

ATTACHMENT 8.5
TYPE 5 AND 6 METERING
SERVICES MODEL

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1. Background

This attachment explains:

1. The metering services that Essential Energy provides, the different types of metering installations and the drivers underlying the provision of metering services.
2. The activities undertaken by us to provide our customers with metering services and their associated costs.
3. The approach we have used to determine our revenue requirements to recover the efficient costs of providing metering services.
4. The methodology we have used to set charges.

The Framework and Approach paper issued by the AER in March 2013 stated that metering services are likely to be open to competition in the future and that this service should be unbundled from standard control charges. Accordingly we have sought to give effect to the AER's intent, and in order to facilitate contestability, we have developed cost reflective charges for customer initiated metering activities.

2. About metering services

Metering services is one of the terms developed by the Australian Energy Regulator (AER) to group classes of services currently provided by NSW distribution network service providers (DNSPs). Other AER defined service groups provided by NSW DNSPs include network services, connection services, public lighting services, and ancillary network services.

The AER determines the form of regulation that will apply to these service groupings for a five year regulatory control period. The form of regulation governs the manner in which we can collect revenue from customers. Metering services are divided into the following three categories:

1. Metering Installation Types 1, 2, 3 and 4;
2. Metering Installation Types 5 and 6; and
3. Metering Installation Type 7 (unmetered).

The provision of Metering services for metering installation Types 1, 2, 3, and 4, is provided in a competitive market and therefore is not regulated by the AER. The AER has decided that metering services associated with Type 7 Metering installations will continue to form part of network services. However, the AER proposes to regulate the Metering services associated with Type 5 and 6 metering installations that are provided by NSW DNSPs from 1 July 2014 as part of Alternative Control Services.

Meter installation types are defined in the National Electricity Rules (the Rules or NER). The reason the measurement function performed by electricity meters is prescribed in the Rules stems from the critical role that the energy data provided by meters has in ensuring the accurate and timely settlement of energy in the National Electricity Market (NEM).

At customers' premises where energy consumption is greater than 160MWh per annum¹, the NER requires a meter installation Type 1, 2, 3 or 4 to be installed. These types of meters have a number of required capabilities², the most significant being the requirement for remote communication and interval readings.

Type 5 metering installations record 30 minute interval data, without the requirement to remotely acquire the data³. Typically, these meters are read every three months, although they may be read monthly or at other times. Often the term MRIM (Manually Read Interval Meter) is used interchangeably for a Type 5 Meter. However, a Type 5 metering installation is not the same as a smart meter⁴ installation.

A Type 6 metering installation is defined as a 'general purpose' meter that records accumulated energy data only. This means that data is collected at an aggregated level and not at an interval level. The term 'BASIC meter' and Type 6 meter can be used interchangeably.

¹ An average domestic customer consumes approximately 7 MWh per annum.

² Meter capabilities include the ability to record 1/2 hr energy consumption, data storage requirement >90 days, the measurement of reactive energy (KVa) and the ability to access the meter data on a daily basis (i.e. remote communication facilities).

³ Clauses 7.3.1(a) (11) and 7.11.1(d) of the NER.

⁴ The National Electricity Law defines *smart metering infrastructure* as "infrastructure (and associated systems) associated with the installation and operation of remotely read electricity metering and communications, including interval meters designed to transmit data to, and receive data from, a remote locality.

3. Drivers for DNSP provision of Metering Services

The Rules establish the role of the Responsible Person (RP) as the party responsible for the provision, installation and maintenance of a metering installation and the collection, processing and delivery of the metering data in accordance with the Rules. The Local Network Service Provider (LNSP) is required to perform the role of RP for metering installations at premises with Type 5 and Type 6 meters⁵.

As the designated RP for Type 5 and 6 metering installations located in Essential Energy's network area, we are required to:

1. ensure that all relevant connection points are metered to the defined standard;
2. develop a Meter Asset Management Plan (MAMP) for the maintenance of metering installations and for the MAMP to be approved by the Australian Energy Market Operator (AEMO); and
3. comply with the Rules and the associated Procedures (Metrology and MP/MDP Service Level Procedures) in relation to the method for provision, installation and maintenance of metering installations and metering data services.

