

Comparison of Network Use of System revenue, 2018/19

	Individual NMIs in Ausgrid network (EA025 TOU)	Individual NMIs in Embedded Network (EA310)
Consumption per NMI	3,260 KWh	
Total consumption	1,027,000 kWh	
Fixed – network access charges	$52,000	$8,900
Energy consumption charge (kWh)	$76,700	$21,100
Demand/capacity charge (kVA)	-	$40,300
Total network bill pa	**$128,700**	**$70,300**
Difference ($)		**-$58,400**
Difference (%)		**-45%**

Box A4.2. Analysis of revenue impact from embedded network – three businesses

Modelling inputs
Data from NMIs on a mix of tariffs using three business examples: two buildings likely to be a business centre with many offices and a street in an industrial area.

The What If scenario
Total Network Use of System charges for the individual NMIs on their 2018/19 tariff vs as a single embedded network on a business tariff, either EA305 160-750 MWh or EA310 >750 MWh a year.

Comparison of Network Use of System revenue, 2018/19

Embedded network A: 13 NMIs on 4 different tariffs	**Individual NMIs in Ausgrid Network (EA225, EA302, EA305, EA316)**	**Individual NMIs in Embedded Network (EA310)**
Consumption per NMI	146,978 kWh	
Total consumption	1,910,709 kWh	
Fixed – network access charges	$31,576	$8,947
Energy consumption charge (kWh)	$55,838	$40,650
Demand/capacity charge (kVA)	$103,622	$108,688
Total network bill pa	**$191,036**	**$158,286**
Difference ($)		**-$32,750**
Difference (%)		**-17%**

Embedded network B: 25 NMIs on 3 different tariffs	**Individual NMIs in Ausgrid Network (EA050, EA225, EA302)**	**Individual NMIs in Embedded Network (EA305)**
Consumption per NMI	18,614 kWh	
Total consumption	688,701 kWh	
Fixed – network access charges	$21,509	$7,095
Energy consumption charge (kWh)	$48,368	$17,096
Demand/capacity charge (kVA)	$12,146	$32,594
Total network bill pa	**$82,023**	**$56,786**
Difference ($)		**-$25,238**
Difference (%)		**-31%**

Embedded network C: 37 NMIs on 4 different tariffs	**Individual NMIs in Ausgrid Network (EA050, EA225, EA302, EA305)**	**Individual NMIs in Embedded Network (EA310)**
Consumption per NMI	43,279 kWh	
Total consumption	1,601,326 kWh	
Fixed – network access charges	$37,751	$8,947
Energy consumption charge (kWh)	$94,721	$31,343
Demand/capacity charge (kVA)	$33,831	$69,937
Total network bill pa	**$166,303**	**$110,227**
Difference ($)		**-$56,075**
Difference (%)		**-33%**

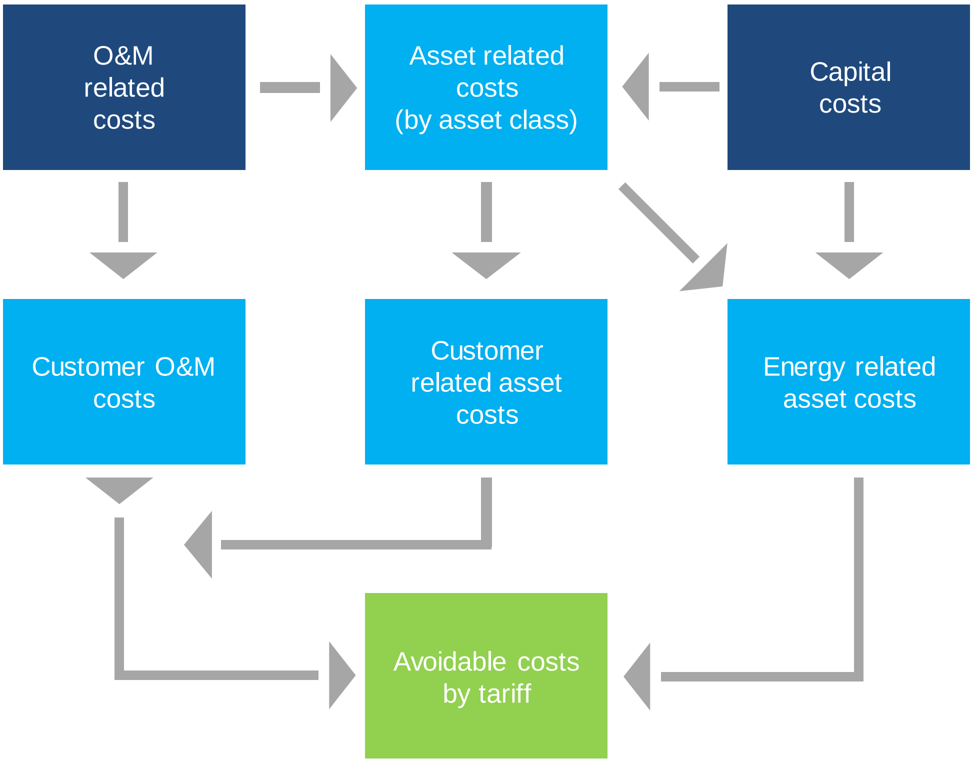
A.5 Our pricing principles

Our approach to pricing principles is supported in Attachments 10.03 Long Run Marginal Cost model, 10.04 Long Run Marginal Cost methodology report, 10.05 Tariff model, 10.07 Price elasticity, 10.08 Transmission pricing methodology and 10.09 Methodology for avoided TUOS charges, unchanged from our Initial Proposal.

Revenue is between standalone and avoidable costs

Our methodology for estimating avoidable costs at the tariff class level over the regulatory control period is summarised in Figure A5.1 below.

Figure A5.1. Calculating avoidable costs



In the context of the National Electricity Rules, the concept of standalone cost is readily applicable as an estimate of the costs of serving a tariff class alone. We have estimated the standalone cost for each tariff class by assessing and categorising its capital and operating costs on the basis of the following two dimensions as follows:

- **Whether costs are direct or indirect** – where capex and operating costs are categorised as:
  - ‘direct’ or ‘avoidable’, i.e., the cost can be attributed to a specific group of users and would not be incurred but for those users; or
  - ‘indirect’ or ‘shared’, i.e., the cost is common to multiple groups of users.

  For example, some customer operations can be directly attributable to individual customers. In contrast, operational expenditure costs are generally indirect, such as the cost of debt raising cannot be attributed to specific customers or customer groups.

- **Whether costs are fixed or variable** – where capex and operating costs are categorised as either:

- ‘variable’, i.e., the cost tends to increase in proportion to the scale at which the service is provided; or
- ‘fixed’, i.e., the cost is independent of the scale at which the service is provided.

For example, maintenance and repair costs are considered variable as they are likely to be highly dependent on the physical size of the network. In contrast, incentive payments are likely to be relatively independent of network characteristics such as the number of customers or maximum demand.

Having categorised individual costs, the next step is to use a weighting mechanism such as customer numbers or consumption to attribute cost categories to each tariff class. In equation form, this process can be expressed as follows:

$$Standalone\ cost_i = Avoidable\ cost_i + Fixed\ indirect\ costs + \sum_{j=1}^{n} \beta_{i,j} Variable\ indirect\ costs_j$$

where

- i represents each of Ausgrid’s tariff classes;
- *Stand-alone cost$_i$* is the stand-alone cost to serve customers on tariff class i;
- *Avoidable cost$_i$ i*s the avoidable cost to serve customers on tariff class i;
- *Variable indirect costs$_j$* represents each of Ausgrid’s variable indirect operating and capital cost categories; and
- $\beta_{i,j}$ is the scaling factor (some value between zero and one) applied to cost category j.

We are satisfied that our efficient tariff outcomes are free of economic subsidy since the revenue outcomes based on these prices lie on or within the bounds of standalone and avoidable cost at the individual tariff class level.

We are satisfied that the indicative prices are free of economic subsidy given that our analysis in Table 4.1 in our Tariff Structure Statement shows that the revenue outcomes based on these prices lie on or within the bounds of standalone and avoidable cost at the individual tariff class level.

Our efficient peak prices are based on long run marginal cost

The Rules require each tariff to be based on the long run marginal cost (LRMC) of providing the relevant service to the retail customers assigned to that tariff.

LRMC is a forward-looking concept and amounts to a measure of the additional cost incurred as a result of a relatively small increase in output, assuming all factors of production are able to be varied. Setting network tariffs by reference to LRMC encourages customers to use our services where the benefit they derive exceeds the cost of providing the relevant services.

Since LRMC is a forward-looking concept concerned with the cost of an incremental increase in output, it does not reflect historical costs associated with the existing network. Therefore, setting prices equal to LRMC, generally, would not allow the recovery of Ausgrid’s efficient costs. In other words, if each tariff was set equal to LRMC there would be a residual amount of efficient costs to be recovered.

A standard method for estimating LRMC is the average incremental cost (AIC) approach. An AIC approach estimates LRMC by equating, in present value terms, the average change in forward looking growth and connections expenditure resulting from a change in demand. Our estimate of LRMC for different tariff groups connected to our network using the AIC approach is set out below in Table A5.1.

Table A5.1. LRMC estimates (growth and connections)

Tariff group	Customer type	Metering type	LRMC ($/kW)	No. of peak hours	LRMC Peak (c/kWh)	LRMC Anytime (c/kWh)
Low Voltage	Residential & Business	Basic	56.2	8,766		0.64
Low Voltage	Residential & Business	Interval	56.2	880	6.39	
High Voltage	Business	Interval	36.0	880	4.09	
Subtransmission Voltage	Business	Interval	6.4	880	0.73	

In response to feedback from the AER on whether avoidable replacement expenditure should be included in our estimate of LRMC, we engaged Deloitte to develop a new methodology that estimates the LRMC associated with replacement capital expenditure. Our proposed approach to estimating LRMC is set out in the Deloitte report included at Attachment 10.04.

Using this methodology, we derived estimates of LRMC for replacement capex by tariff group using a perturbation approach and converted those estimates into seasonal peak prices. We present these estimates and efficient seasonal time of use price levels in the table below.

Table A5.2. LRMC estimates (replacement)

Tariff group	Customer type	Metering type	LRMC Peak (c/kWh)	LRMC Shoulder (c/kWh)	LRMC Off Peak (c/kWh)	LRMC Anytime (c/kWh)
Low Voltage	Residential & Business	Basic				1.41
Low Voltage	Residential	Interval	3.14	1.70	0.55	
Low Voltage	Business	Interval	3.14	2.08	0.72	
High Voltage	Business	Interval	3.14	2.08	0.72	
Subtransmission Voltage	Business	Interval	1.25	0.83	0.29	

These two approaches for estimating the forward looking LRMC of Ausgrid's network are broadly additive. However, a difference in the tariff groups connected to our network and the causal relationship between demand and expenditure means that the results of the two LRMC approaches should be interpreted differently. That is:

- under the AIC approach, there is a clear causal relationship between demand growth and the new growth and connections expenditure, i.e., growth and connections expenditure is triggered by demand growth; while
- under a perturbation approach, demand is one of a range of factors (including health, safety and environmental considerations) that determine the timing of when existing assets are replaced, i.e., the decision to replace an asset will depend on a range of

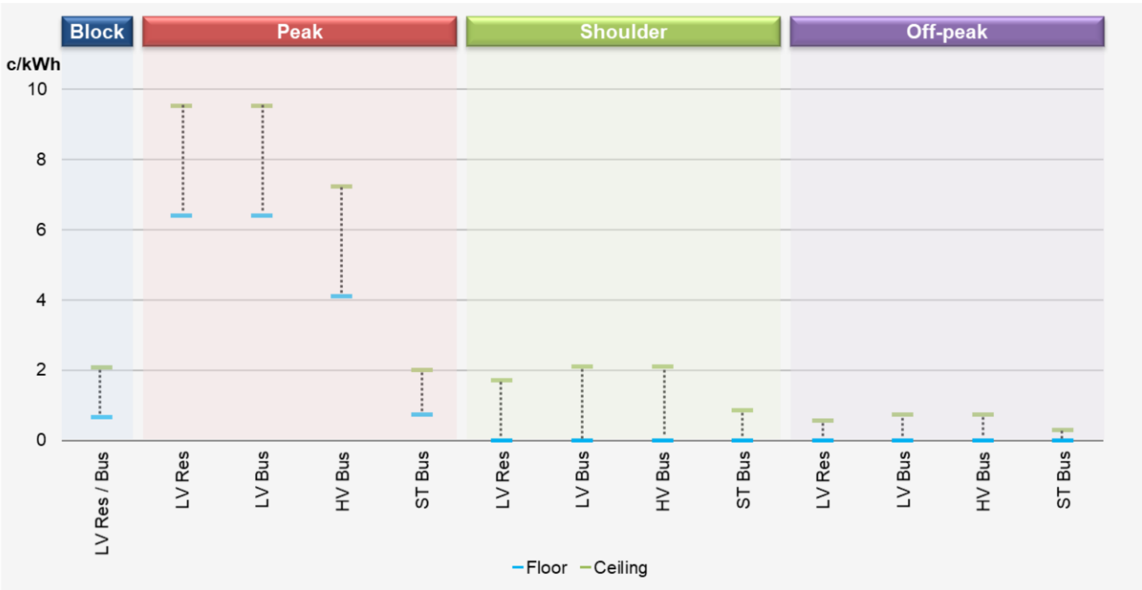
factors including the level of unserved energy, the health and safety of staff and public as well as our obligation to protect the environment.

This difference in the causal relationship between demand and expenditure means that:

- the AIC approach provides a lower bound (floor) for the LRMC estimate for Ausgrid's network since there is a clear nexus between growth in peak demand and requirement for future expenditure on growth and connections assets; while
- the AIC LRMC estimate plus perturbation LRMC estimate together should be interpreted as an upper bound (ceiling) for the LRMC of Ausgrid's network as the perturbation approach estimates the LRMC under the assumption that replacement expenditure is solely driven by considerations of unserved energy (with no weight given to health, safety and environmental considerations).

As a consequence, our approach does not provide a point estimate of the LRMC for our network. Instead our approach estimates a reasonable range for the LRMC. Figure A5.2 sets out a reasonable range for the LRMC for different tariff groups.

Figure A5.2. Long run marginal cost range for different tariff groups



Our proposed departure from efficient pricing

We explain below the key departures from theoretically efficient pricing implicit in our proposed pricing strategy.

We propose to depart from theoretically efficient tariffs by continuing to adopt postage-stamp or location-neutral pricing, since our consultation for our Initial Proposal established that our customers do not support locational pricing.

We propose to gradually reduce a proportion of historical costs recovered from variable energy charges. The speed of transition is being driven by the need to manage customer bill impacts.

We also propose to transition our peak prices to efficient long run marginal cost based price levels through time to avoid unacceptable customer bill impacts and smooth changes in long run marginal cost through time.

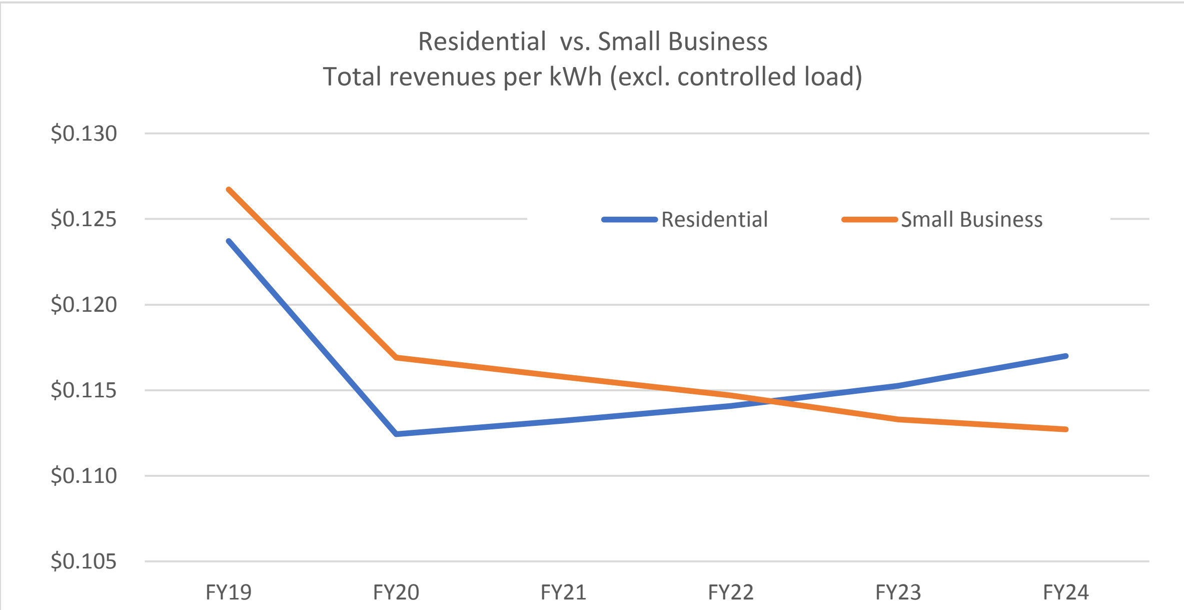
Prices for small business customers

In its draft decision the AER highlighted a disparity between residential and small business prices, stating:

> Each of the NSW distributors' indicative pricing schedules include high tariff levels for small business when compared to residential customers. We are seeking further information from Ausgrid about why it proposes higher tariff levels for small business customers.

At an overall level, Ausgrid's small business customers pay 2.4% more than residential customers (on a total $/kWh basis) based on prices and predicted volumes in 2018/19. This differential has arisen over time and is linked to progression of legacy tariffs across both groups. With the accelerated adoption of more cost reflective prices Ausgrid will be unwinding and ultimately reversing this differential, moving each class closer to a more cost reflective level overall while minimising any impacts on customers in other classes. Figure A5.3 below shows how average prices (defined as total revenues divided by total volumes) collected from small business customers will change relative to residential customers over the regulatory period.

Figure A5.3. Comparison of overall prices: residential vs. small business



Individually calculated tariffs

As set out in our ES7 Network Price Guide (Attachment 10.06), our policy states that customers on a published network tariff that have network usage greater than the 10 MW or 40 GWh a year threshold over a period of a full financial year can apply to be reassigned to an individually calculated tariff.

When connecting a new large customer who is likely to exceed the 10 MW/40 GWh a year threshold, we evaluate the customer's technological needs and requirements. The customer typically funds the dedicated assets for its connection. We establish the shared assets that the customer requires, and set tariffs to ensure that any additional costs specifically associated with supplying a large customer are not borne by the general customer base. We would establish a new individually calculated tariff (ICT) on this basis. Because of this, we do not allow a customer on an individually calculated tariff to opt-out from the tariff, once calculated, into a published tariff.

Individually calculated tariffs reflect location specific costs that large customers create for our distribution network. A published tariff is a postage-stamp tariff calculated for the whole network operation area. A geographic averaging of costs is embedded in our published tariffs, by tariff class. The purpose of the individually calculated tariffs is to prevent cross-subsidies between the general customer base and large customers with special, and often unique, needs. These tariffs also prevent cross-subsidies between large users with special servicing requirements or locational price differences, and an average smaller user within the tariff class.

We have about 60 customers on individually calculated tariffs calculated at various points in time. Some of them are legacy tariffs. We have been reviewing the pricing parameters for these customers and transitioning them to prices that are more reflective of their current contribution to the system peak demand.

Customers on individually calculated tariffs are billed for their share of transmission use of system (TUOS) charges incurred at their actual connection point. Our recent approach has been to move our existing individually calculated tariff customers closer to the listed distribution use of system (DUOS) component of their prices. Where there is a material gap from the listed DUOS component for legacy reasons we are transitioning those customers over time at a rate such that their price change does not exceed 7% per annum for each individual customer. However, where customers have several NMIs, individual NMIs may exceed this threshold.

Allocation of residual costs to tariffs

The AER asked us to provide more information on allocating residual costs.

The up-front costs required to provide the services our customers want to use mean that prices based on future avoidable costs (LRMC) alone are not sufficient to recover our total efficient costs, as determined by the AER.

We must therefore allocate the remaining AER-approved costs, often referred to as residual costs, to particular tariffs and then across the charges that comprise each tariff. The price level for a particular charge reflects the efficient costs allocated to that charge divided by the applicable quantity forecast.

To avoid unacceptable customer bill impacts arising from the reforms proposed in our Tariff Structure Statement, we will broadly maintain the existing share of residual costs allocated to each tariff class, subject to the bounds established by the National Electricity Rules.[10]

The National Electricity Rules require us to set prices to recover from customers on a particular tariff only the total efficient cost of providing services to those customers.[11] Therefore, we allocate residual costs to each tariff such that, when added to revenue from LRMC-based charges, we recover the total efficient cost of providing those services.

It follows that calculating the total efficient cost of providing services to customers assigned to each tariff is a key element of the price-setting process, since it guides the allocation of residual costs to tariffs. For this reason, we propose material improvements to our residual cost allocation methodology that are founded on refinements to our calculation of the total efficient cost of providing services to customers on each tariff.

We estimate the total efficient cost of providing services to customers assigned to each tariff based on their relative contribution to maximum demand, a key driver of our efficient costs.

[10] National Electricity Rules, clause 6.18.5(e).
[11] National Electricity Rules, clause 6.28.5(g).

We estimate the relative contribution of each tariff to maximum demand in each future year by:

- calculating the contribution of each tariff to historical maximum demand; and
- adjusting those historical relative contributions for expected changes in the number of customers assigned to each tariff in future years.

We then calculate the total efficient cost of providing services to customers assigned to a tariff equal to its contribution to maximum demand for the relevant tariff class multiplied by the total efficient cost for that tariff class.

Finally, we allocate residual costs to each tariff so that, when combined with revenue from the LRMC based charge, we recover the total efficient cost of providing services to customers assigned to that tariff.[12] Where the resulting allocation would create unacceptable customer bill impacts, we propose to transition the costs recovered from that tariff to efficient levels over time.

We adjust the methodology to recognise that customers in the higher voltage classes do not drive the costs of our lower voltage distribution network. Their contribution to the total network charges would be expected to be lower than their share in the system peak demand.

Allocation of residual costs to charging parameters

Having allocated residual costs to each tariff, we then allocate those residual costs to the charging parameters that comprise that tariff.

The Rules require us to allocate residual costs in a manner that minimises distortions to our efficient LRMC based prices, which necessitates recovering residual costs from those charges for which customers are least responsive to changes in price. For example, *Pricing Directions: A Stakeholder Perspective* notes that[13] 'Economic efficiency is enhanced if the remaining revenue [residual costs] are raised through charges that have as little impact on behaviour as possible'.

We commissioned a study by HoustonKemp that found customers are less responsive to changes in price during the peak period, as compared with non-peak periods.[14] HoustonKemp observed that, although recovering residual costs from fixed charges is optimal from a strict economic perspective:[15]

> …any allocative inefficiency arising from the recovery of residual costs during the peak period… would be relatively low, as compared with recovering those costs from the shoulder period.

Therefore, our proposed approach to allocating residual costs to charging parameters is directed at recovering, in a way that leaves the average customer's network bill unchanged:

- relatively more residual costs from demand charges and, in some circumstances, peak energy charges; and
- relatively less residual costs from inefficient non-peak energy charges.

[12] National Electricity Rules, clause 6.18.5(g)(1).
[13] Attachment 10.14: Stakeholders (2017) *Pricing Directions: A Stakeholder Perspective*, p. 4 footnote.
[14] Attachment 10.07: HoustonKemp (2017) *How do electricity customers respond to price signals?*, December, p. 20.
[15] Attachment 10.07: HoustonKemp (2017) *How do electricity customers respond to price signals?*, December, p. 4, 20.

We do not propose materially to increase fixed charges during the 2019-24 period. The extent to which we recover more residual costs during the peak period, and less during the non-peak period, is guided by the avoidance of unacceptable customer bill impacts.

Importantly, our proposed approach will:

- leave unchanged the network bill for the average customer
- encourage efficient investment in distributed energy resources by providing incentives for investments targeted at reducing the use of our network during peak periods
- avoid inequities between adopters and non-adopters of distributed energy resources that arise from inefficiently high non-peak energy charges
- reflect the views of some stakeholders that customers prefer variable charges to fixed charges[16]
- ultimately, encourage customers to use our services in a way that best meets their needs, at least cost to the system as a whole, and hence to all customers connected to our network.

How we implement this approach

We implement our proposed approach by delivering to customers the cost savings we have achieved primarily through reductions to the shoulder and off-peak charges. We endeavour to generally hold constant in real terms our existing fixed, peak energy and capacity charges.

For the reasons we explain above, economic efficiency is promoted by recovering a degree of residual costs from peak energy charges and so if the pure LRMC-based price is materially below the existing price level, we hold that current peak price constant in real terms. Similarly, the capacity charges applying to our larger customers have strong economic properties for recovering residual costs and so we intend to avoid any material reductions to those charges.

For fixed charges, we allocate residual costs to avoid any material increase in fixed charges in real terms and, for new tariffs, to align with the charges currently faced by eligible customers. For small business customers in particular, we propose to reduce fixed charges by 5% in real terms in the first year of the regulatory period and then hold them constant in real terms for the remainder of the period.

Specific information for our new demand tariffs

For our new demand tariffs (EA116 Residential and EA256 Small business) we recover residual costs from the fixed, flat energy and demand low season charges, whereas the demand high season charge is used to signal LRMC.

For our TOU demand tariffs (EA115 Residential and EA255 Small business), we recover residual costs from the fixed charge, demand high season, and demand low season charges, along with all time of use consumption charges. In other words, we also recover a degree of residual costs from the peak energy charge, which is set above the LRMC-based level. This also assists in managing the volatility in customer bill impacts that arises from changes in LRMC through time.

[16] Attachment 10.14: Stakeholders (2017) *Pricing Directions: A Stakeholder Perspective*, p. 4.

A.6 Our customer impacts

Our Revised Proposal appropriately balances the need to improve the efficiency of our network tariffs against the important requirement to consider the impact of these tariff reforms on our customers.

The impact on customers of our proposed network tariff reforms will vary depending on each customer's energy consumption level and profile, metering type and voltage level. The impact will also be influenced by how retailers pass through our network price signals to their customers and the extent to which customers are willing and able to respond to the proposed changes in the level and structure of our network tariffs.

Impacts depend on the response by retailers

To date retailers have typically passed through the structure and shape of network tariffs to their customers, adding margins to the various components on the network charge to recover their costs. A recent exception is a large retailer operating in our region chose not to pass through our seasonal time of use structure to their customers. Instead the retailer offered a non-seasonal time of use structure, where the retailer bears the risk associated with the seasonality in the underlying network tariff on behalf of those customers.

Retailers will have the choice to pass our new demand tariffs through to customers (as they have traditionally passed through the shape and structure of network charges) or offer more innovative retail products that use alternative price signals such as caps or rebates, or otherwise manage any risk associated with network charges on behalf of their customers the same way retailers currently manage wholesale price risk for customers.

These innovative retail products may start with a simple premium to reward retailers for taking on the additional risk from customers, but are likely to evolve rapidly to include products or mechanisms that more effectively hedge retailers' risk, allowing them to remain the competitiveness of their offer. As these more advanced products emerge, they will help achieve the aim of the underlying network tariff to reduce demand on our network at peak times and make the energy system lower cost for all.

Over time new technologies such as smart connected appliances and batteries are likely to play an ever increasing role in changing energy use patterns to optimise energy costs for consumers. The introduction of automated or remotely controlled devices will give retailers additional tools to manage a broader set of risks for customers and offer more innovative retail products. Even without these technologies, larger retailers will be able to offer innovative 'insurance' products, and hedge their risk through a portfolio approach across their customer base.

This transition will not be immediate, and it will take time for retailers to develop new products. During this time, clear communications to allow customers to understand and adjust their behaviour to respond to the new price signals will be critical.

If retailers choose to simply pass on the demand tariffs in the same shape and structure as the network tariff (as some are likely to do, particularly immediately after 1 July 2019), it will be important that customers understand how these new tariffs work and how they can most effectively respond to minimise the demand charges. This will require a collaborative approach to communications between ourselves, customer representative groups that have championed the change, and the retailers our customers use.

To aid this process we have started an extensive engagement process with the retailers in our area. This process will continue until 1 July 2019 when our new tariffs are introduced, and beyond, to ensure we understand how our new tariffs are being passed on to customers, and what communications can be undertaken (jointly branded or otherwise) to make the transition for customers as seamless as possible.

Impacts depend on the response by customers

Impacts on customers depend on the demand response by customers. Customers may continue their existing usage patterns, or they may respond to any new demand charges passed through by their retailer by flattening their demand. To respond efficiently, customers need to understand how their retail tariff is structured and how they can manage their consumption and demand to reduce costs. Our communication campaigns will focus on providing the information customers need.

We will also work with other retailers, customer groups and government representatives to ensure a set of complementary measures are available to manage impact, particularly for customers who require assistance, both before and after customers receive their first bill on their new tariff. See Section A.7 for further details.

Method for our analysis of customer impacts

To understand customer impacts, we have estimated the annual network bill outcomes based on customers' energy consumption and (where applicable) maximum demand for a representative sample of Low Voltage class customers based on a full year of 30 minute demand data from 2016/17. Impacts for High Voltage and Subtransmission class customers are based on data from all customers due to the small number of customers in each class. Solar customers in the sample have been excluded from the analysis where it is not possible for them to experience that tariff transition.

In all modelled scenarios, customers' total daily energy consumption and consumption in the peak, shoulder and off-peak time periods remains unchanged. We have modelled several options for residential and small business customers' response to the new demand charge:

- assuming customers do not change their behaviour in response to the new demand charge
- assuming customers reduce their maximum demand by 10%, by staggering their use within the demand window.

Studies on typical demand responses in climatic conditions comparable to Sydney are difficult to find. However, results from available studies show that customers exposed to a price signal in the form of a demand charge do make a demand response. Weighting the results of the available studies[17] by the number of customers in each suggests that a 10% demand response could be expected on average and, if anything, is likely to be a conservative estimate in a temperate climate. The 10% demand response is also prudent as different customers will have different demand characteristics and a 10% average response across all customers means, by definition, half achieving more and half achieving less.

The following sections present impacts for:

- Residential customers
- Small business customers
- Medium and large business low voltage customers
- High voltage customers (on listed tariffs)
- Subtransmission customers (on listed tariffs).

[17] The three studies are summarised, with references to the original studies, in: Hledik, Ryan (2014) Rediscovering residential demand charges, *The Electricity Journal*, 27(7), pp. 82-96.

The set of figures shows the impact for different groups of customers depending on their meter type and tariff, at the beginning of the regulatory period in 2019/20 and at the end of the regulatory period in 2023/24. Each figure has a summary table of the impacts including average annual bill impact, energy consumption, demand and average load factor.

Average load factor is the average demand as a proportion of the maximum demand in a year and is important in determining the impact of a demand charge. The average load factor for a residential customer is approximately 10%. Customers with a very low load factor have very peaky demand (and drive higher network costs than other customers with the same overall consumption but higher load factor) and are more affected by demand charges. Customers with a higher load factor are less affected.

Residential customer impacts

Based on Figure 2.3 in Section 2 of the Tariff Structure Statement showing the assignment of residential customers from 1 July 2019, the following figures show the impact on residential customers moving from their current tariff to a new tariff from 1 July 2019 and impacts at the end of the regulatory period in 2023/24.

Box A6.1 is a key to the set of residential customer impact figures including:

- Figures A6.1 to A6.5: the impact on customers on each of the tariffs in 2018/19 being assigned to a tariff from 1 July 2019
- Figures A6.6 and A6.7: the impact on customers being assigned to a new demand (introductory) tariff due to failure of an accumulation meter after 1 July 2019, and the impact of being reassigned to the default demand tariff after 12 months
- Figure A6.8: the impact on customers being assigned to a demand tariff due to change from an accumulation meter to a smart meter by customer initiated action after 1 July 2019
- Figure A6.9: the impact on customers being assigned to a demand tariff due to change for any reason from an interval meter to a smart meter after 1 July 2019
- Figures A6.10 and A6.11: the impact on customers on the two continuing non-demand tariffs of tariff price progression from 2018/19 to the end of the regulatory period in 2023/24
- Figures A6.12 and A6.13: the impact on customers on the two new demand tariffs of tariff price progression from 2019/20 to the end of the regulatory period in 2023/24.

Box A6.1. Key to residential customer impact figures

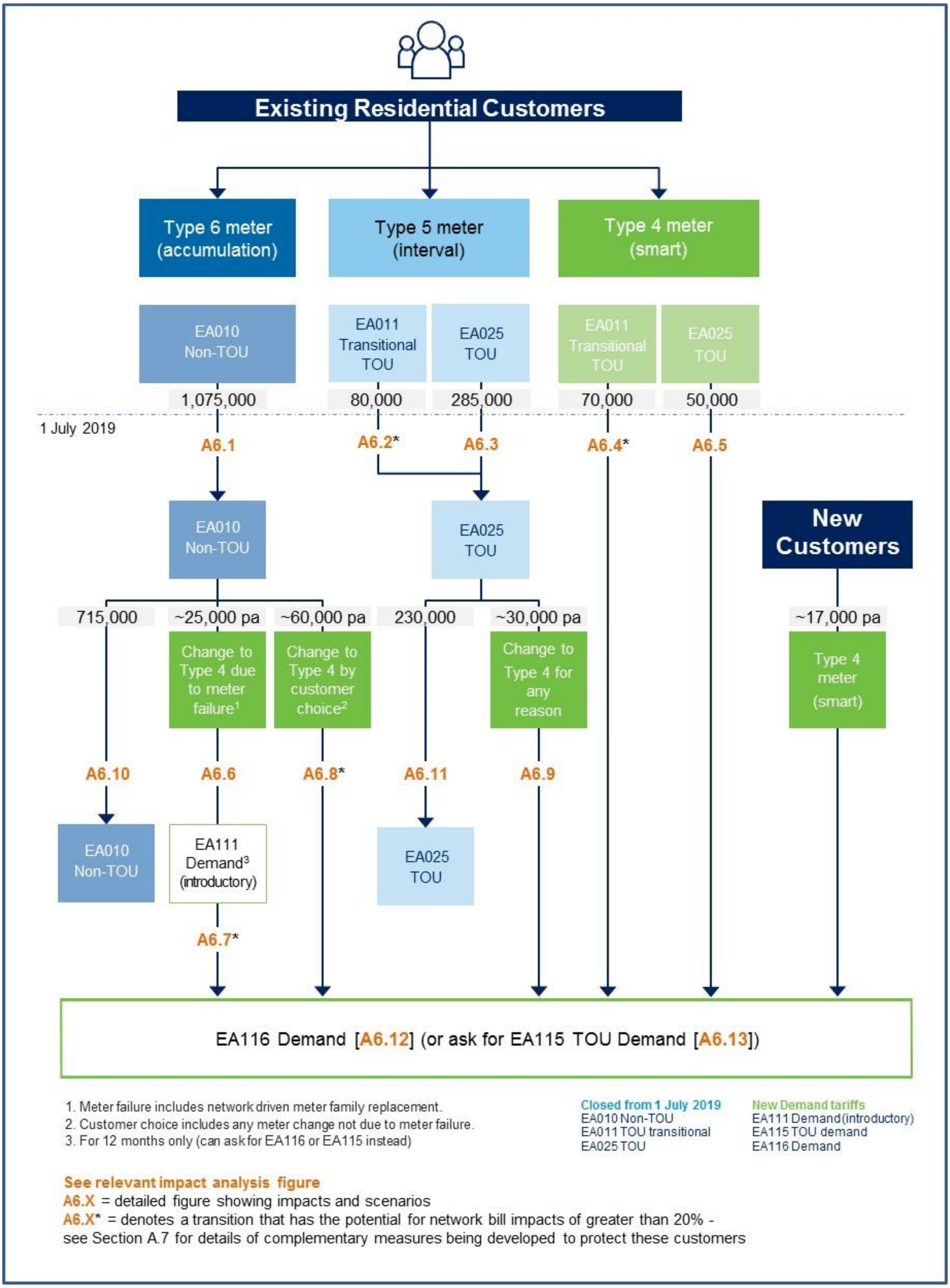
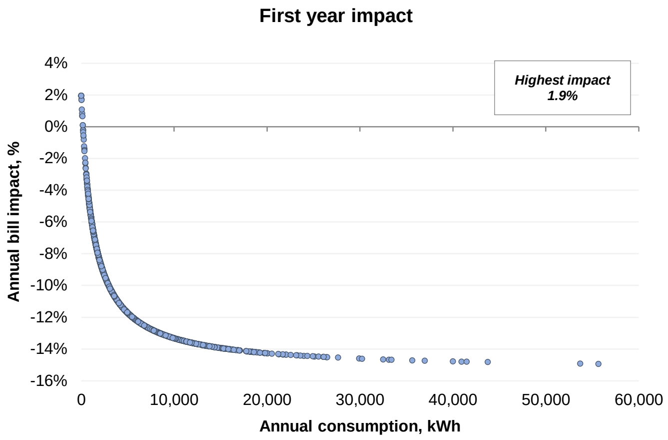
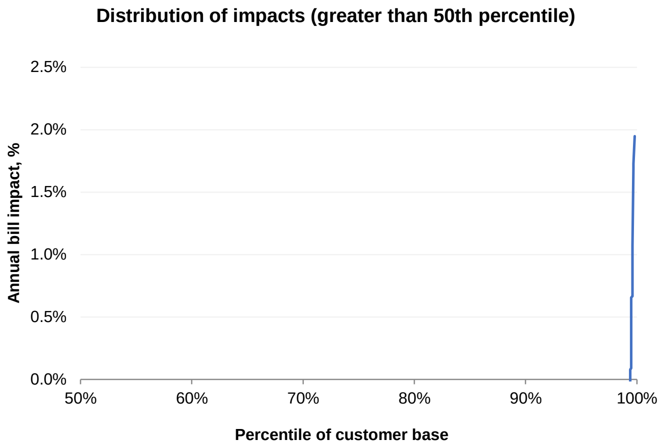
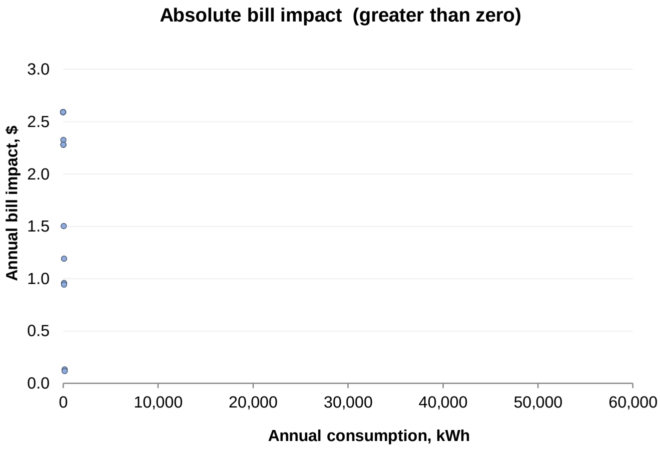


Figure A6.1. First year impact: EA010 Non-TOU from 2018/19 to 2019/20

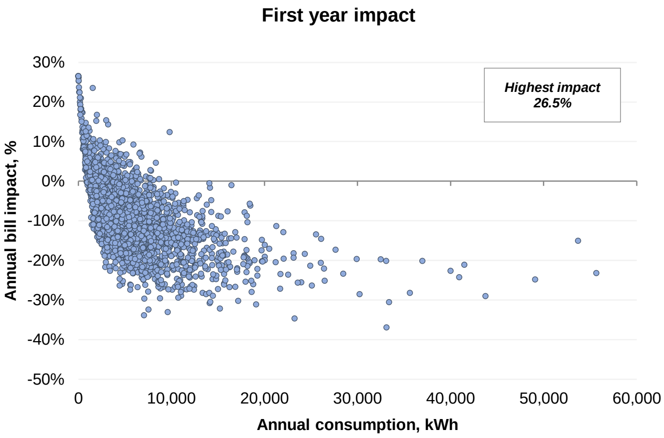


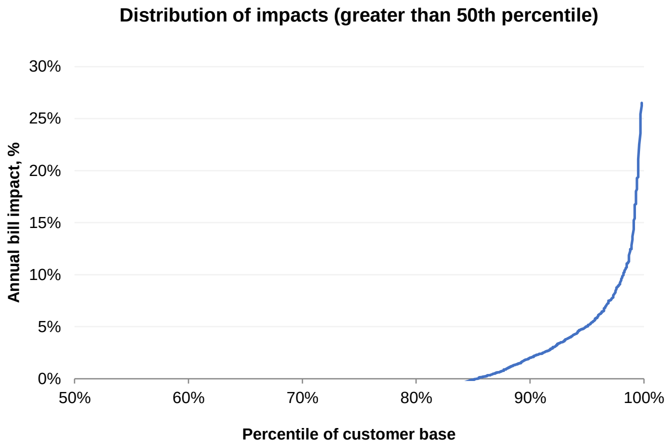


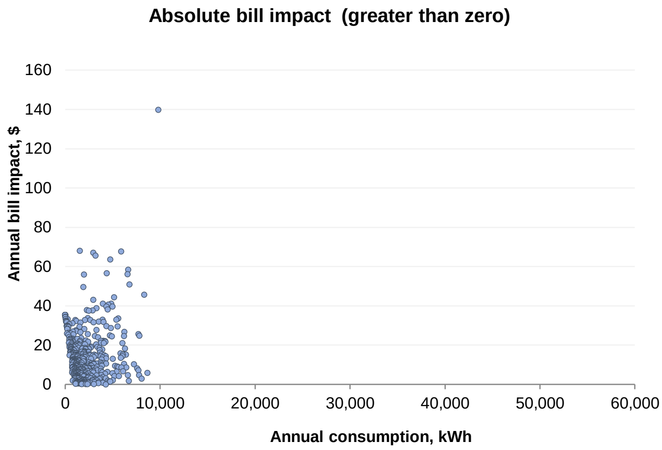


Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	0.5%	0.0%	0.0%
Approximate population	1,075,000	5,821	0	0
Average annual bill impact, %	-10.5%	1.3%	N/A	N/A
Average annual bill impact, $	($77)	$2	N/A	N/A
Average annual consumption, kWh	5,117	50	N/A	N/A
Average maximum demand, kW	5.4	0.5	N/A	N/A
Average load factor, %	10.3%	0.6%	N/A	N/A

Figure A6.2. Reassignment of customers with interval meters from EA011 Transitional TOU to EA025 TOU on 1 July 2019

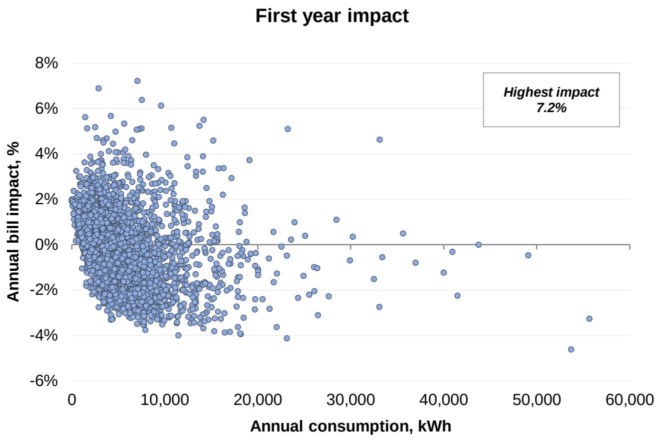


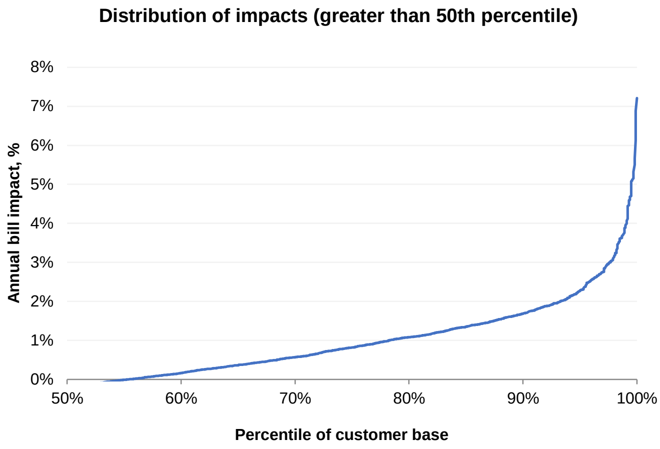


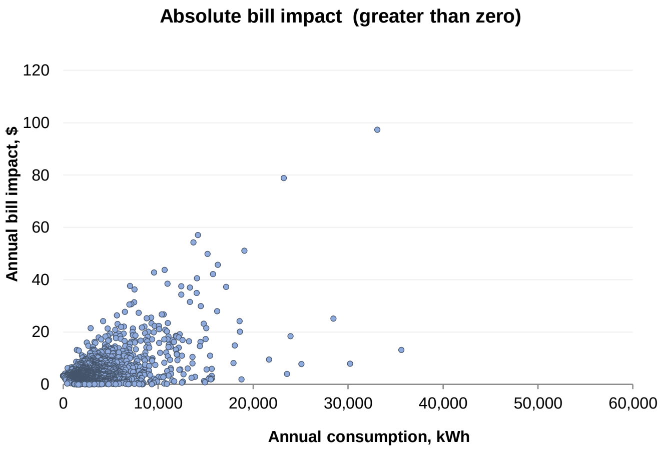


Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	14.6%	1.8%	0.5%
Approximate population	80,000	11,706	1,418	366
Average annual bill impact, %	-8.2%	4.9%	16.3%	24.6%
Average annual bill impact, $	($75)	$14	$33	$36
Average annual consumption, kWh	5,189	2,199	858	148
Average maximum demand, kW	5.6	4.1	2.3	0.8
Average load factor, %	10.2%	6.1%	3.8%	0.7%

Figure A6.3. First year impact: EA025 TOU from 2018/19 to 2019/20

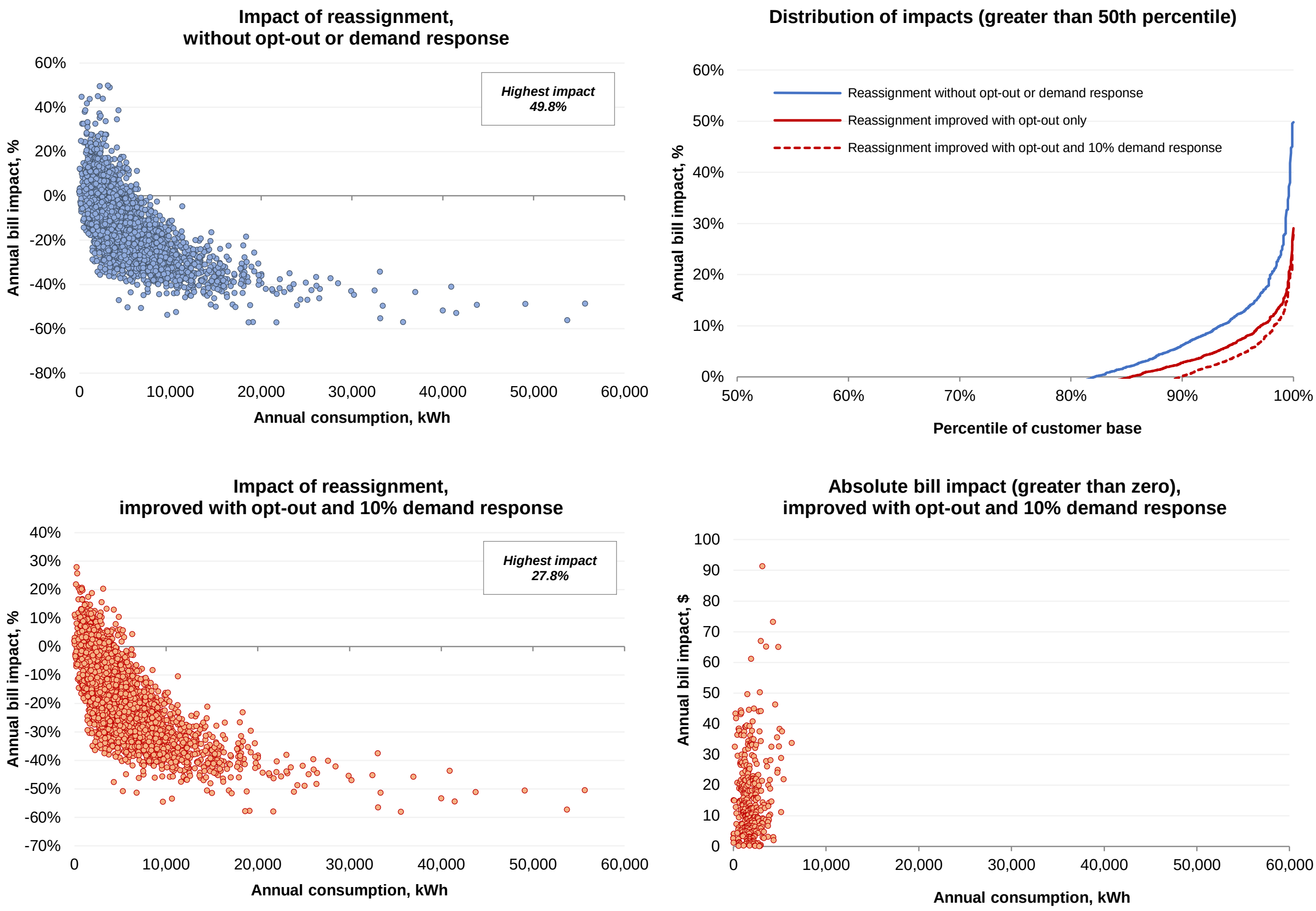






Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	44.6%	0.0%	0.0%
Approximate population	285,000	127,228	0	0
Average annual bill impact, %	-0.2%	1.2%	N/A	N/A
Average annual bill impact, $	($3)	$5	N/A	N/A
Average annual consumption, kWh	5,189	3,941	N/A	N/A
Average maximum demand, kW	5.6	4.4	N/A	N/A
Average load factor, %	10.2%	9.9%	N/A	N/A

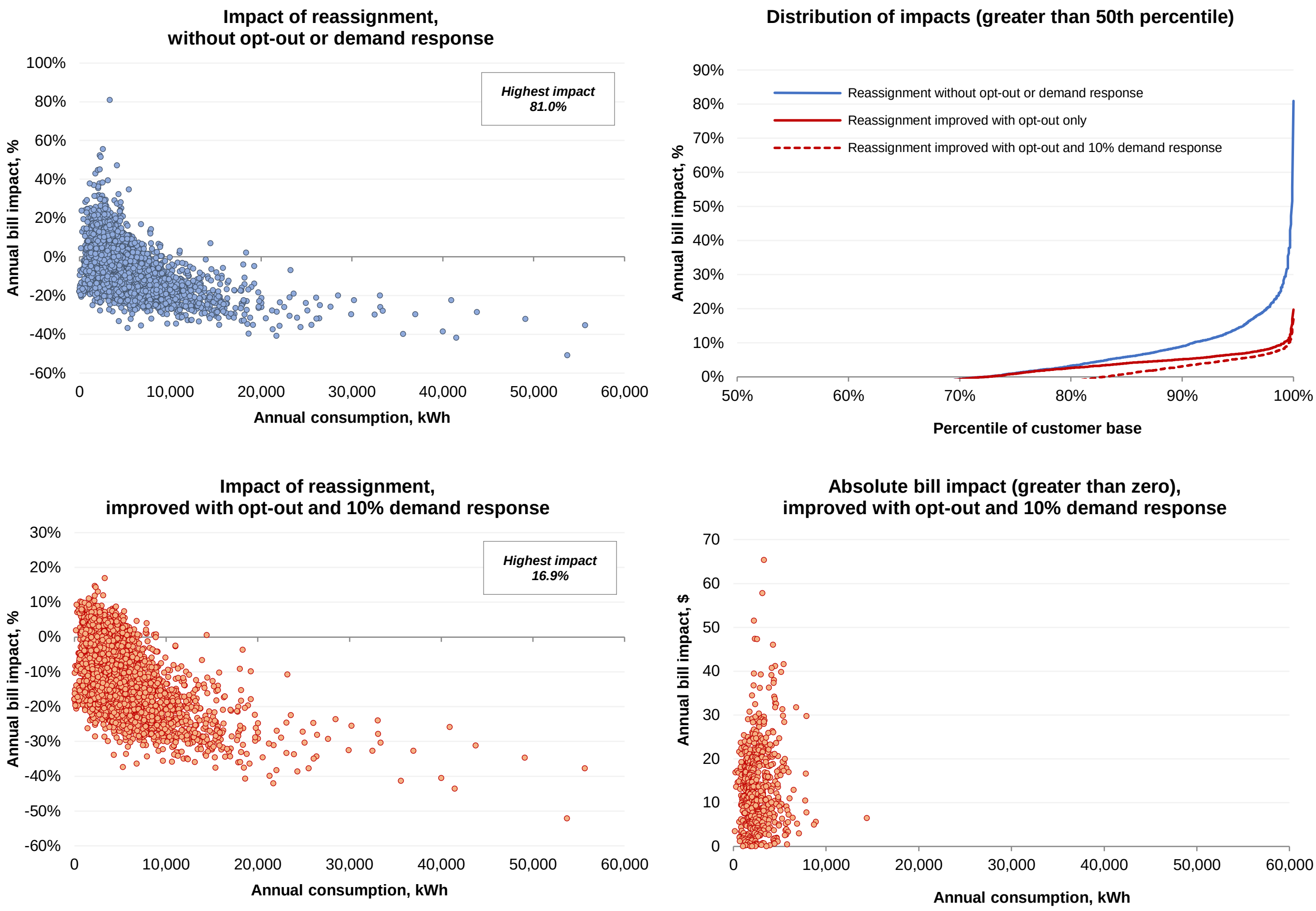
Figure A6.4. Reassignment of customers with smart meters from EA011 Transitional TOU to EA116 Demand on 1 July 2019



Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	10.1%	1.7%	0.2%
Approximate population	70,000	7,082	1,200	160[18]
Average annual bill impact, %	-14.7%	5.4%	14.1%	22.1%
Average annual bill impact, $	($137)	$16	$38	$46
Average annual consumption, kWh	5,189	1,897	1,423	800
Average maximum demand, kW	5.6	4.6	4.8	4.1
Average load factor, %	10.2%	4.6%	3.3%	1.9%

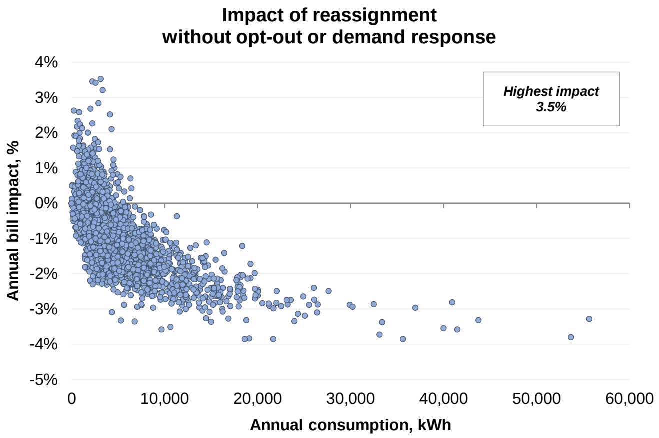
[18] See Section A.7 for details of complementary measures being developed to protect these customers.

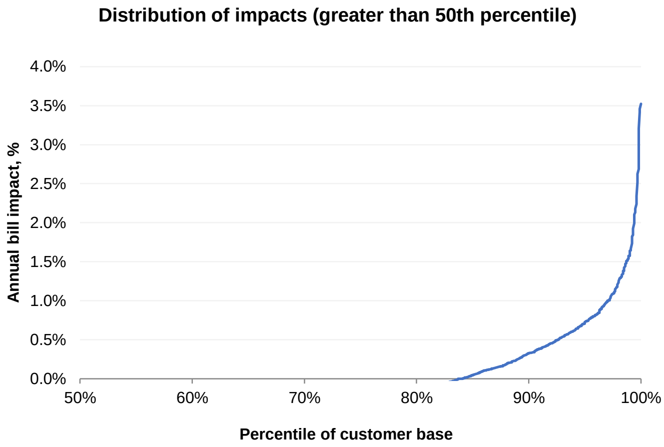
Figure A6.5. Reassignment of customers with smart meters from EA025 TOU to EA116 Demand on 1 July 2019

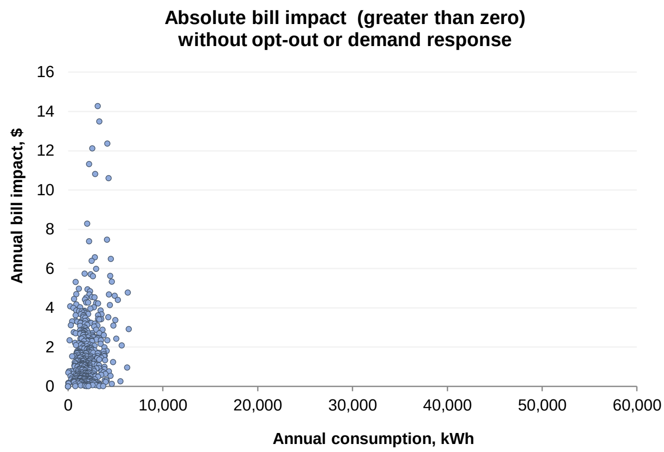


Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	17.1%	0.3%	0.0%
Approximate population	50,000	8,531	171	0
Average annual bill impact, %	-7.5%	3.9%	12.1%	N/A
Average annual bill impact, $	($65)	$14	$40	N/A
Average annual consumption, kWh	5,189	2,710	2,060	N/A
Average maximum demand, kW	5.6	5.3	8.6	N/A
Average load factor, %	10.2%	5.8%	2.9%	N/A

Figure A6.6. Reassignment of customers with accumulation meters from EA010 Non-TOU to EA111 Demand (introductory) on meter replacement due to failure in 2019/20

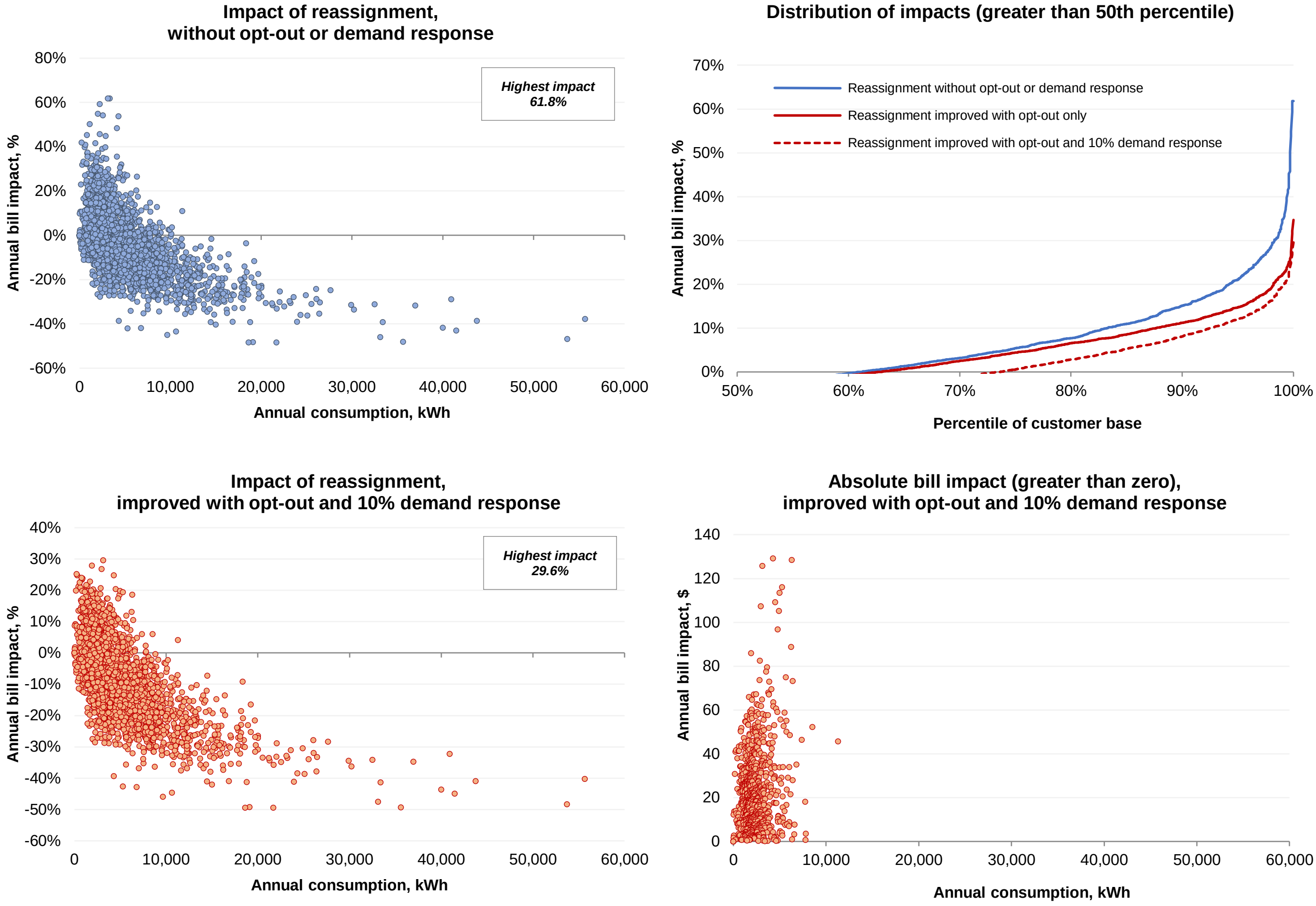






Summary results	**All**	**Impact > 0%**	**Impact > 10%**	**Impact > 20%**
Share in sample	100.0%	16.0%	0.0%	0.0%
Approximate population p.a.	25,000	3,989	0	0
Average annual bill impact, %	-0.9%	0.6%	N/A	N/A
Average annual bill impact, $	($8)	$2	N/A	N/A
Average annual consumption, kWh	5,117	2,096	N/A	N/A
Average maximum demand, kW	5.4	4.7	N/A	N/A
Average load factor, %	10.3%	5.1%	N/A	N/A

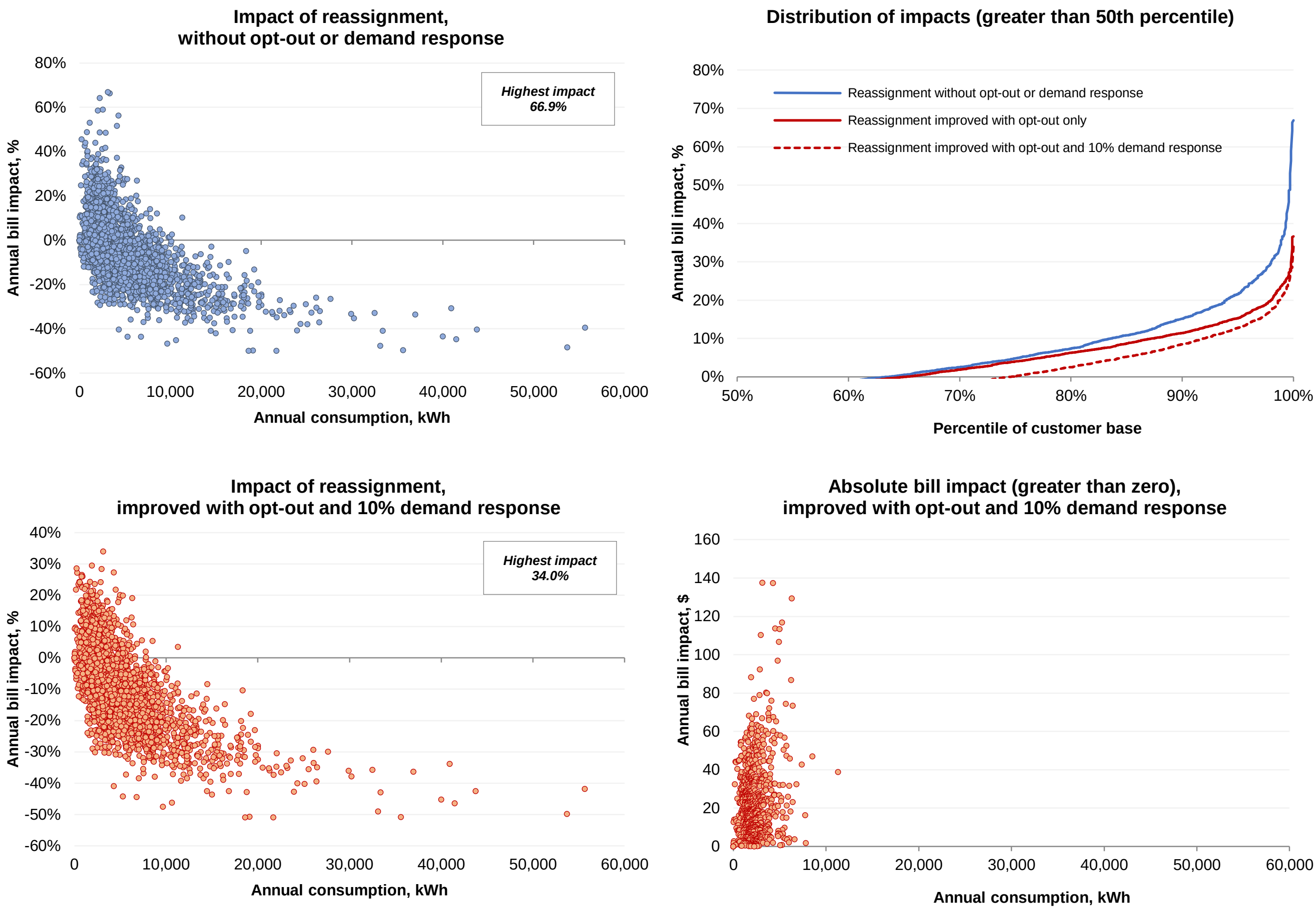
Figure A6.7. Reassignment of customers from EA111 Demand (introductory) to EA116 Demand after 12 months (in 2020/21)



Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	26.3%	7.5%	0.8%
Approximate population p.a.	25,000	6,579	1,877	190[19]
Average annual bill impact, %	-4.7%	7.3%	14.5%	23.1%
Average annual bill impact, $	($57)	$25	$47	$66
Average annual consumption, kWh	5,117	2,482	2,089	1,593
Average maximum demand, kW	5.4	4.8	5.0	5.5
Average load factor, %	10.3%	5.9%	4.7%	3.2%

[19] See Section A.7 for details of complementary measures being developed to protect these customers.

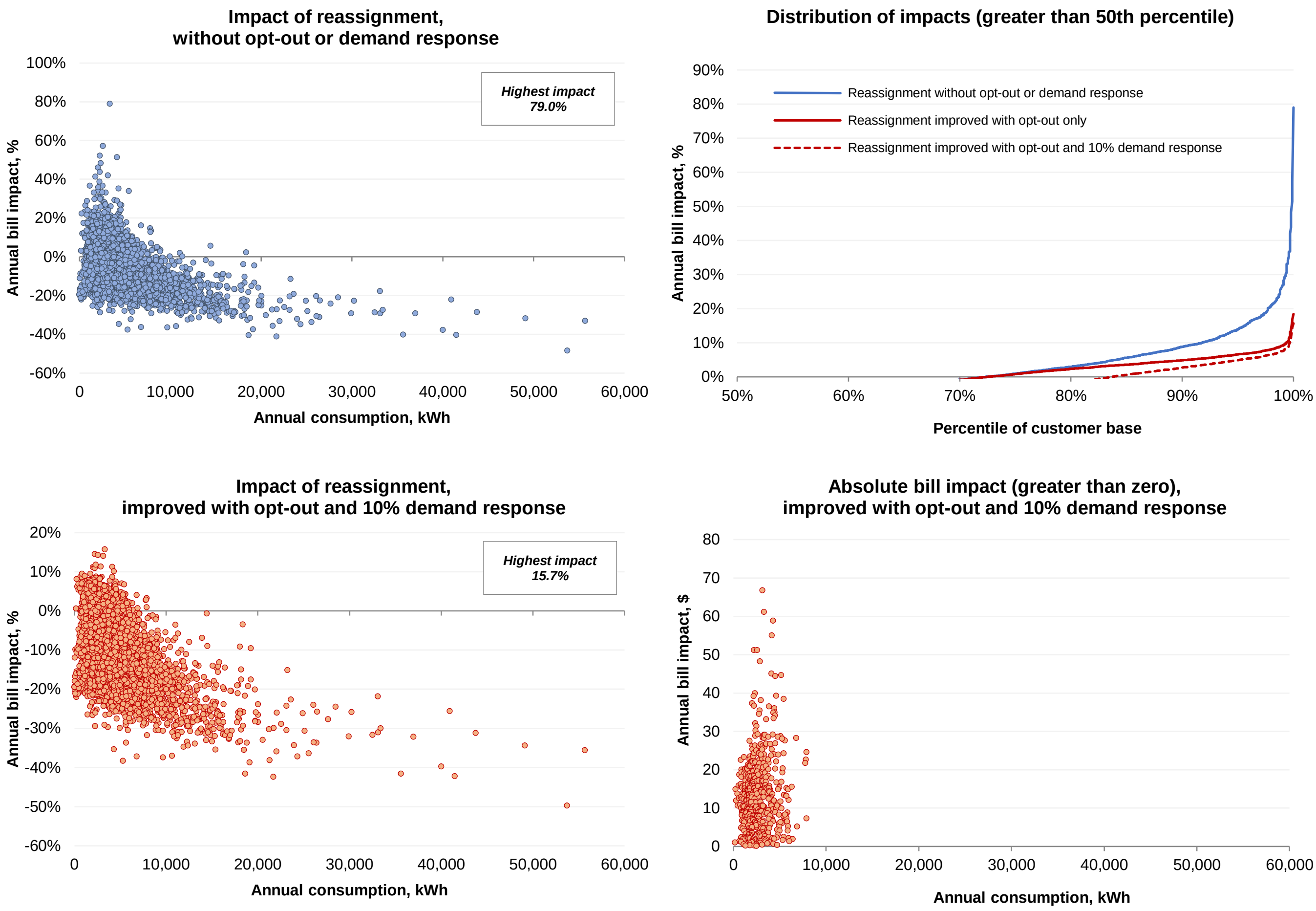
Figure A6.8. Reassignment of customers from EA010 Non-TOU to EA116 Demand after meter upgrade from accumulation to smart meter (in 2019/20)



Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	25.4%	8.1%	1.2%
Approximate population p.a.	60,000	15,249	4,852	736[20]
Average annual bill impact, %	-5.5%	7.8%	15.1%	23.7%
Average annual bill impact, $	($64)	$26	$47	$67
Average annual consumption, kWh	5,117	2,439	2,115	1,721
Average maximum demand, kW	5.4	4.8	5.1	5.6
Average load factor, %	10.3%	5.8%	4.7%	3.3%

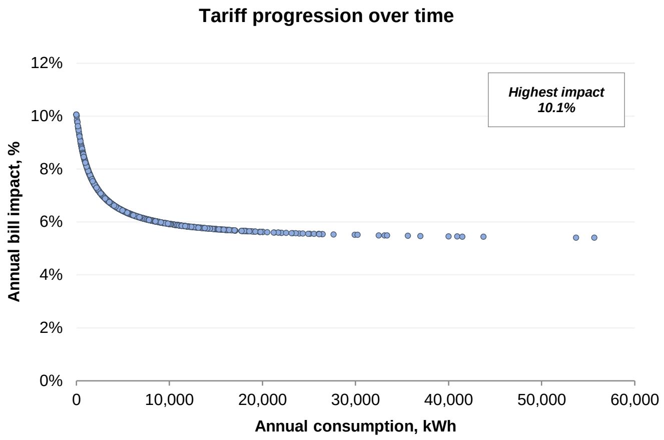
[20] See Section A.7 for details of complementary measures being developed to protect these customers.

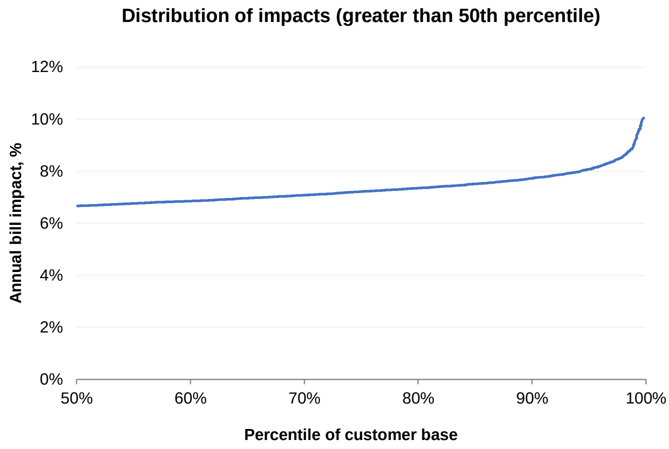
Figure A6.9. Reassignment of customers from EA025 TOU to EA116 Demand after meter upgrade from interval to smart meter (in 2019/20)

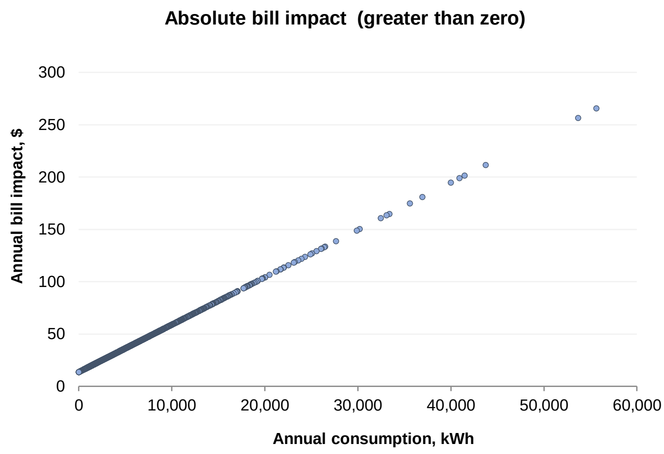


Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	16.2%	0.3%	0.0%
Approximate population p.a.	30,000	4,870	94	0
Average annual bill impact, %	-7.4%	3.7%	12.4%	N/A
Average annual bill impact, $	($62)	$14	$50	N/A
Average annual consumption, kWh	5,189	2,724	2,839	N/A
Average maximum demand, kW	5.6	5.5	10.7	N/A
Average load factor, %	10.2%	5.7%	3.2%	N/A

Figure A6.10. Tariff progression over time: EA010 Non-TOU from 2019/20 to 2023/24

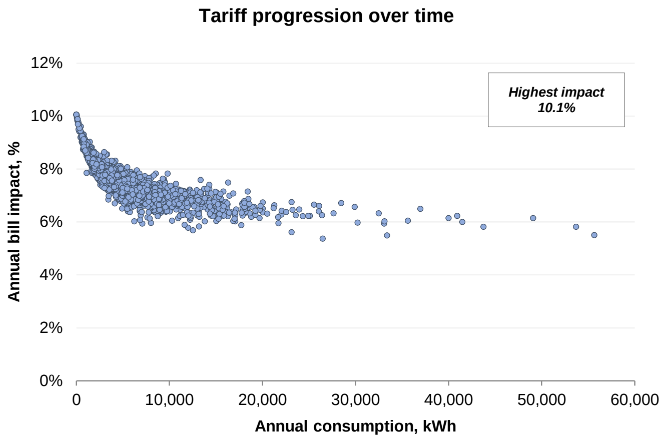


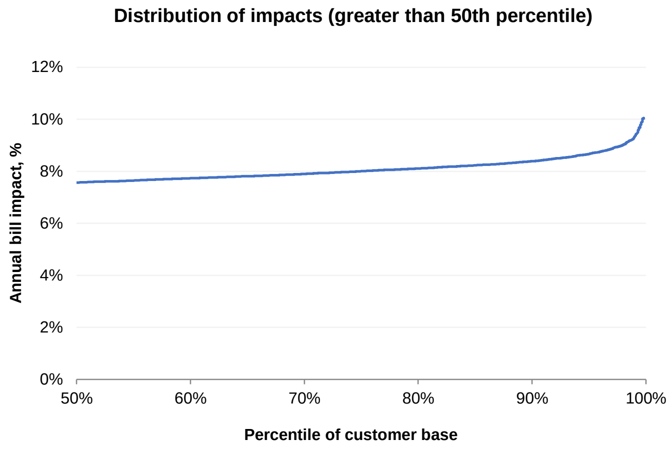


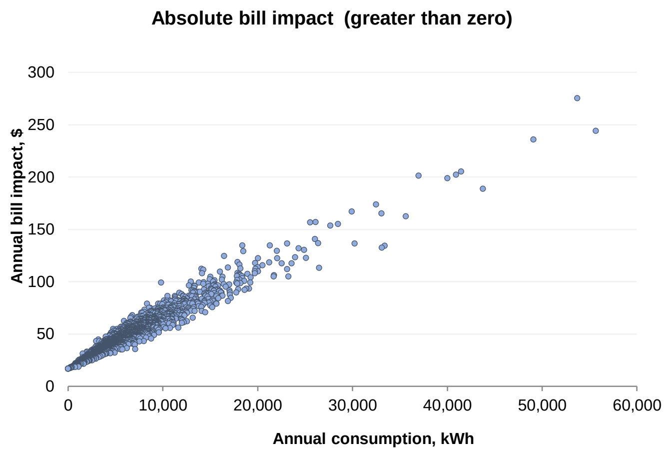


Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	100.0%	0.3%	0.0%
Approximate population	715,000	715,000	1,807	0
Average annual bill impact, %	6.8%	6.8%	10.1%	N/A
Average annual bill impact, $	$37	$37	$14	N/A
Average annual consumption, kWh	5,117	5,117	2	N/A
Average maximum demand, kW	5.4	5.4	0.2	N/A
Average load factor, %	10.3%	10.3%	0.0%	N/A

Figure A6.11. Tariff progression over time: EA025 TOU from 2019/20 to 2023/24

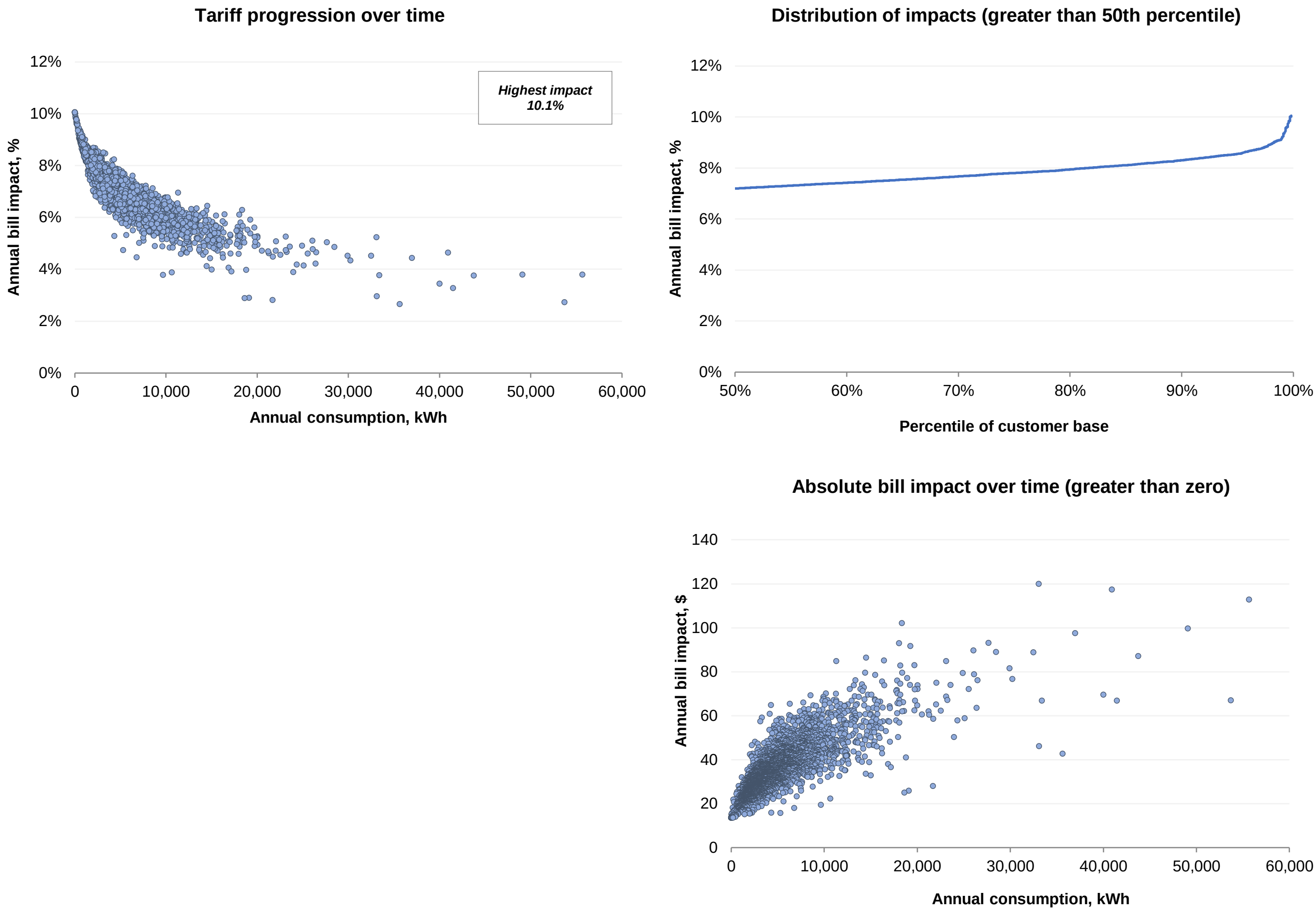






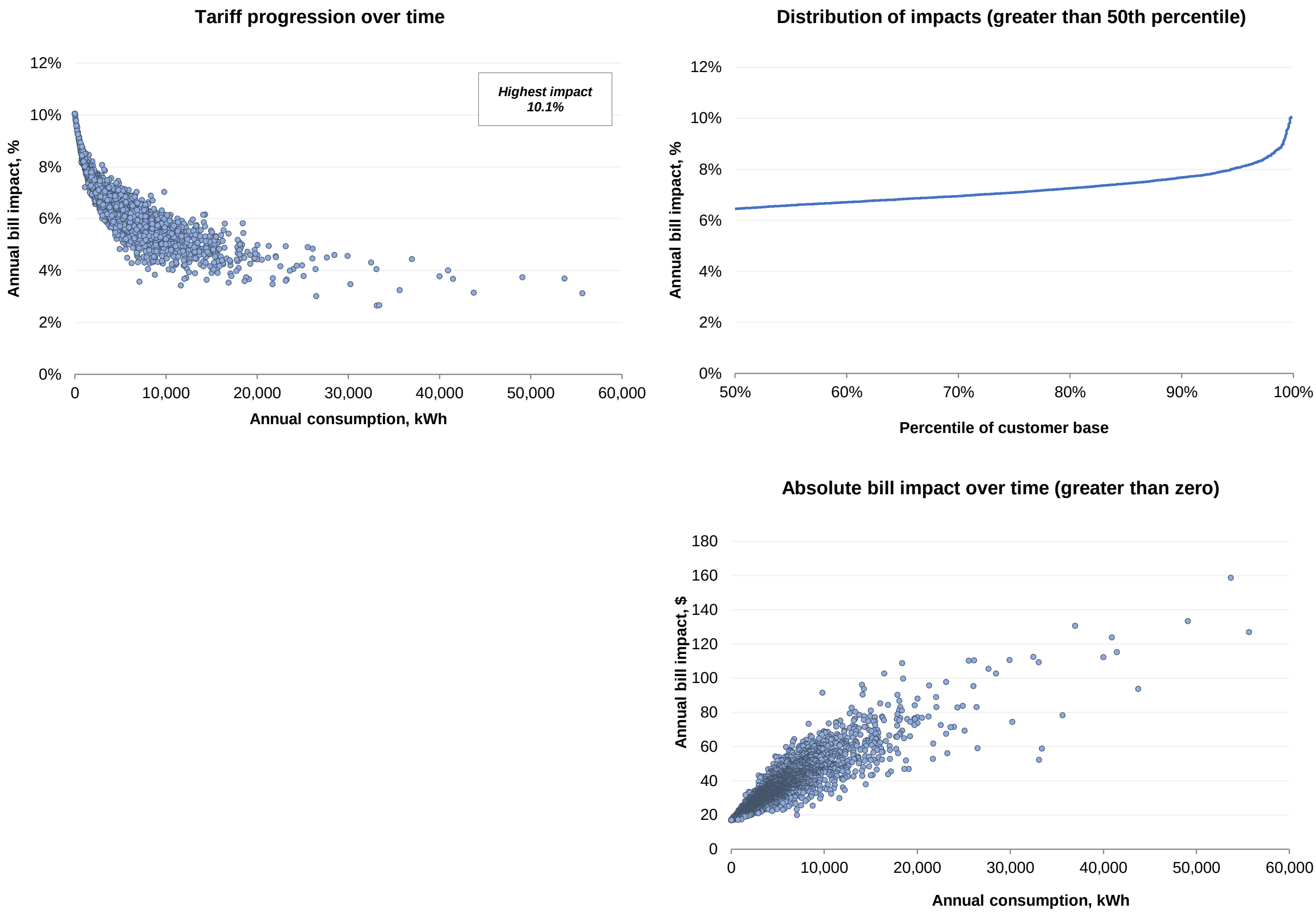
Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	100.0%	0.3%	0.0%
Approximate population	230,000	230,000	592	0
Average annual bill impact, %	7.6%	7.6%	10.0%	N/A
Average annual bill impact, $	$43	$43	$17	N/A
Average annual consumption, kWh	5,189	5,189	6	N/A
Average maximum demand, kW	5.6	5.6	0.2	N/A
Average load factor, %	10.2%	10.2%	0.1%	N/A

Figure A6.12. Tariff progression over time: EA116 Demand from 2019/20 to 2023/24



Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	100.0%	0.3%	0.0%
Average annual bill impact, %	7.1%	7.1%	10.0%	N/A
Average annual bill impact, $	$36	$36	$14	N/A
Average annual consumption, kWh	5,189	5,189	6	N/A
Average maximum demand, kW	5.6	5.6	0.2	N/A
Average load factor, %	10.2%	10.2%	0.1%	N/A

Figure A6.13. Tariff progression over time: EA115 TOU demand from 2019/20 to 2023/24



Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	100.0%	0.3%	0.0%
Average annual bill impact, %	6.4%	6.4%	10.0%	N/A
Average annual bill impact, $	$35	$35	$17	N/A
Average annual consumption, kWh	5,189	5,189	6	N/A
Average maximum demand, kW	5.6	5.6	0.2	N/A
Average load factor, %	10.2%	10.2%	0.1%	N/A

Small business customer impacts

Based on Figure 2.4 in Section 2 of the Tariff Structure Statement showing the assignment of small business customers from 1 July 2019, the following figures show the impact on small business customers moving from their current tariff to a new tariff from 1 July 2019 and impacts at the end of the regulatory period in 2023/24.

Box A6.2 is a key to the set of small business customer impact figures including:

- Figures A6.14 to A6.18: the impact on customers on each of the tariffs in 2018/19 being assigned to a tariff from 1 July 2019
- Figures A6.19 and A6.20: the impact on customers being assigned to a new demand (introductory) tariff due to failure of an accumulation meter after 1 July 2019, and the impact of being reassigned to the default demand tariff after 12 months
- Figure A6.21: the impact on customers being assigned to a new demand tariff due to change from an accumulation meter to a smart meter by customer initiated action after 1 July 2019
- Figure A6.22: the impact on customers being assigned to a demand tariff due to change for any reason from an interval meter to a smart meter after 1 July 2019
- Figures A6.23 and A6.24: the impact on customers on the two continuing non-demand tariffs of tariff price progression from 2019/20 to the end of the regulatory period in 2023/24
- Figures A6.25 and A6.26: the impact on customers on the two new demand tariffs of tariff price progression from 2019/20 to the end of the regulatory period in 2023/24.

Box A6.2. Key to small business customer impact figures

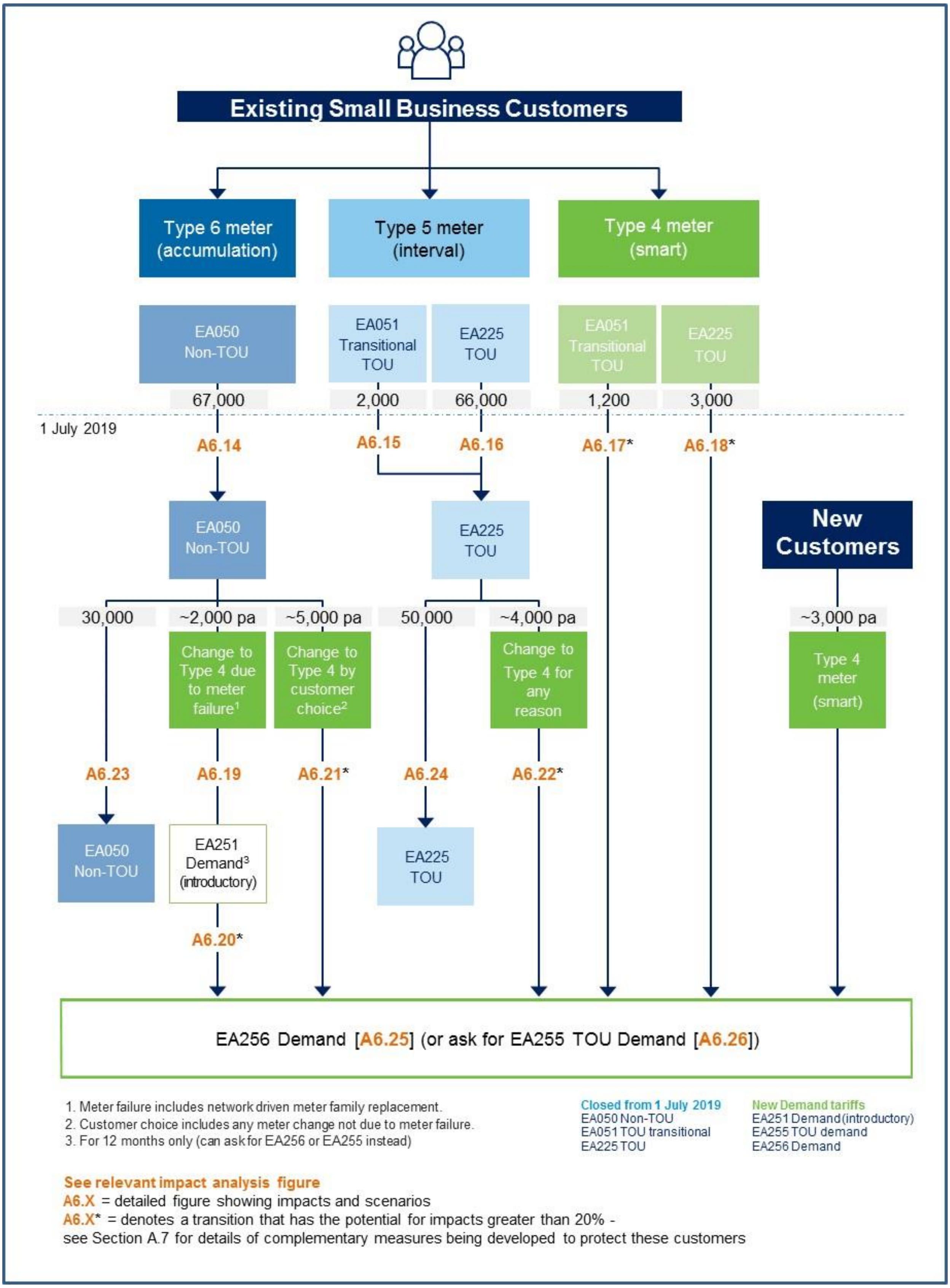
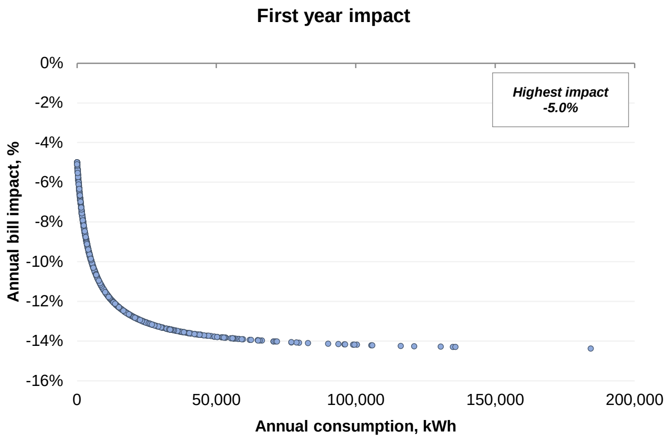
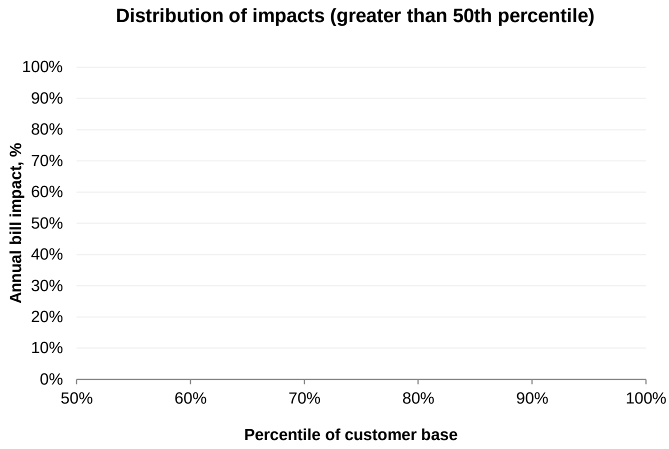
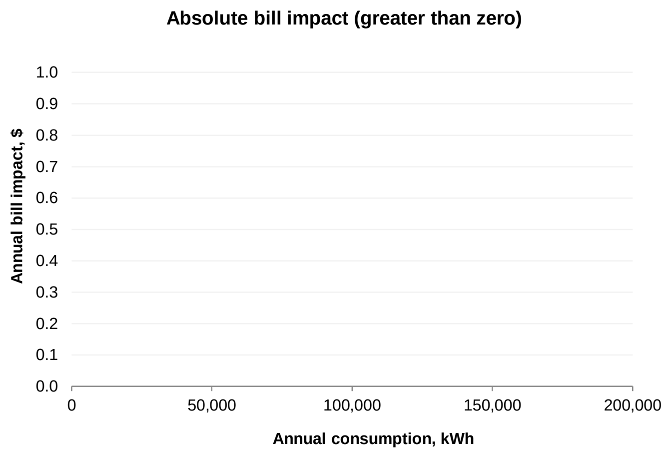


Figure A6.14. First year impact: EA050 Non-TOU from 2018/19 to 2019/20

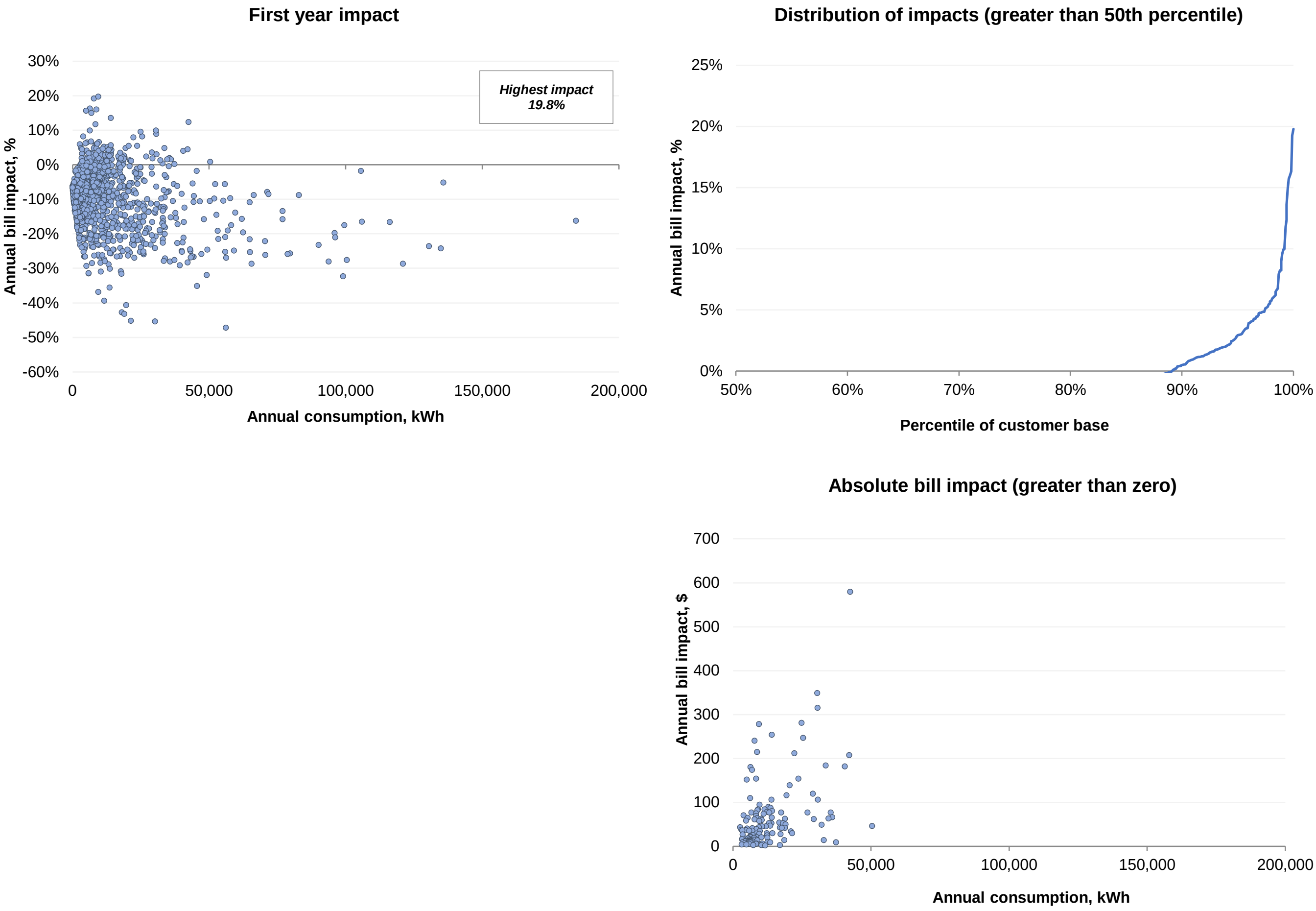






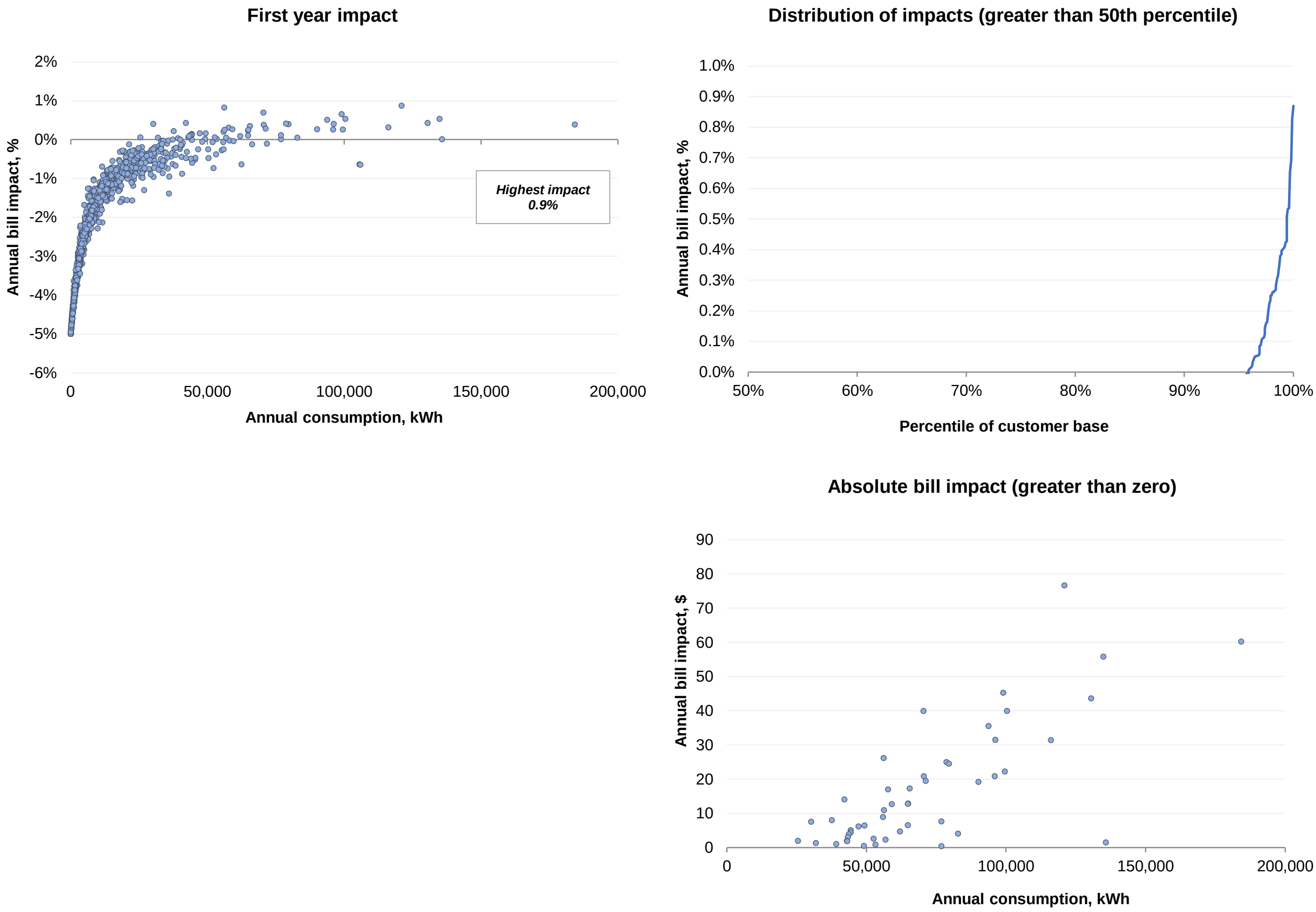
Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	0.0%	0.0%	0.0%
Approximate population	67,000	0	0	0
Average annual bill impact, %	-10.4%	N/A	N/A	N/A
Average annual bill impact, $	($214)	N/A	N/A	N/A
Average annual consumption, kWh	13,105	N/A	N/A	N/A
Average maximum demand, kW	8.0	N/A	N/A	N/A
Average load factor, %	19.7%	N/A	N/A	N/A

Figure A6.15. Reassignment of customers with interval meters from EA051 Transitional TOU to EA225 TOU on 1 July 2019



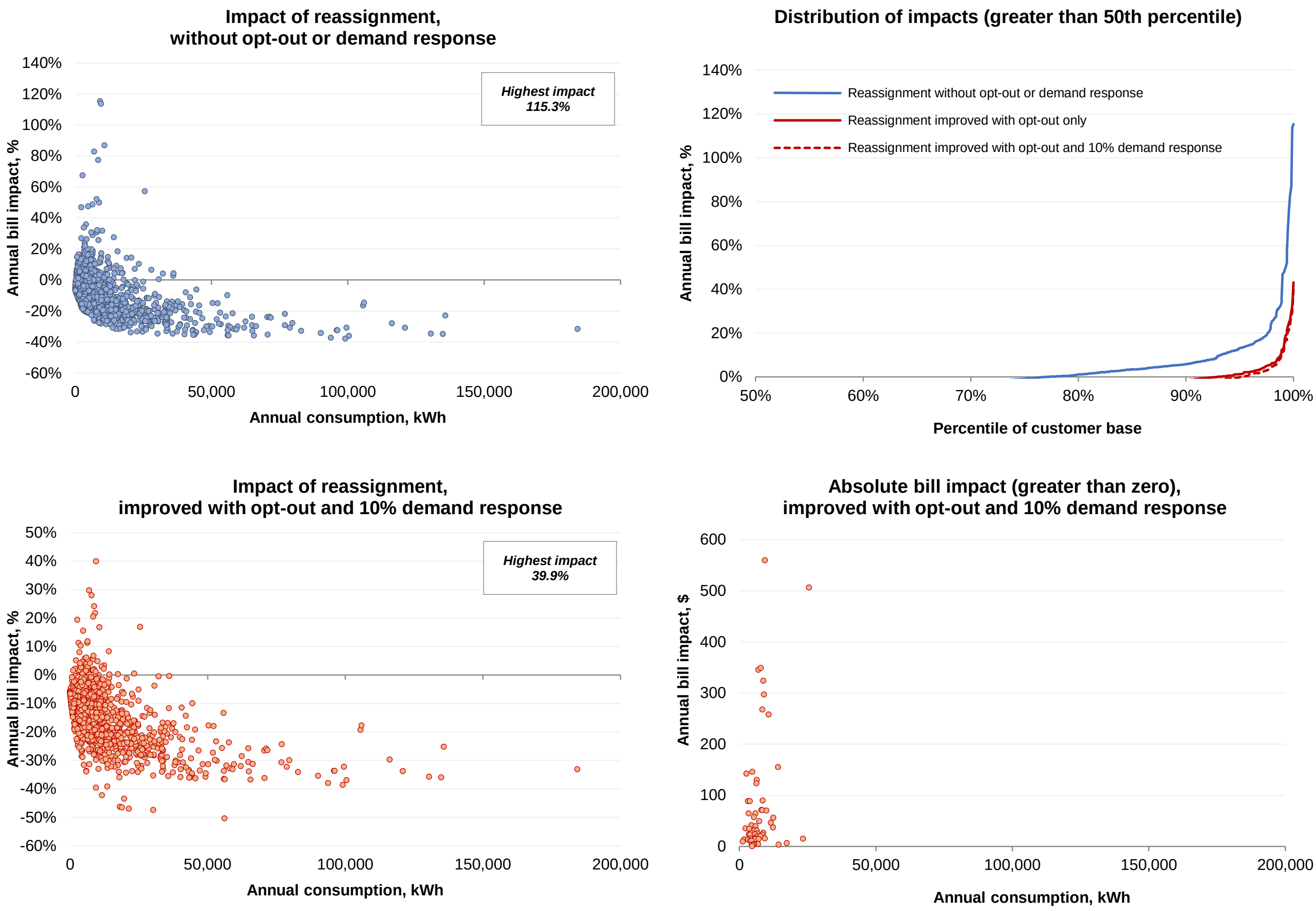
Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	10.8%	0.8%	0.0%
Approximate population	2,000	217	15	0
Average annual bill impact, %	-9.6%	3.8%	15.5%	N/A
Average annual bill impact, $	($212)	$69	$247	N/A
Average annual consumption, kWh	13,105	13,422	12,106	N/A
Average maximum demand, kW	8.0	12.4	19.9	N/A
Average load factor, %	19.7%	13.7%	9.0%	N/A

Figure A6.16. First year impact: EA225 TOU from 2018/19 to 2019/20



Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	4.1%	0.0%	0.0%
Approximate population	66,000	2,695	0	0
Average annual bill impact, %	-2.1%	0.3%	N/A	N/A
Average annual bill impact, $	($19)	$17	N/A	N/A
Average annual consumption, kWh	13,105	71,198	N/A	N/A
Average maximum demand, kW	8.0	23.1	N/A	N/A
Average load factor, %	19.7%	40.5%	N/A	N/A

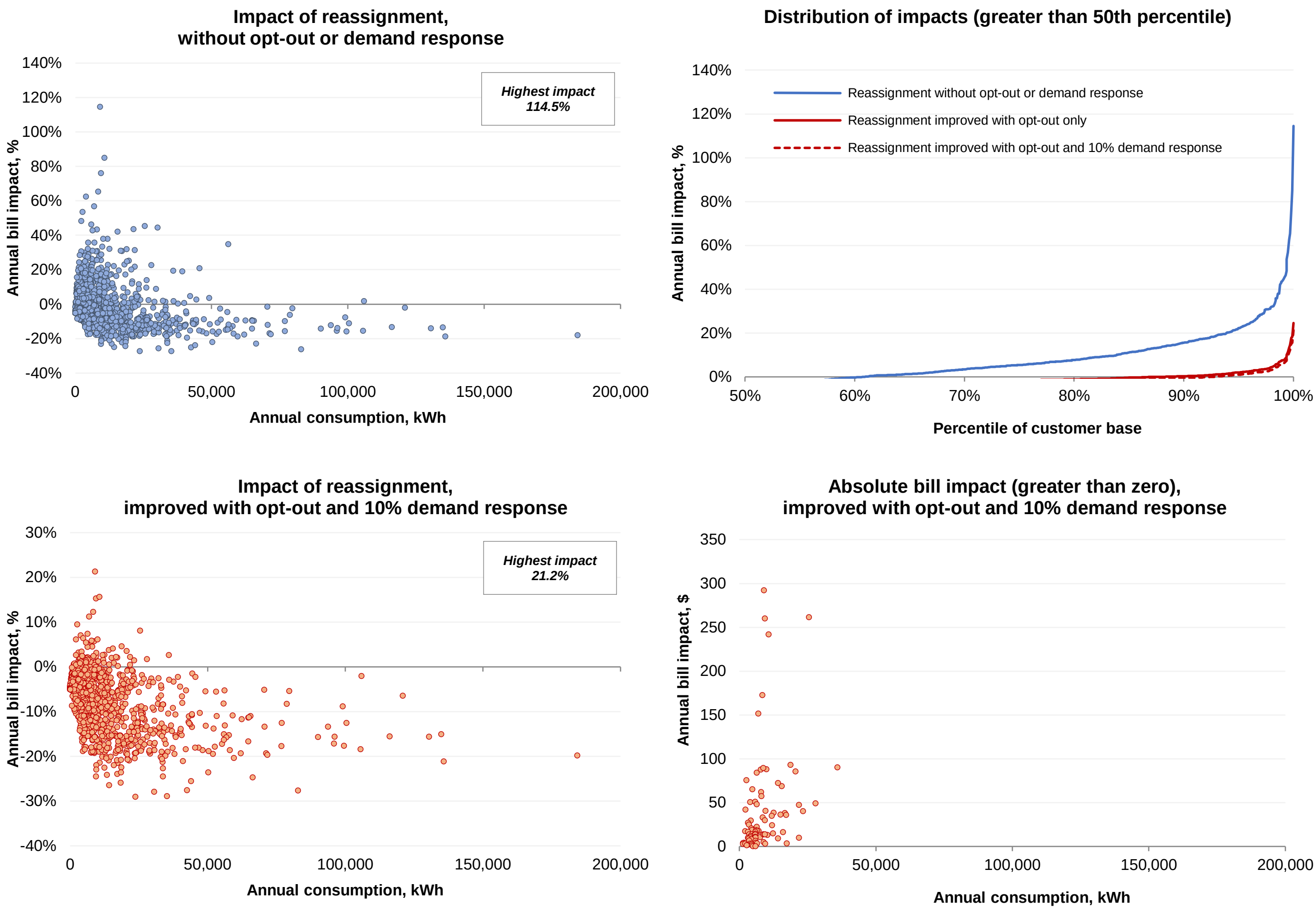
Figure A6.17. Reassignment of customers with smart meters from EA051 Transitional TOU to EA256 Demand on 1 July 2019



Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	4.8%	1.2%	0.5%
Approximate population	1,200	58	14	6[21]
Average annual bill impact, %	-13.0%	6.9%	19.8%	27.3%
Average annual bill impact, $	($323)	$87	$259	$357
Average annual consumption, kWh	13,105	7,349	8,086	8,374
Average maximum demand, kW	8.0	15.4	28.7	31.3
Average load factor, %	19.7%	6.4%	3.7%	3.3%

[21] See Section A.7 for details of complementary measures being developed to protect these customers.

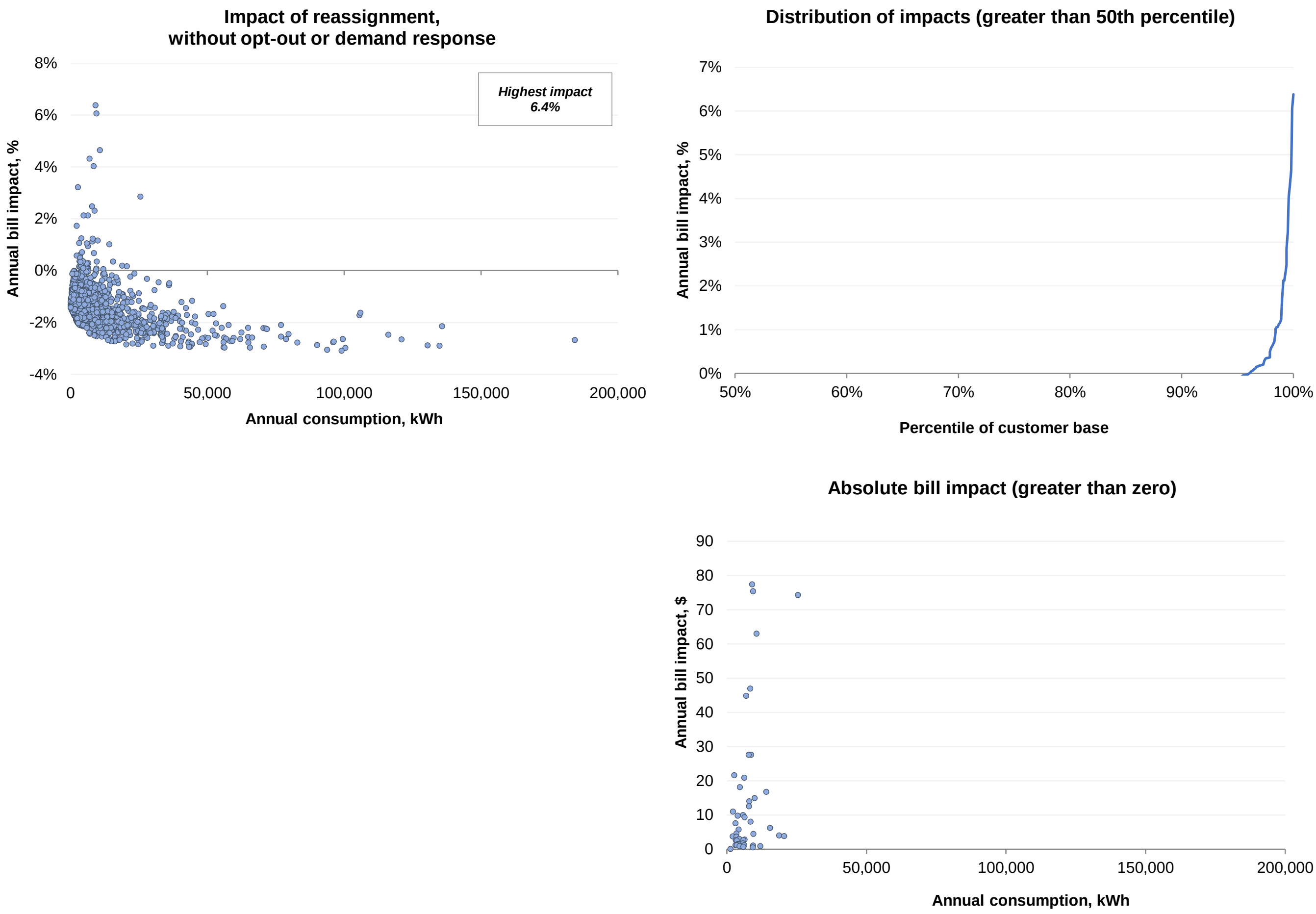
Figure A6.18. Reassignment of customers with smart meters from EA225 TOU to EA256 Demand on 1 July 2019



Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	7.3%	0.4%	0.1%
Approximate population	3,000	218	13	3[22]
Average annual bill impact, %	-5.8%	3.0%	15.1%	21.2%
Average annual bill impact, $	($130)	$41	$224	$292
Average annual consumption, kWh	13,105	8,648	8,880	9,016
Average maximum demand, kW	8.0	16.5	40.8	40.0
Average load factor, %	19.7%	6.4%	2.7%	2.6%

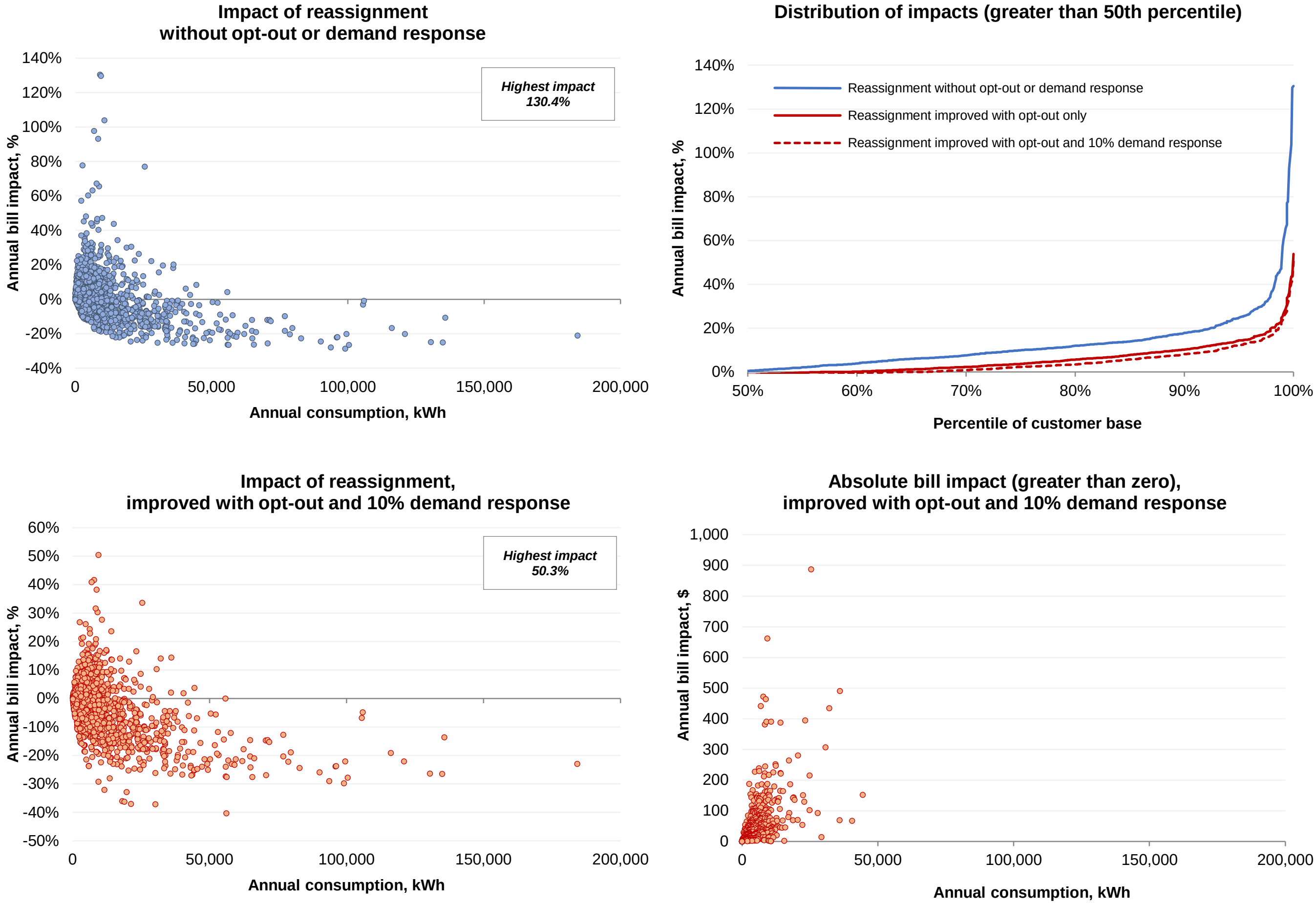
[22] See Section A.7 for details of complementary measures being developed to protect these customers.

Figure A6.19. Reassignment of customers with accumulation meters from EA050 Non-TOU to EA251 Demand (introductory) on meter replacement due to failure in 2019/20



Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	3.9%	0.0%	0.0%
Approximate population p.a.	2,000	78	0	0
Average annual bill impact, %	-1.4%	1.2%	N/A	N/A
Average annual bill impact, $	($27)	$14	N/A	N/A
Average annual consumption, kWh	13,105	7,324	N/A	N/A
Average maximum demand, kW	8.0	17.4	N/A	N/A
Average load factor, %	19.7%	5.4%	N/A	N/A

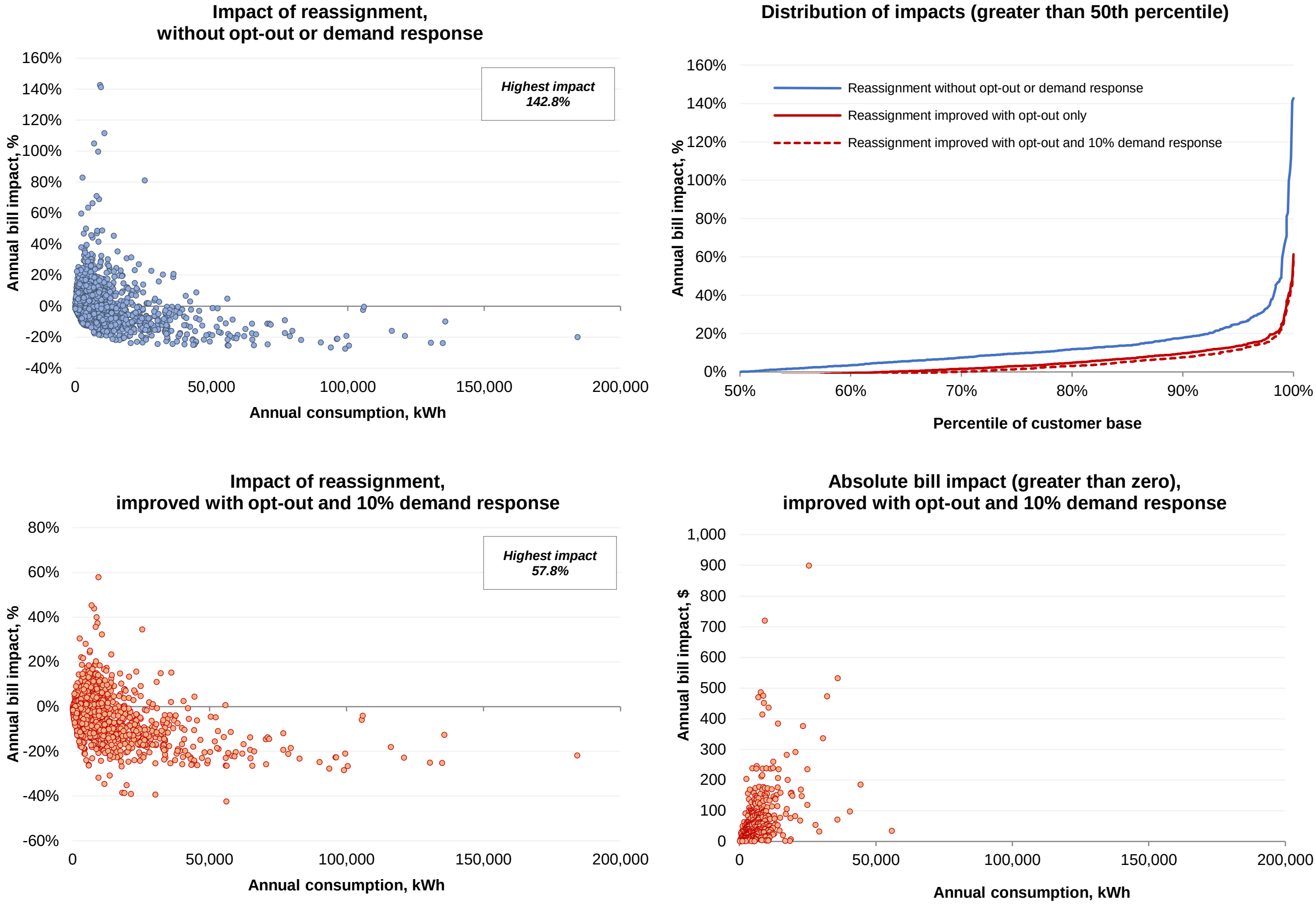
Figure A6.20. Reassignment of customers from EA251 Demand (introductory) to EA256 Demand after 12 months (in 2020/21)



Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	33.9%	6.9%	1.3%
Approximate population p.a.	2,000	678	138	27[23]
Average annual bill impact, %	-2.2%	6.6%	16.7%	30.0%
Average annual bill impact, $	($99)	$74	$201	$370
Average annual consumption, kWh	13,105	6,908	8,725	8,490
Average maximum demand, kW	8.0	8.7	14.8	28.0
Average load factor, %	19.7%	9.0%	7.5%	3.9%

[23] See Section A.7 for details of complementary measures being developed to protect these customers.

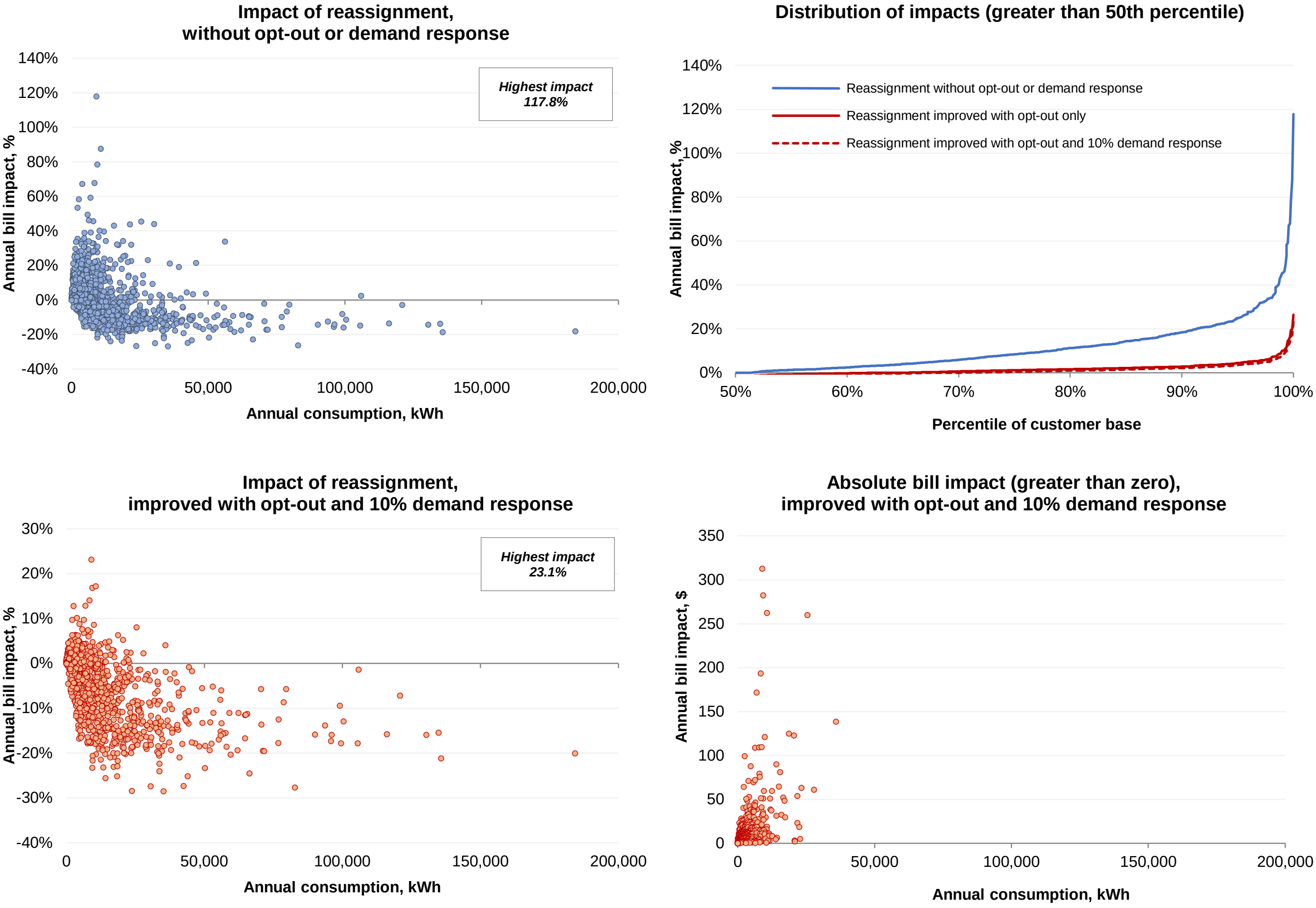
Figure A6.21. Reassignment of customers from EA050 Non-TOU to EA256 Demand after meter upgrade from accumulation to smart meter (in 2019/20)



Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	30.6%	6.6%	1.3%
Approximate population p.a.	5,000	1,529	329	67[24]
Average annual bill impact, %	-2.9%	6.9%	17.3%	32.6%
Average annual bill impact, $	($109)	$80	$211	$389
Average annual consumption, kWh	13,105	7,673	8,987	8,490
Average maximum demand, kW	8.0	9.4	15.2	28.0
Average load factor, %	19.7%	9.5%	7.4%	3.9%

[24] See Section A.7 for details of complementary measures being developed to protect these customers.

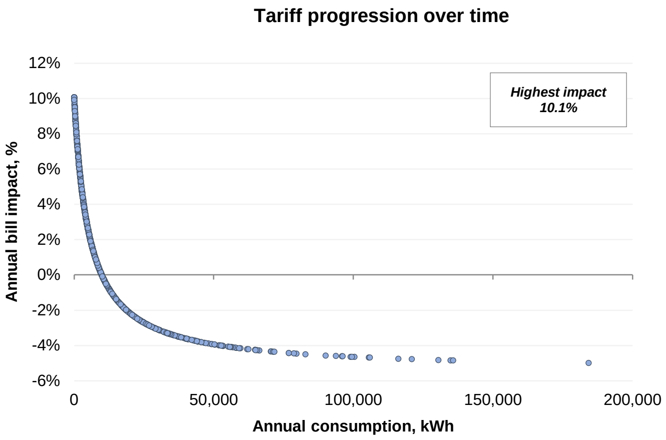
Figure A6.22. Reassignment of customers from EA225 TOU to EA256 Demand after meter upgrade from interval to smart meter (in 2019/20)

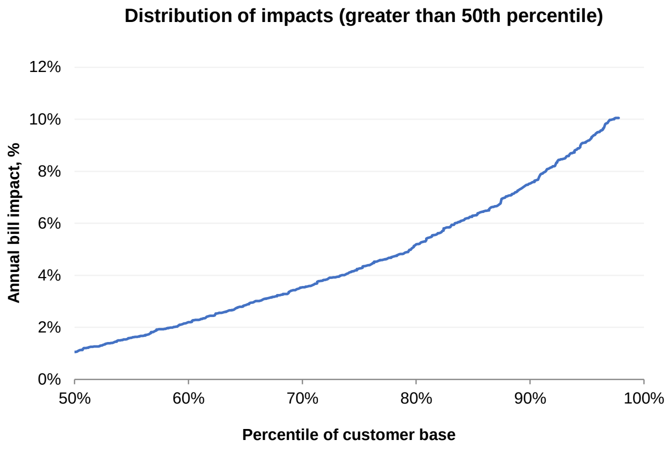


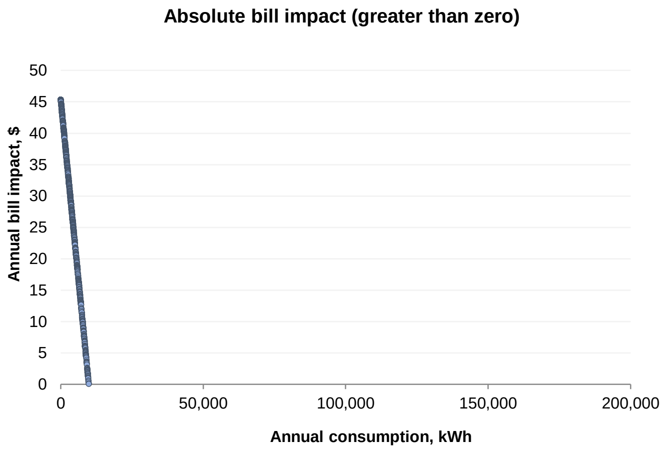
Summary results - improved with opt-out and 10% demand response	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	30.3%	0.6%	0.1%
Approximate population p.a.	4,000	1,210	23	3[25]
Average annual bill impact, %	-3.7%	2.2%	15.2%	23.1%
Average annual bill impact, $	($111)	$22	$199	$313
Average annual consumption, kWh	13,105	4,922	7,269	9,016
Average maximum demand, kW	8.0	8.0	34.1	40.0
Average load factor, %	19.7%	7.0%	2.7%	2.6%

[25] See Section A.7 for details of complementary measures being developed to protect these customers.

Figure A6.23. Tariff progression over time: EA050 Non-TOU from 2019/20 to 2023/24

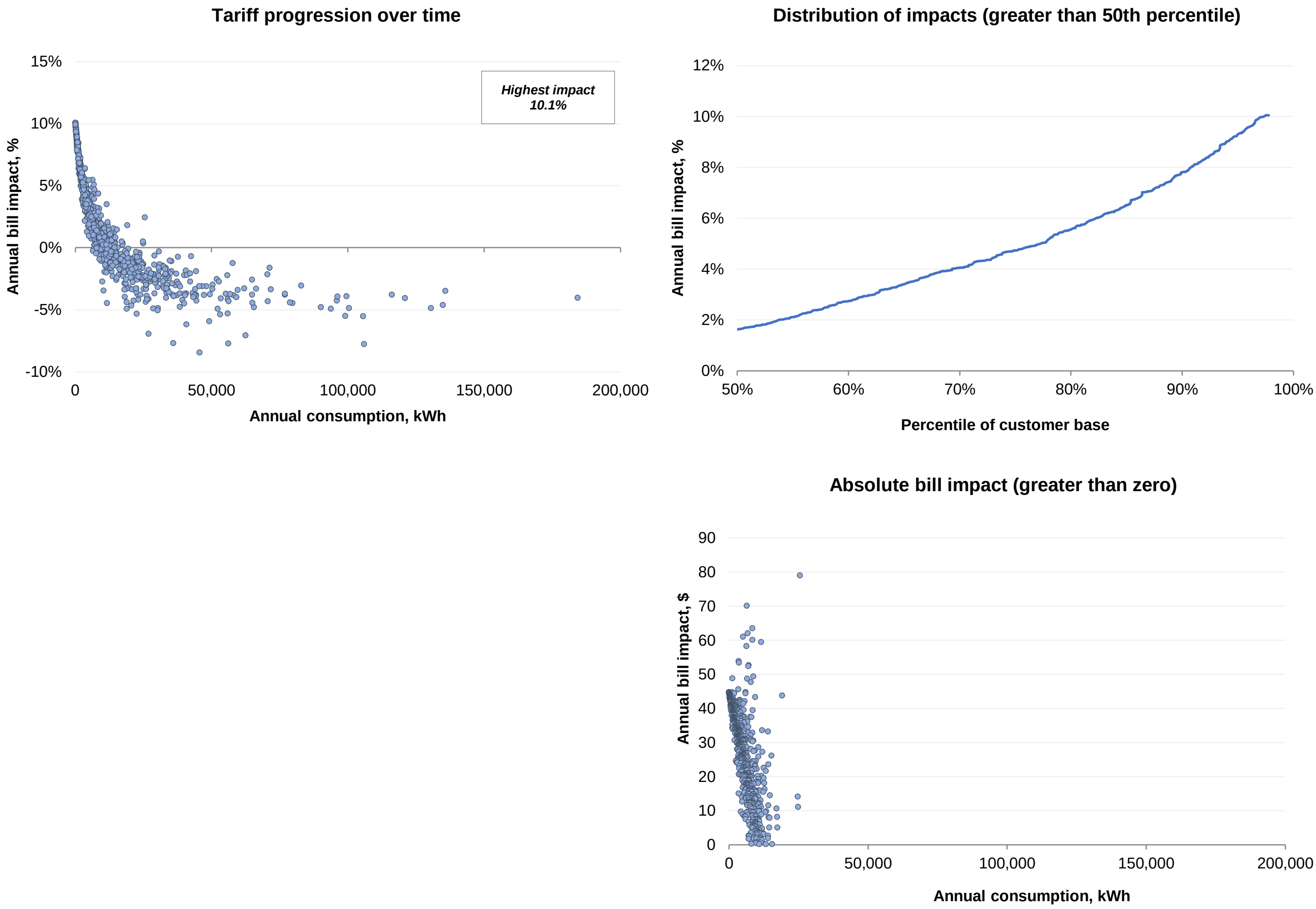






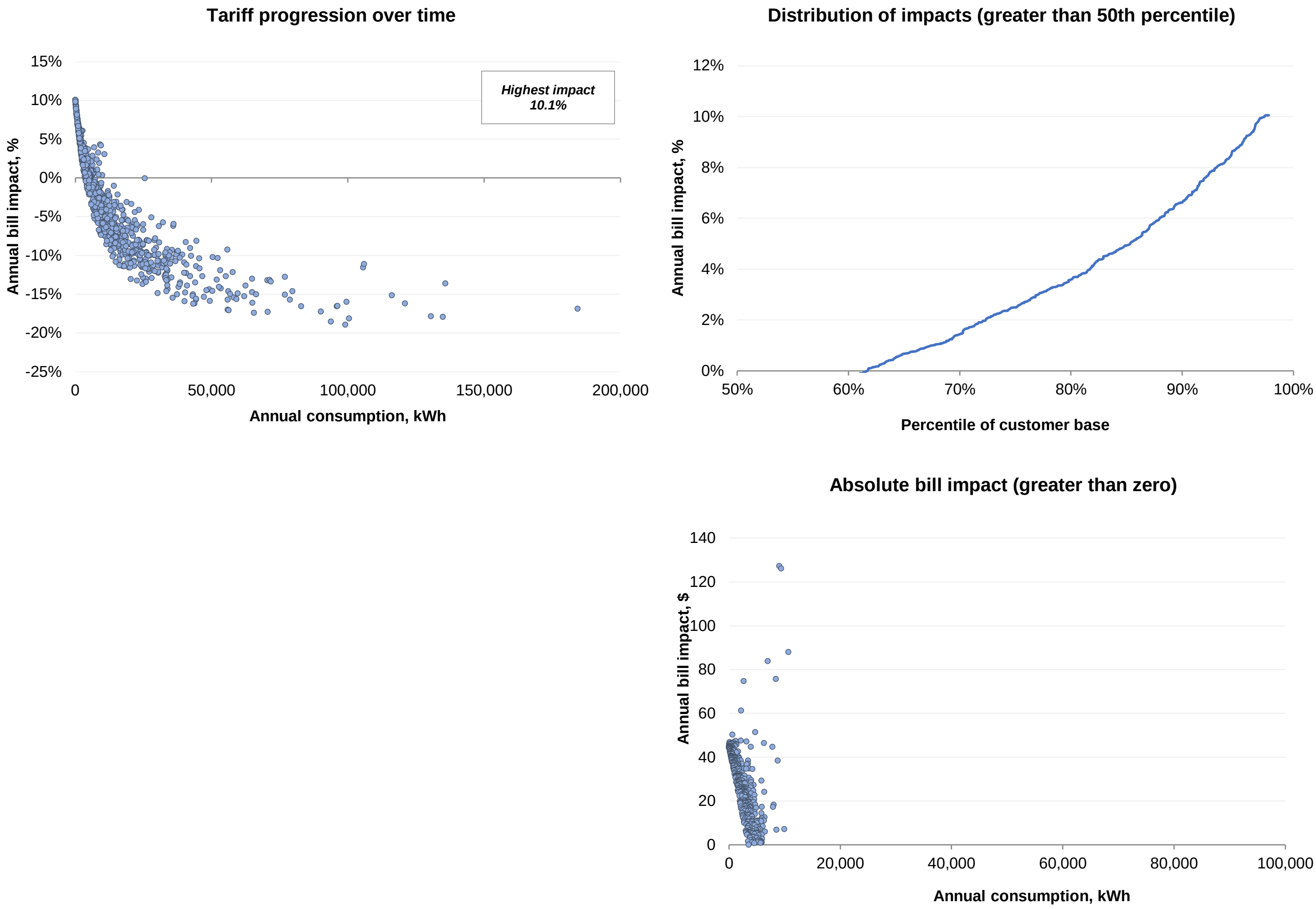
Summary results	**All**	**Impact > 0%**	**Impact > 10%**	**Impact > 20%**
Share in sample	100.0%	60.6%	2.7%	0.0%
Approximate population	30,000	18,175	800	0
Average annual bill impact, %	1.6%	4.1%	10.1%	N/A
Average annual bill impact, $	($15)	$26	$45	N/A
Average annual consumption, kWh	13,105	4,207	1	N/A
Average maximum demand, kW	8.0	4.5	0.0	N/A
Average load factor, %	19.7%	15.6%	1.7%	N/A

Figure A6.24. Tariff progression over time: EA225 TOU from 2019/20 to 2023/24



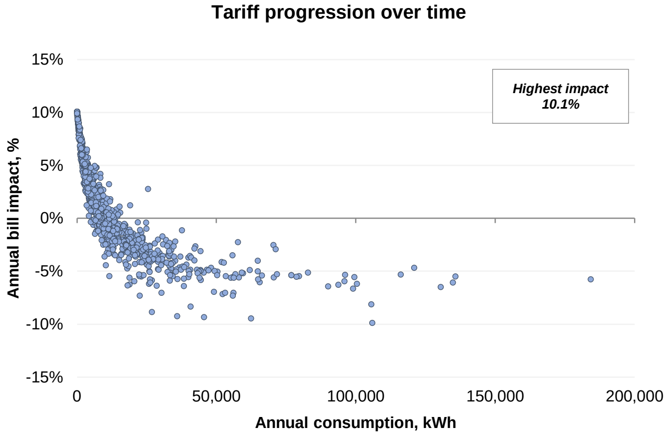
Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	66.3%	2.7%	0.0%
Approximate population	50,000	33,167	1,333	0
Average annual bill impact, %	2.0%	4.1%	10.1%	N/A
Average annual bill impact, $	($7)	$28	$45	N/A
Average annual consumption, kWh	13,105	4,978	1	N/A
Average maximum demand, kW	8.0	5.1	0.0	N/A
Average load factor, %	19.7%	15.7%	1.7%	N/A

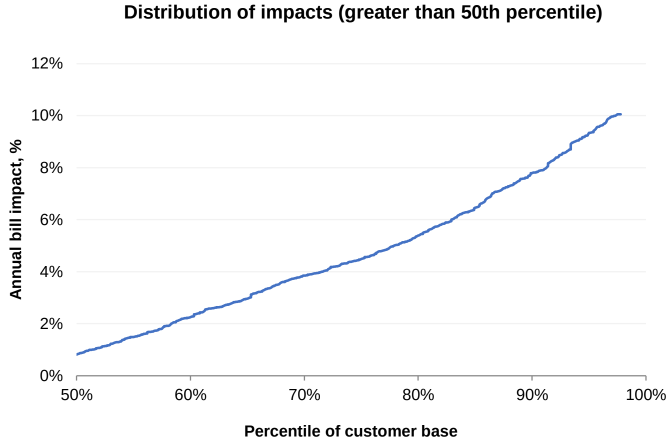
Figure A6.25. Tariff progression over time: EA256 Demand from 2019/20 to 2023/24

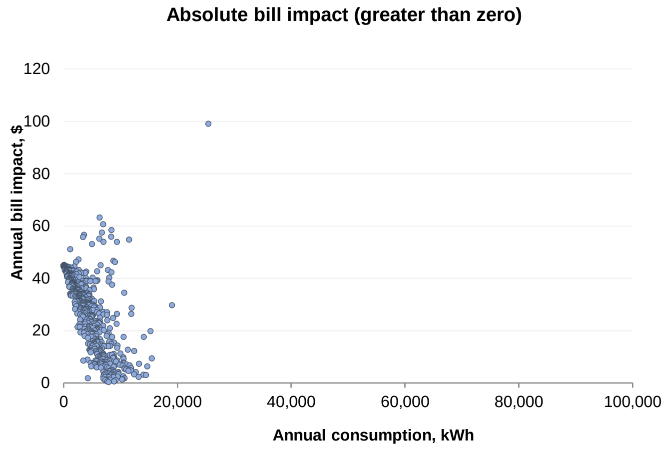


Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	38.3%	2.6%	0.0%
Average annual bill impact, %	-2.3%	4.4%	10.1%	N/A
Average annual bill impact, $	($94)	$27	$45	N/A
Average annual consumption, kWh	13,105	2,532	0	N/A
Average maximum demand, kW	8.0	4.1	0.0	N/A
Average load factor, %	19.7%	13.2%	0.2%	N/A

Figure A6.26. Tariff progression over time: EA255 TOU demand from 2019/20 to 2023/24







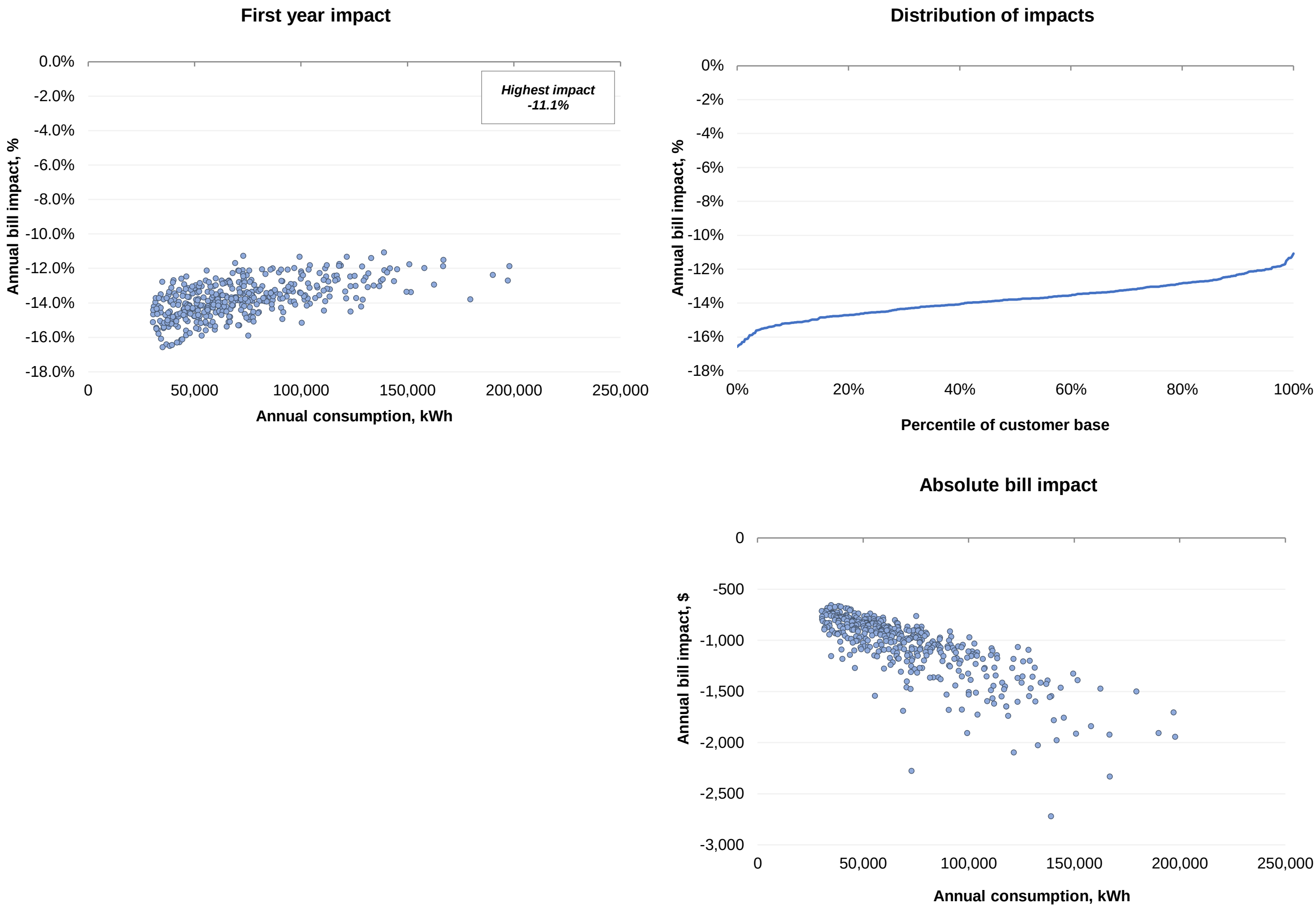
Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	58.5%	2.7%	0.0%
Average annual bill impact, %	1.3%	4.3%	10.1%	N/A
Average annual bill impact, $	($22)	$28	$45	N/A
Average annual consumption, kWh	13,105	4,282	1	N/A
Average maximum demand, kW	8.0	4.9	0.0	N/A
Average load factor, %	19.7%	15.3%	1.7%	N/A

Medium and large business low voltage customer impacts

The following six figures show the impact on customers on three tariffs moving from prices in 2018/19 to new prices in 2019/20 and at the end of the regulatory period in 2023/24.

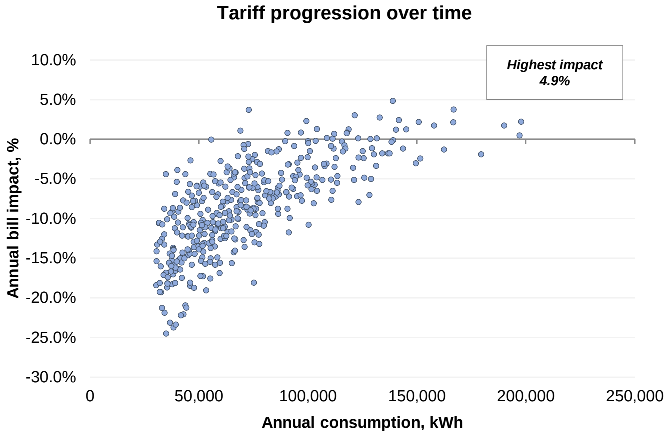
- Figures A6.27 and A6.28: the impact on customers on EA302 40-160 MWh a year of new prices in 2019/20 and at the end of the regulatory period
- Figures A6.29 and A6.30: the impact on customers on EA305 160-750 MWh a year of new prices in 2019/20 and at the end of the regulatory period
- Figures A6.31 and A6.32: the impact on customers on EA310 > 750 MWh a year of new prices in 2019/20 and at the end of the regulatory period.

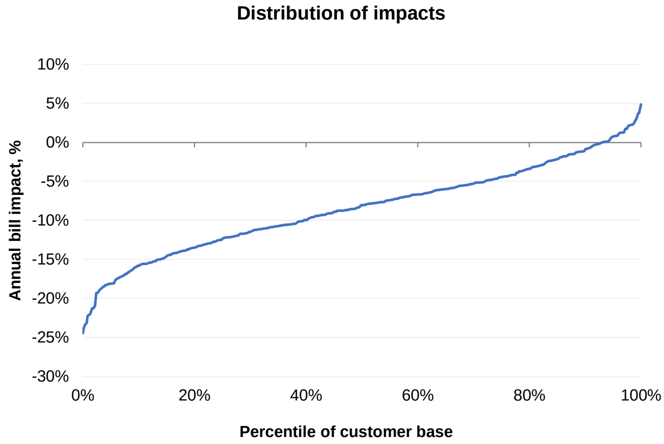
Figure A6.27. First year impact: EA302 (40-160 MWh pa) from 2018/19 to 2019/20

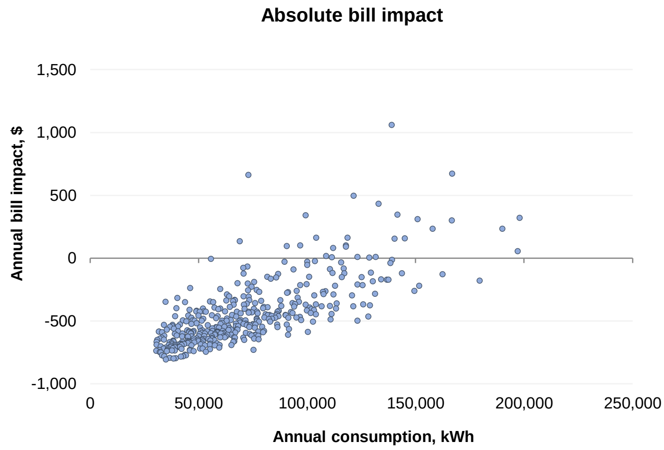


Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	0.0%	0.0%	0.0%
Approximate population	22,500	0	0	0
Average annual bill impact, %	-13.8%	N/A	N/A	N/A
Average annual bill impact, $	($1,064)	N/A	N/A	N/A
Average annual consumption, kWh	72,391	N/A	N/A	N/A
Average maximum demand, kW	27.4	N/A	N/A	N/A
Average load factor, %	35.7%	N/A	N/A	N/A

Figure A6.28. Tariff progression over time: EA302 (40-160 MWh pa) from 2019/20 to 2023/24

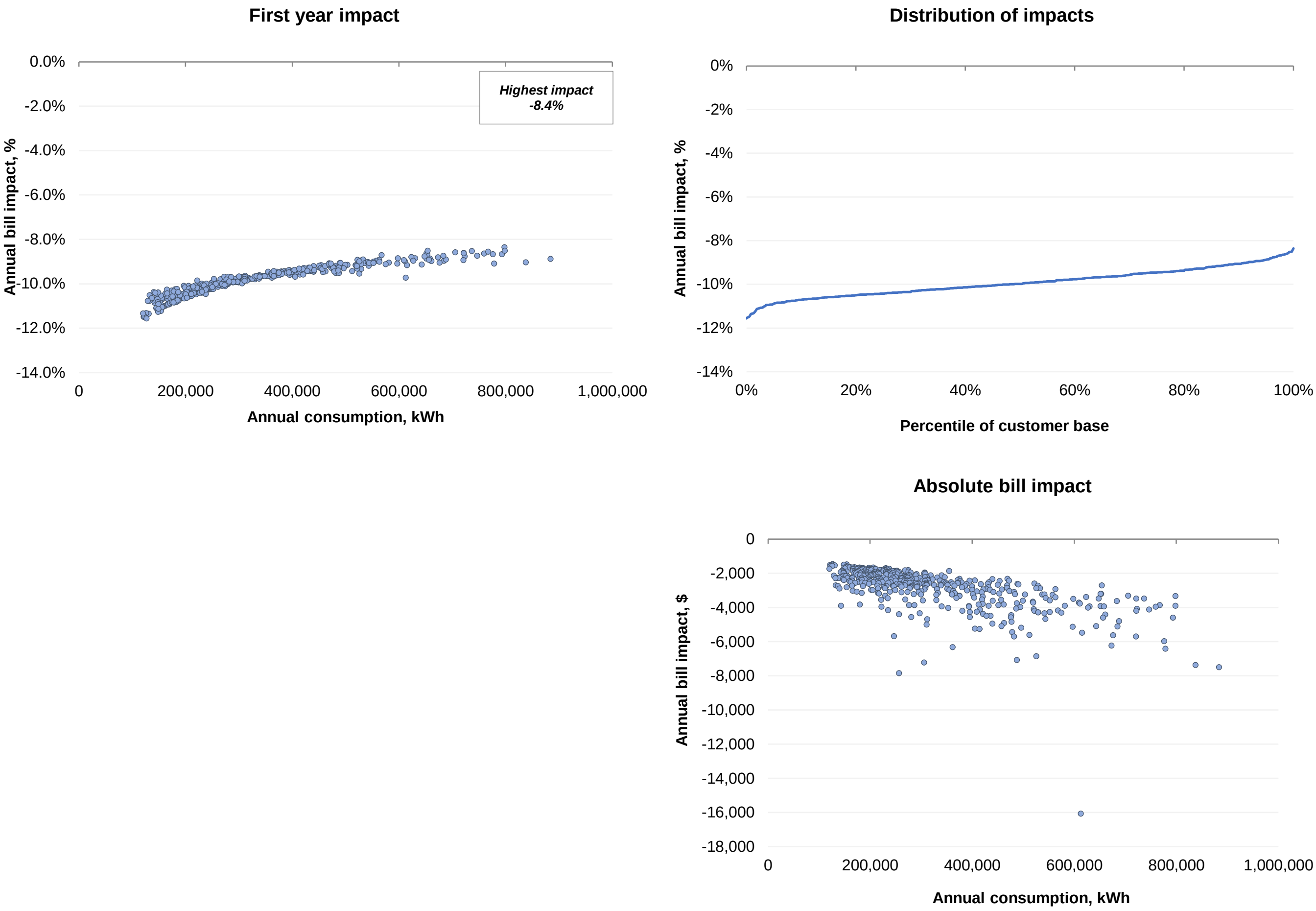






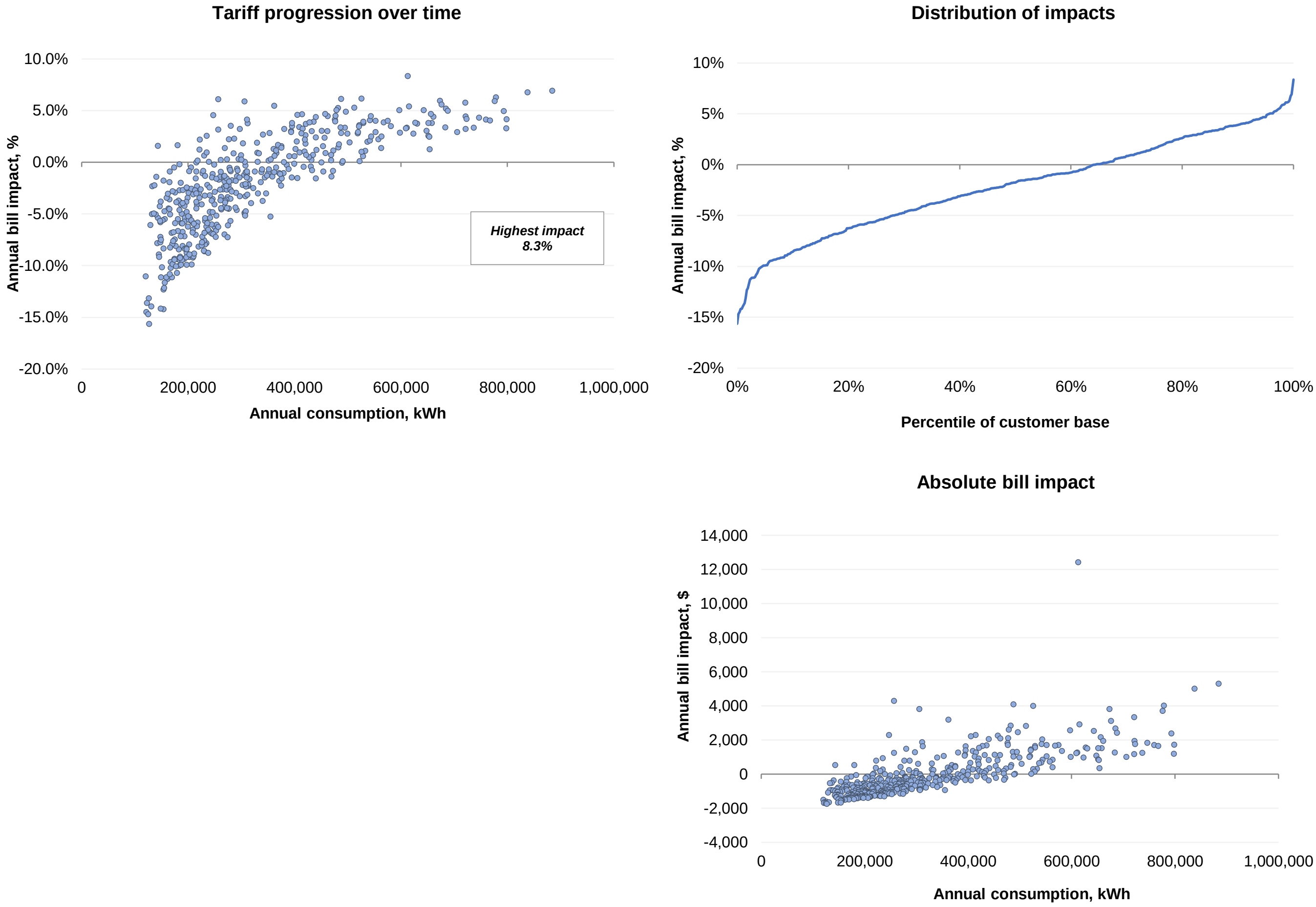
Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	6.9%	0.0%	0.0%
Approximate population	22,500	1,552	0	0
Average annual bill impact, %	-8.5%	1.6%	N/A	N/A
Average annual bill impact, $	($445)	$243	N/A	N/A
Average annual consumption, kWh	72,391	130,360	N/A	N/A
Average maximum demand, kW	27.4	72.5	N/A	N/A
Average load factor, %	35.7%	22.4%	N/A	N/A

Figure A6.29. First year impact: EA305 (160-750 MWh pa) from 2018/19 to 2019/20



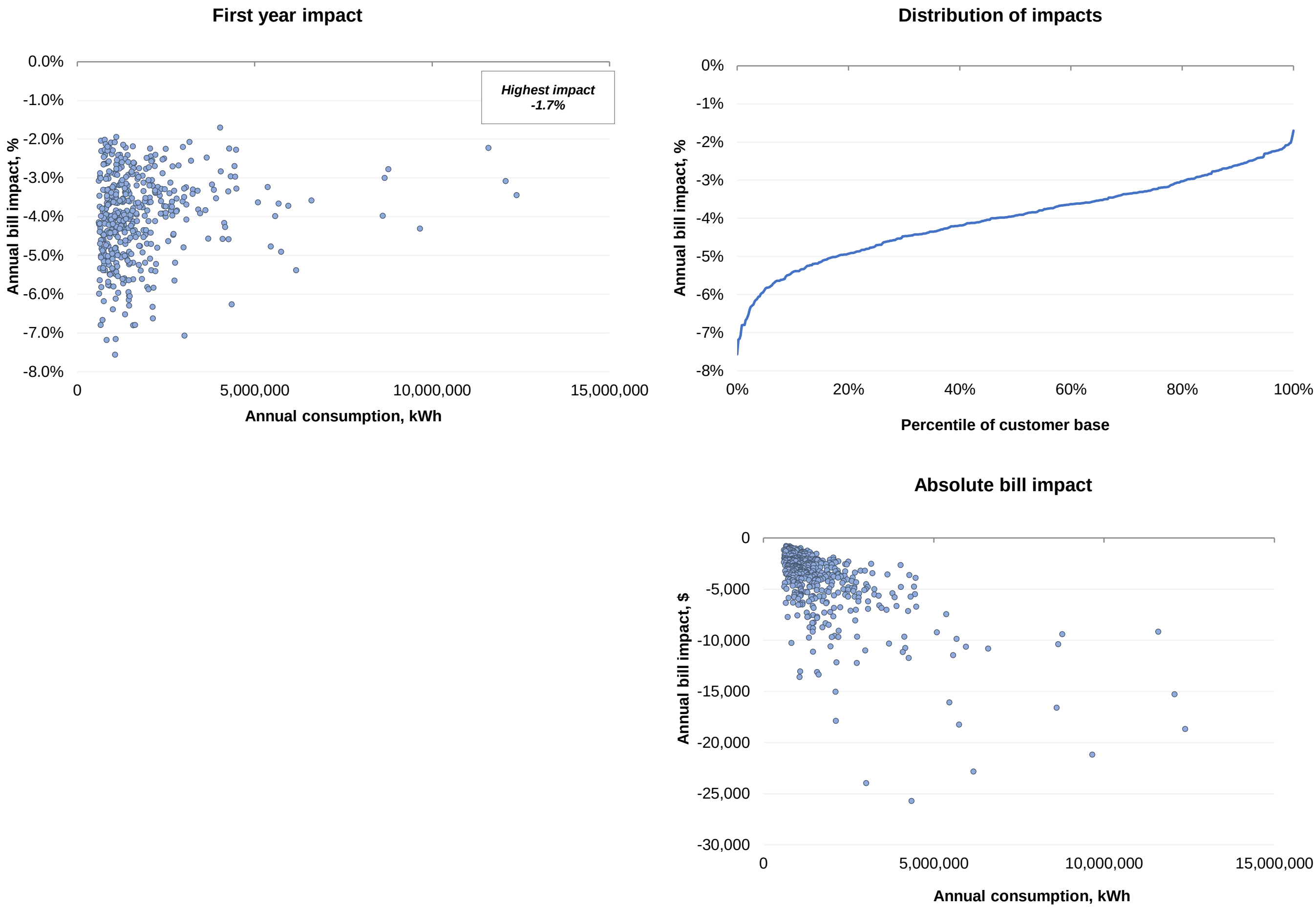
Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	0.0%	0.0%	0.0%
Approximate population	8,500	0	0	0
Average annual bill impact, %	-9.9%	N/A	N/A	N/A
Average annual bill impact, $	($2,867)	N/A	N/A	N/A
Average annual consumption, kWh	322,616	N/A	N/A	N/A
Average maximum demand, kW	102.8	N/A	N/A	N/A
Average load factor, %	42.7%	N/A	N/A	N/A

Figure A6.30. Tariff progression over time: EA305 (160-750 MWh pa) from 2019/20 to 2023/24



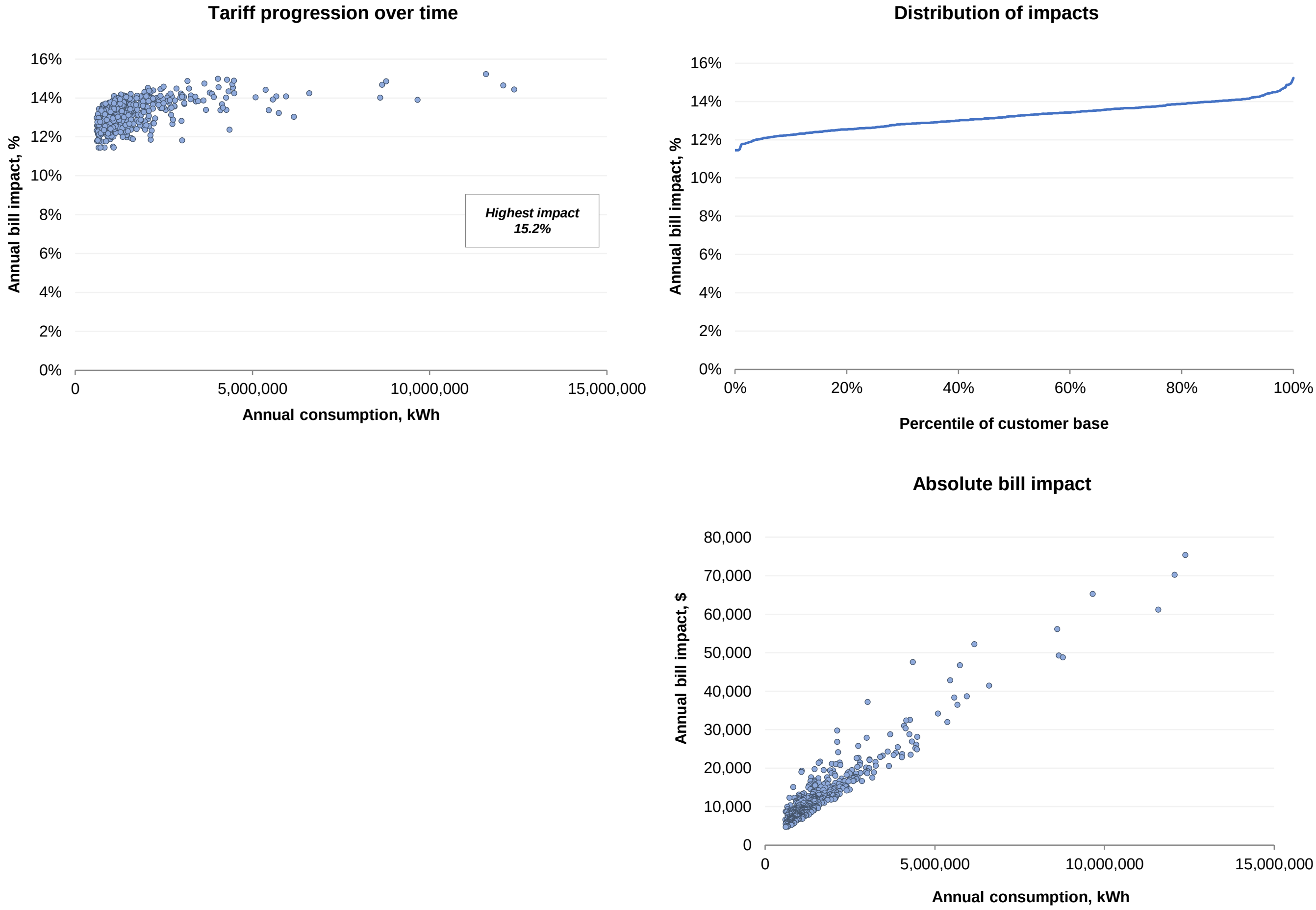
Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	35.6%	0.0%	0.0%
Approximate population	8,500	3,024	0	0
Average annual bill impact, %	-2.1%	2.9%	N/A	N/A
Average annual bill impact, $	($52)	$1,333	N/A	N/A
Average annual consumption, kWh	322,616	477,559	N/A	N/A
Average maximum demand, kW	102.8	170.9	N/A	N/A
Average load factor, %	42.7%	36.3%	N/A	N/A

Figure A6.31. First year impact: EA310 (>750 MWh pa) from 2018/19 to 2019/20



Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	0.0%	0.0%	0.0%
Approximate population	3,500	0	0	0
Average annual bill impact, %	-4.0%	N/A	N/A	N/A
Average annual bill impact, $	($4,474)	N/A	N/A	N/A
Average annual consumption, kWh	1,760,094	N/A	N/A	N/A
Average maximum demand, kW	466.6	N/A	N/A	N/A
Average load factor, %	46.0%	N/A	N/A	N/A

Figure A6.32. Tariff progression over time: EA310 (>750 MWh pa) from 2019/20 to 2023/24

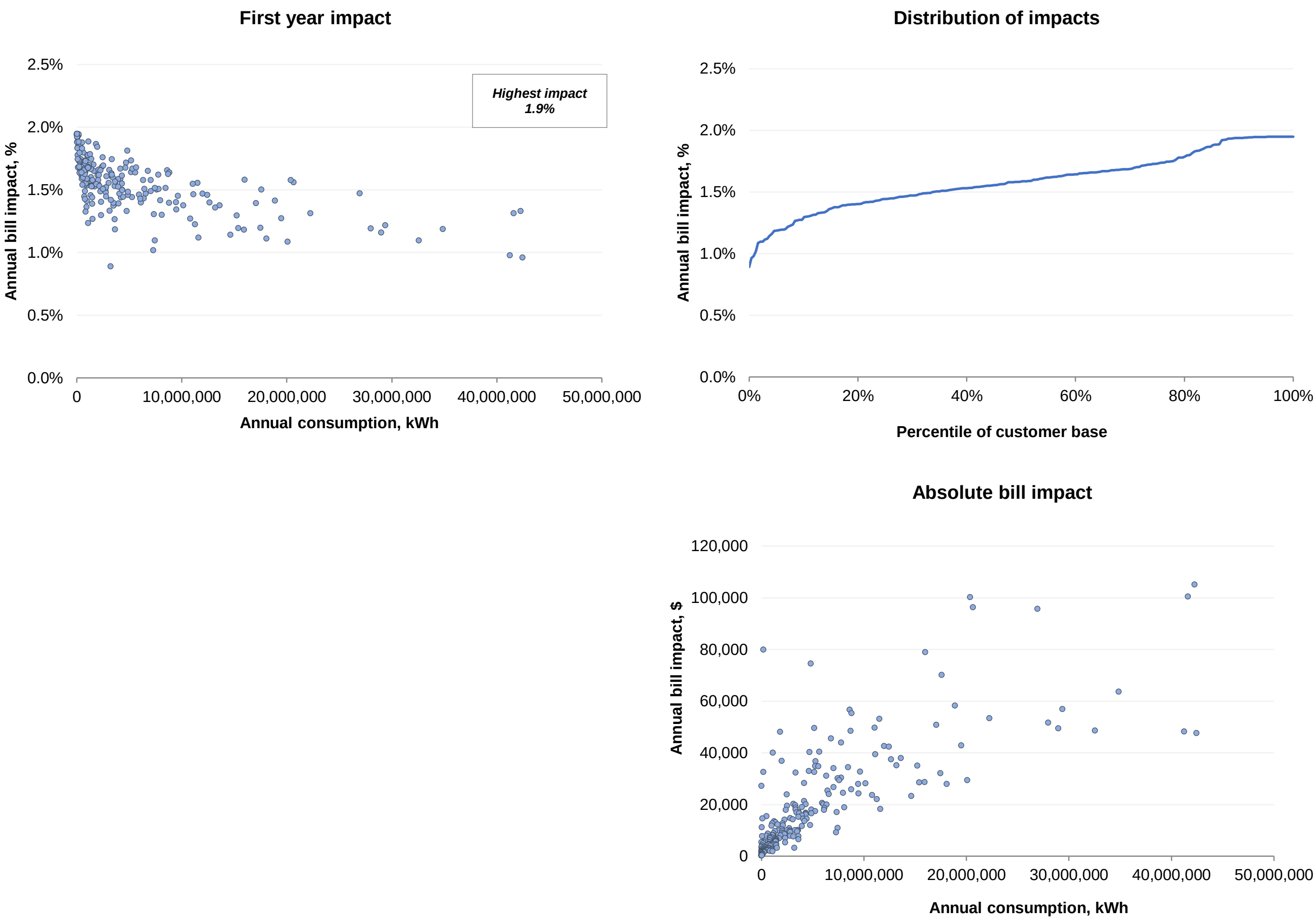


Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	100.0%	100.0%	0.0%
Approximate population	3,500	3,500	3,500	0
Average annual bill impact, %	13.2%	13.2%	13.2%	N/A
Average annual bill impact, $	$13,700	$13,700	$13,700	N/A
Average annual consumption, kWh	1,760,094	1,760,094	1,760,094	N/A
Average maximum demand, kW	466.6	466.6	466.6	N/A
Average load factor, %	46.0%	46.0%	46.0%	N/A

High Voltage customer impacts

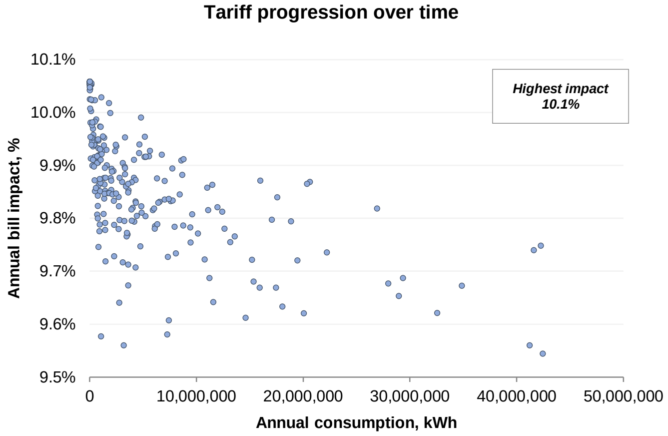
Figures A6.33 and A6.34 show the impact on customers on EA370 High Voltage Connection (system) of new prices in 2019/20 and at the end of the regulatory period in 2023/24. Impacts are based on all customers, not a sample.

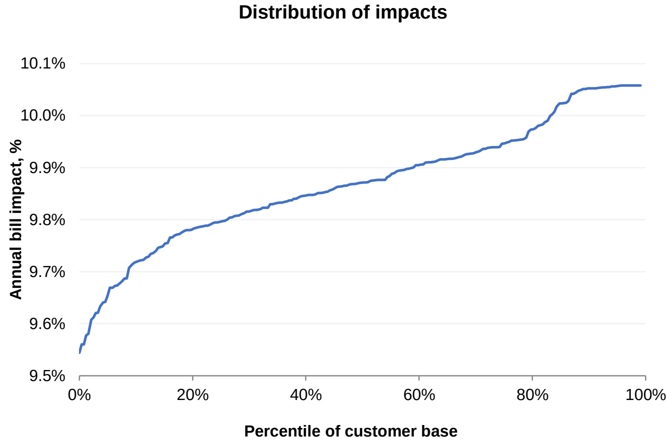
Figure A6.33. First year impact: EA370 (HV Connection System) from 2018/19 to 2019/20

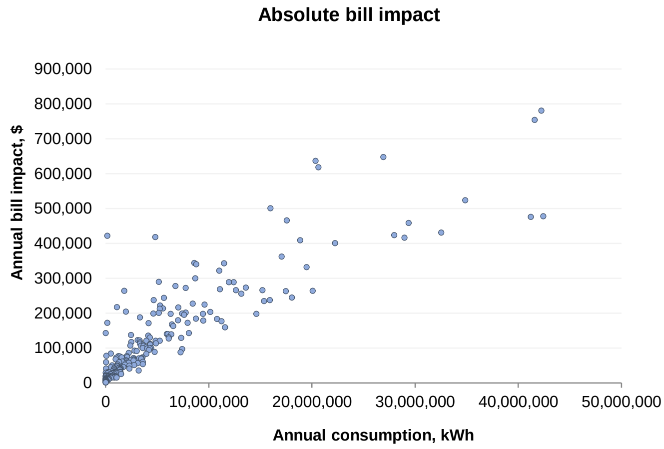


Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	100.0%	0.0%	0.0%
Approximate population	311	311	0	0
Average annual bill impact, %	1.6%	1.6%	N/A	N/A
Average annual bill impact, $	$19,031	$19,031	N/A	N/A
Average annual consumption, kWh	5,289,204	5,289,204	N/A	N/A
Average maximum demand, kW	1,336.8	1,336.8	N/A	N/A
Average load factor, %	38.2%	38.2%	N/A	N/A

Figure A6.34. Tariff progression over time: EA370 (HV Connection System) from 2019/20 to 2023/24





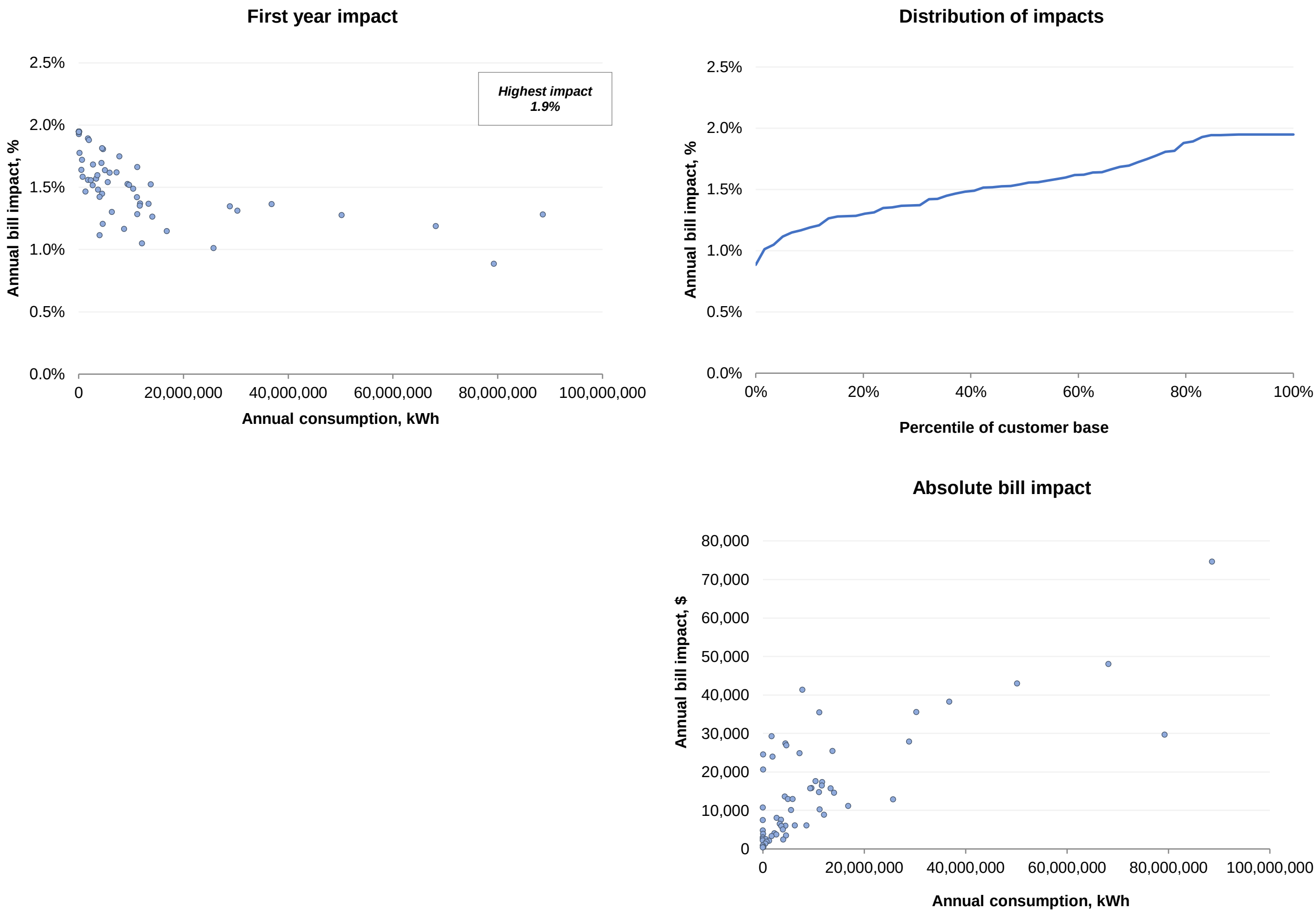


Summary results	**All**	**Impact > 0%**	**Impact > 10%**	**Impact > 20%**
Share in sample	100.0%	100.0%	16.8%	0.0%
Approximate population	311	311	52	0
Average annual bill impact, %	9.9%	9.9%	10.0%	N/A
Average annual bill impact, $	$128,504	$128,504	$44,648	N/A
Average annual consumption, kWh	5,289,204	5,289,204	114,797	N/A
Average maximum demand, kW	1,336.8	1,336.8	335.7	N/A
Average load factor, %	38.2%	38.2%	9.1%	N/A

Subtransmission customer impacts

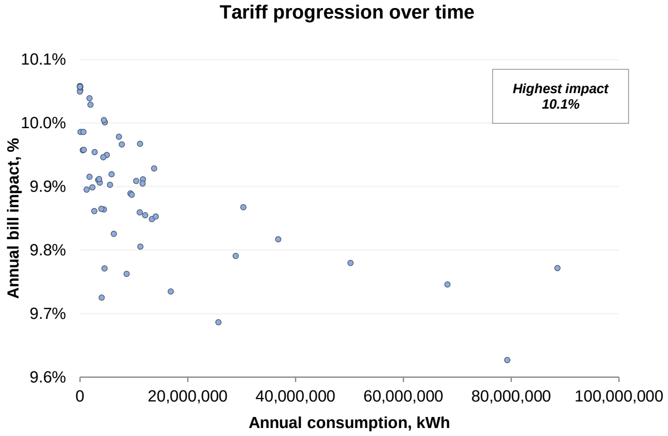
Figures A6.35 and A6.36 show the impact on customers on EA390 ST Connection (system) of new prices in 2019/20 and at the end of the regulatory period in 2023/24. Impacts are based on all customers, not a sample.

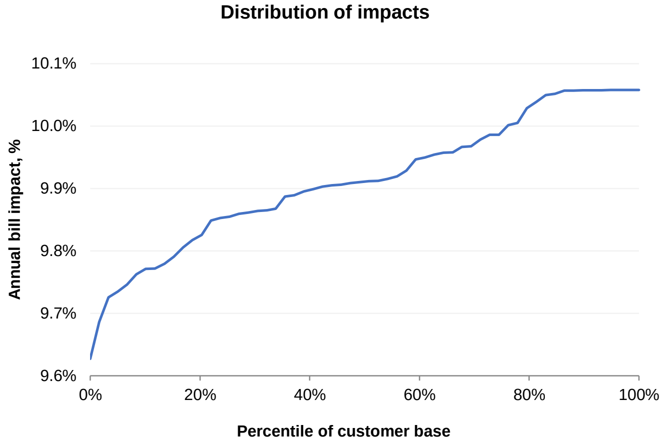
Figure A6.35. First year impact: EA390 (ST Connection) from 2018/19 to 2019/20

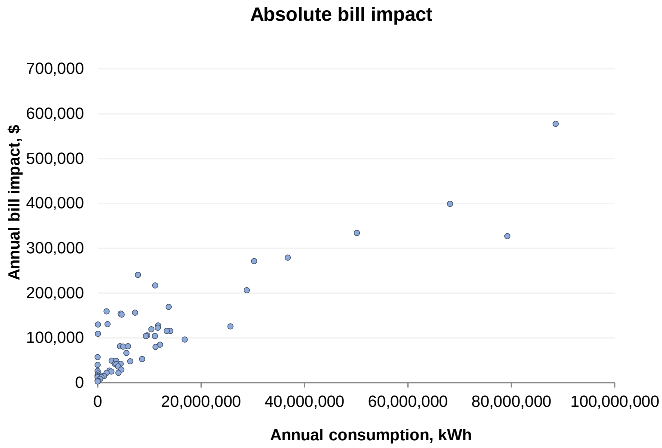


Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	100.0%	0.0%	0.0%
Approximate population	65	65	0	0
Average annual bill impact, %	1.6%	1.6%	N/A	N/A
Average annual bill impact, $	$15,229	$15,229	N/A	N/A
Average annual consumption, kWh	11,133,069	11,133,069	N/A	N/A
Average maximum demand, kW	2,889.0	2,889.0	N/A	N/A
Average load factor, %	37.6%	37.6%	N/A	N/A

Figure A6.36. Tariff progression over time: EA390 (ST Connection) from 2019/20 to 2023/24







Summary results	All	Impact > 0%	Impact > 10%	Impact > 20%
Share in sample	100.0%	100.0%	25.0%	0.0%
Approximate population	65	65	16	0
Average annual bill impact, %	9.9%	9.9%	10.0%	N/A
Average annual bill impact, $	$105,691	$105,691	$68,405	N/A
Average annual consumption, kWh	11,133,069	11,133,069	865,648	N/A
Average maximum demand, kW	2,889.0	2,889.0	1,261.0	N/A
Average load factor, %	37.6%	37.6%	6.5%	N/A

Spatial analysis of residential customer impacts

The following two figures show the spatial distribution of the impact on residential customers of two types of tariff changes:

- Figure A6.37 shows the impact of moving from EA025 Time of Use tariff in 2018/19 to EA116 Demand tariff in 2019/20
- Figure A6.38 shows the impact of moving from EA111 Demand (introductory) tariff in 2019/20 to EA116 Demand tariff in 2020/21.

The figures show three levels of bill impacts – a more than 10% decrease (blue dot), a 10% decrease to a 10% increase (grey dot) and a more than 10% increase (red dot) – in areas colour shaded by their level of relative socio-economic disadvantage (darker green for areas of greater relative disadvantage).

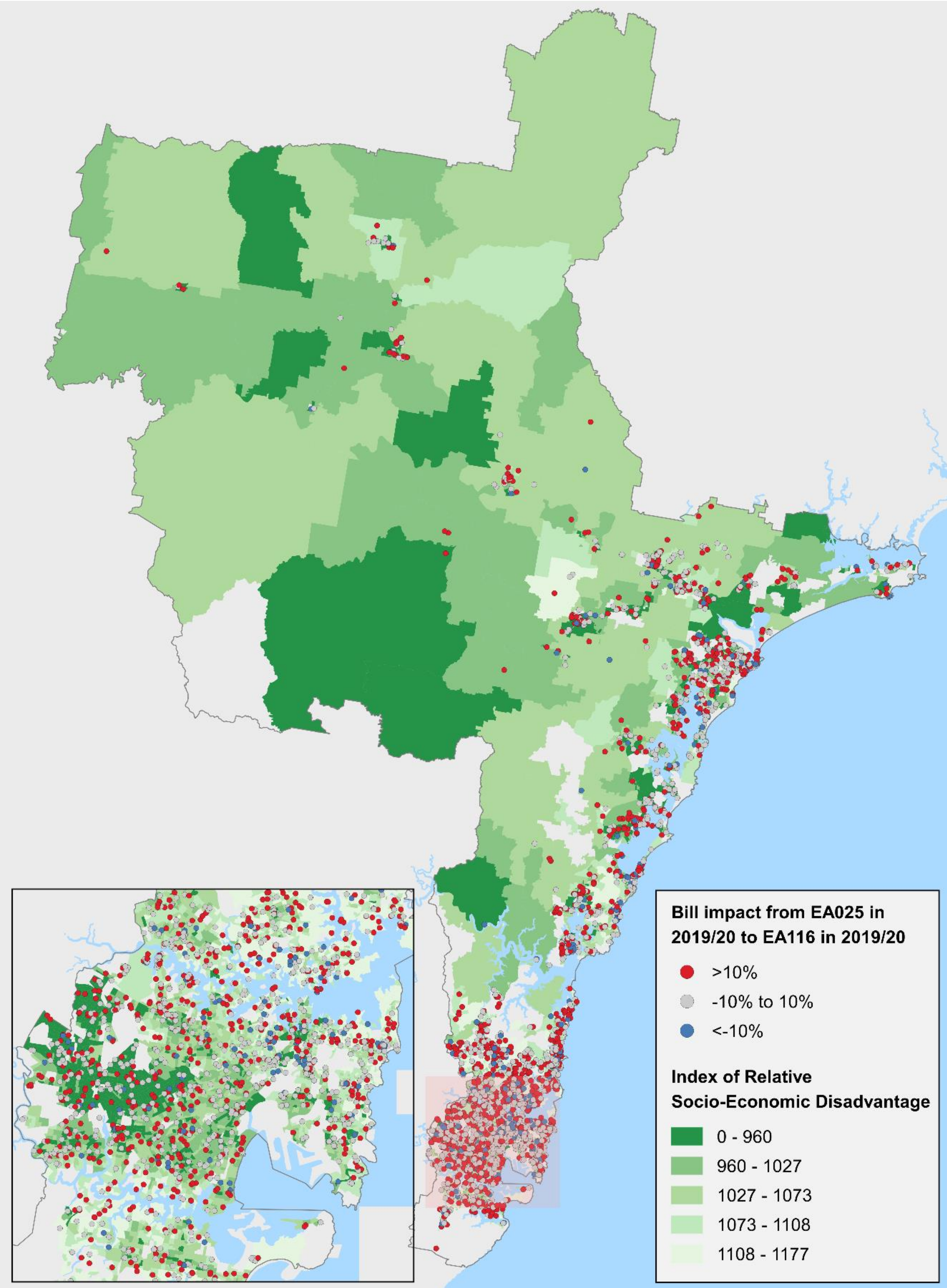
Each dot represents a customer from our sample of 3,500 residential customers and relative disadvantage uses the Australian Bureau of Statistics Index of Relative Socio-Economic Disadvantage[26] which summarises variables that indicate relative disadvantage based on 2016 data. This index ranks areas on a continuum from most disadvantaged to least disadvantaged. A low score on this index indicates a high proportion of relatively disadvantaged people in an area.

Our preliminary analysis indicates that impacts from transition to demand tariffs are geographically dispersed and not concentrated in areas of relative socio-economic disadvantage.

We will do more analysis to segment and identify specific customer groups likely to have adverse impacts and to help co-design targeted complementary measures with customer groups and government.

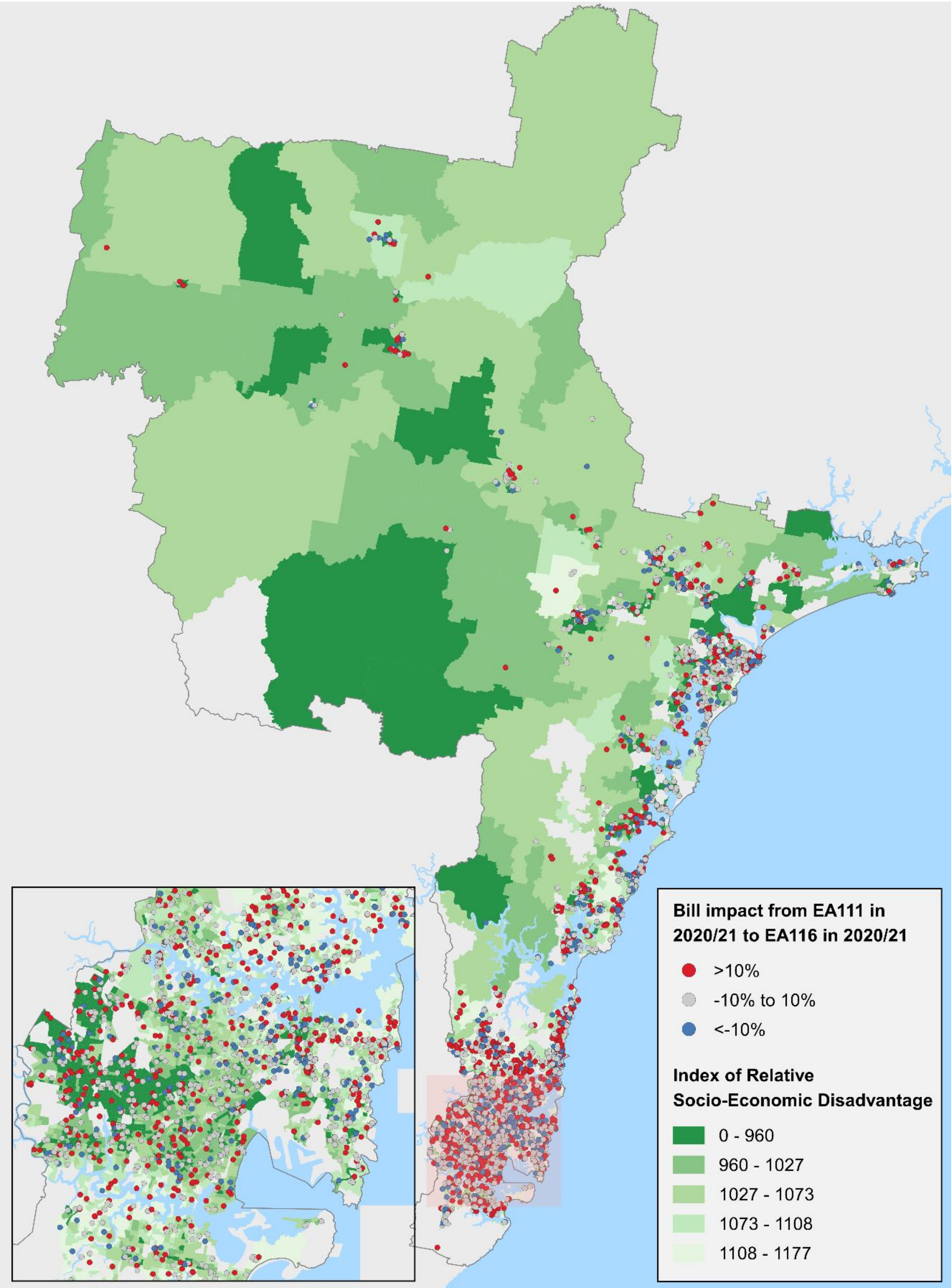
[26] Australian Bureau of Statistics (2018) *Technical Paper: Social and Economic Indexes for Areas (SEIFA) 2016*. Catalogue No. 2033.0.55.001, March 2018.

Figure A6.37. Bill impacts of moving from EA025 TOU in 2018/19 to EA116 Demand in 2019/20 by Index of Relative Socio-Economic Disadvantage



Note: The Australian Bureau of Statistics Index of Relative Socio-Economic Disadvantage summarises variables that indicate relative disadvantage. This index ranks areas on a continuum from most disadvantaged to least disadvantaged. A low score on this index indicates a high proportion of relatively disadvantaged people in an area. On this figure, there are an equal number of areas in each of the five index categories.

Figure A6.38. Bill impacts of moving from EA111 Demand (introductory) in 2019/20 to EA116 Demand in 2020/21 by Index of Relative Socio-Economic Disadvantage



Note: The Australian Bureau of Statistics Index of Relative Socio-Economic Disadvantage summarises variables that indicate relative disadvantage. This index ranks areas on a continuum from most disadvantaged to least disadvantaged. A low score on this index indicates a high proportion of relatively disadvantaged people in an area. On this figure, there are an equal number of areas in each of the five index categories.

A.7 Complementary measures

Complementary measures can help customers to manage costs, both before and after they receive a bill. There are currently a range of measures available from different sources to assist customers manage their energy costs. These existing measures will be reviewed and extended, and new measures developed to best meet customer needs associated with the introduction of demand tariffs.

Considering types of complementary measures

Complementary measures may include existing and new measures such as:

- Energy efficiency measures and programs with funding for appliances, heating, lighting and cooking including:
  - active monitoring and energy management: in house energy management systems to help customers monitor use in real time
  - energy calculators modified to calculate peak 30 minute cost and help customers choose the most cost reflective retail tariff (similar to a 'green button' initiative)
- Communications campaigns on understanding demand tariffs and customer actions to reduce costs such as Shift, Stagger Save, with online information and tools to help customers understand the energy demand of appliances, manage their usage and assess the best network tariff for particular usage patterns
- Demand management and demand response programs including network-initiated demand reduction (see Section A.2) and customer-initiated demand response through Shift, Stagger, Save
- Technology measures including installation of distributed energy resources supported by existing government rebates, which may include the installation of solar hot water systems or heat pump technology, and could extend to access to community solar and battery storage schemes suitable for those who cannot install distributed energy resources
- Helping eligible customers access existing government rebate schemes.

Government rebates and concessions

There are existing NSW government assistance schemes to assist various types of customers with their energy bills. Retailers such as Energy Australia also offer programs.

Current NSW Government support programs include:

- The **Low Income Household Rebate** helps people who hold eligible concession cards issued by the Commonwealth Department of Human Services or the Department of Veterans' Affairs pay their electricity bill. The rebate is paid as a credit on each quarterly energy bill, up to a total of $285 a year.
- The **Energy Accounts Payment Assistance Scheme** helps people experiencing a short term financial crisis or emergency to pay their electricity or natural gas bill. This scheme is only for short term assistance. Vouchers, each worth $50, are usually paid electronically to retailers, and are distributed by community organisations.
- The **Family Energy Rebate** helps eligible households pay their electricity bill if they have dependent children and received the Family Tax Benefit payment from the Commonwealth Department of Human Services. The Family Energy Rebate gives eligible energy account holders a credit on an energy bill of up to $180.

- The **Life Support Rebate** helps people pay their electricity bills if they are required or have someone living with them who is required to use approved energy-intensive equipment at home. The application form lists the rebate by type of equipment by day. The highest rebate is $3.68 per day for a ventilator or phototherapy equipment, followed by $3.11 for an oxygen concentrator in use continuously for 24 hours a day.
- The **Medical Energy Rebate** helps people who hold eligible concession cards issued by the Commonwealth Department of Human Services or the Department of Veterans' Affairs pay their electricity bill if either they or someone living with them has an inability to self-regulate body temperature when exposed to extremes of environmental temperatures (hot or cold). It is $285 for 2017/18 financial year, paid at $71 per quarter.

Developing complementary measures

We will work closely with stakeholders and customer representatives such as the Energy and Water Ombudsman of NSW, our consultation groups including our Customer Consultative Committee and Pricing Working Group, government and industry to develop and promote a package of complementary measures to support the introduction of demand tariffs and manage customer impacts.

Some measures will be available to all customers, while other measures may have eligibility criteria to target assistance.

Where historical interval demand data is available for a customer undergoing a tariff reassignment (i.e. where it is not associated with a meter upgrade), we will analyse predicted bill impacts based on historical demand. Where we identify customers as likely to experience a network bill increase over a specific threshold to be determined in conjunction with the Pricing Working Group, we will take proactive measures to ensure those customers and/or their retailers are made aware or otherwise supported with targeted complementary measures to mitigate those impacts.

A.8 Glossary

The following terms are used in the Tariff Structure Statement and/or Explanatory Notes.

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Basic accumulation metering	Accumulation meters keep track only of the total accumulated electricity usage. Customers are charged the same amount regardless of when the electricity is used.
CCF	Climate Change Fund
Charging parameter	Pricing component that makes up a tariff.
CRNP	Cost Reflective Network Price. An individually calculated "customised" tariff that is available to transmission-connected sites or certain large loads.
Current Transformer (CT) connection	A connection where the transformer for use with meters and/or protection devices in which the current in the secondary winding is, within prescribed error limits, proportional to and in phase with the current in the primary winding.
Customer class	Refer to Tariff class
Determination	A decision by the AER that determines the revenue allowance for network service providers under the Rules.
Distributed Energy Resources (DER)	Small-scale energy resources such as advanced renewable energy generation and energy storage technologies
Distribution Network Service Providers	A person who engages in the activity of owning, controlling or operating a transmission or distribution system and who is registered by AEMO as a Network Service Provider.
Distribution-connected sites	Customers that are connected to the electricity distribution network.
DUOS	Distribution Use of System
Efficiency	Signifies a level of performance that describes a process that uses the lowest amount of inputs to create the greatest amount of outputs.
Fixed daily charge	A charging parameter expressed in cents per day. Also known as Network Access Charge.
High voltage tariff	A tariff that applies to connections that are connected at high voltages 5kV, 11kV or 22kV (as measured at the metering point) that is neither a Subtransmission nor a CRNP tariff.
Interval meter	A meter that records how much electricity is used every 30 minutes.
Low voltage tariff	A tariff that applies to connections that are connected at low voltages 230V or 400V (as measured at the metering point).
LRMC	Long Run Marginal Cost
Metering point	The physical point of connection between the Consumers Mains and the electrical network. Each separate overhead or underground service is a separate connection point. Each separate busbar or direct cable supply from a single substation is a separate connection point, e.g. two busbar supplies equal two connection points.
Metering services	Services that measure the customers' energy consumption and can assist customers to better understand and manage their energy usage.
National Electricity Law	The National Electricity Law set out in the schedule to the National Electricity (South Australia) Act 1996 (SA) and applied in each of the participating jurisdictions.
National Electricity Rules	Refers to the National Electricity Rules (Rules) which governs the operation of the National Electricity Market. The Rules have the force of law and are made under the National Electricity Law.
Network services	Transmission service or distribution service associated with the conveyance, and controlling the conveyance, of electricity through the network.

NUOS	Network Use of System price, which is composed of DUOS, TUOS and CCF prices.
Phase	As defined in the *Service and Installation Rules of New South Wales August 2012.*
Primary tariff	A network use of system tariff payable by a customer that relates to the principal load of a Distribution Customer
Public lighting services	Services that involve maintaining and improving the standards of streetlights on behalf of local councils, community associations and statutory authorities across Ausgrid's network.
Single phase connection	Refer to Phase
Subtransmission voltage tariff	A tariff that applies to connections that are connected at subtransmission voltages 33kV or greater (as measured at the metering point).
Tariff	The monetary value assigned to individual charging parameters (i.e. cents per kVA or cents per day).
Tariff class	A class of retail customers for one or more direct control services who are subject to a particular network tariff or particular network tariffs as defined in the Rules.
Tariff code	A unique code that identifies each different network tariff.
TSS	Tariff Structure Statement referred to in clause 6.18.1A in the Rules that has been approved by the AER for that Distribution Network Service Provider.
Three phase connection	Refer to Phase
Time of Use (TOU) tariff	A tariff with a structure that applies a different price for energy consumed at times of the day.
Transmission-connected sites	Customers that are connected to the electricity transmission network.
TUOS	Transmission Use of System
Type 5 meter	A metering installation containing an electronic meter, or meters, capable of recording electrical energy consumption in 30 minute market intervals in accordance with the Rules. Such meters are read manually by meter readers. Data is down-loaded via probes into a hand-held data collection device carried by Ausgrid meter readers. Also known as an MRIM, TOU or interval meters.
Type 6 meter	A metering installation containing a meter, or meters, (electronic or electromechanical) capable of recording cumulative electrical energy consumption only. Such meters are read manually by Ausgrid meter readers who record the total cumulative consumption readings displayed on the Type 6 meter register. All meters can support a Type 6 Installation, but they are predominantly installed with mechanical meters or simple electronic meters. Also known as BASIC, Flat Rate or accumulation meters.
Unmetered tariff	A tariff for unmetered supply

A.9 List of attachments and status

This document, our Tariff Structure Statement including Appendix A Explanatory Notes, is Attachment 10.01 to our Revised Proposal. Other attachments referred to in this document and part of our Revised Proposal are listed below. Attachments in bold have been revised for our Revised Proposal or are new.

Attachment	Status
This document is **10.01 Tariff Structure Statement**	Revised, split into two documents including Appendix A Explanatory Notes
10.02 Procedure for Assigning Customers to a Tariff Class	No change from Initial Proposal
10.03 Long Run Marginal Cost Model	No change from Initial Proposal
10.04 Long Run Marginal Cost Methodology Report	No change from Initial Proposal
10.05 Tariff Model (Standard Control Services)	Revised to reflect our Revised Proposal
10.06 ES7 Network Price Guide, July 2019	Revised to reflect our Revised Proposal
10.07 Price Elasticity	No change from Initial Proposal
10.08 Transmission Pricing Methodology	No change from Initial Proposal
10.09 Methodology for Avoided TUOS Charges	No change from Initial Proposal
10.10 Indicative Pricing Schedule – DUOS Charges	Revised to reflect our Revised Proposal
10.11 Indicative Pricing Schedule – TUOS Charges	Revised to reflect our Revised Proposal
10.12 Indicative Pricing Schedule – ACS Charges	Revised to reflect our Revised Proposal
10.13 Indicative Pricing Schedule – Climate Change Fund	Revised to reflect our Revised Proposal
10.14 Pricing Directions: A Stakeholder Perspective	No change from Initial Proposal
10.15 Energy Volume Forecast, January 2019	New for Revised Proposal