There are also requirements to comply with the requirements of the Australian Standards, where relevant. In addition to complying with requirements of the RP role contained in the Rules and any other regulatory requirements, our overall objective is ensuring investment is prudent and efficient for the required outcome.

⁵ For Metering Installation Types 1, 2, 3 and 4, the customer's retailer contracts with the Responsible Person

4. Activities undertaken to deliver Metering Services

In the AER's Framework and Approach paper published in March 2013, the AER outlines four sub-categories of Metering Services relating to Type 5 and Type 6 meters. These sub-categories are defined as:

1. *Metering provision* - the capital costs for purchasing the meters;
2. *Meter maintenance* - covers works to inspect, test, maintain, repair and replace meters;
3. *Meter reading* - refers to quarterly or other regular reading of Type 5 and 6 meters; and
4. *Meter data services* – services for collection, processing, storage and delivery of metering data and the management of relevant NMI Standing Data in accordance with the Rules.

Meter Provision

In NSW, Accredited Service Providers (ASPs) install Type 5 and Type 6 meters at new and upgraded connections. The cost associated with the ASP installing these meter(s) is paid by the customer to the ASP as part of the total costs for electrical works and therefore does not form part of Essential Energy's metering charge. Essential Energy purchases meters that are Rules compliant and manages the logistics of issuing these meters to the ASPs.

There is an exception where Essential Energy does install meters at new and upgraded connections. This is when a Current Transformer (CT) connected Type 5 or 6 meter is required. Distribution businesses are proposing that a new Ancillary Network Service fee will apply for the installation service of CT connected meters from 1 July 2015 and therefore these costs have been removed from the Metering Services fee.

Meter Maintenance

Essential Energy's Customer Metering AMP, outlines our asset management strategy for the maintenance of metering and associated equipment. The activities performed include:

- > Replacement of damaged or defective meters;
- > Emergency maintenance of metering installations within 10 days as required by the Rules;
- > Customer or retailer requested meter accuracy tests;
- > In-service sample meter testing to verify that meter populations remain accurate;
- > In-service sample CT testing and inspection to verify that CT populations remain accurate; and
- > Inspection of metering installations.

Meter Reading and Meter Data Services

Essential Energy is required to obtain routine meter readings from all Type 5 and Type 6 metering installations connected to our network. This includes physical onsite meter reading, meter reading route scheduling and maintenance. To meet Essential Energy's obligations, some reactive (off cycle) meter reading is required, for example when a routine read fails verification criteria.

Essential Energy is required to engage an accredited Meter Data Provider for the provision of metering data services. As an accredited Meter Data Provider, Essential Energy performs these services which include:

- > Forward estimation of Type 5 metering data (to allow NEM settlements to occur weekly);
- > validation of Type 5 and 6 metering data after collection;
- > substitution of Type 5 and 6 metering data where required;
- > storage of Type 5 and 6 metering data in accordance with the Rules;
- > forwarding of metering data to eligible market participants, for billing purposes; and
- > forwarding of metering data to AEMO to allow for market settlement.

5. Costs to deliver Metering Services for Type 5 & 6

The delivery of Type 5 and 6 metering services require both operating and capital expenditure. In addition to the capital costs of meters on an ongoing basis, capital costs also relate to the return on and return of the meter asset base that existed prior to 1 July 2014. These costs are detailed in the sections below.

Operating Costs

The total operating costs for metering services include costs for maintenance, meter reading and meter data services. The total indicative operating costs of providing metering services for the period is \$101.5 million for the four years 2015/16 to 2018/19 and the details are shown in table 1 below.

Table 1 Annual operating expenditure for Type 5 and 6 metering services (\$M, 2013/14)

Operating expenditure (\$M, 2013/14)	2015/16	2016/17	2017/18	2018/19
Meter Maintenance	\$ 4.33	\$ 4.42	\$ 4.50	\$ 4.65
Meter Reading	\$ 18.83	\$ 19.10	\$ 19.48	\$ 19.78
Meter Data Services	\$ 2.07	\$ 2.07	\$ 2.12	\$ 2.15
Total	\$ 25.22	\$ 25.58	\$ 26.10	\$ 26.58

Operating Costs Drivers

In order to provide cost reflective metering charges, appropriate cost drivers must be identified in order to enable charging signals for customers to behave accordingly. We consider that allocating operational costs based on meter type and the number of registers to be read provides the most appropriate cost reflectivity. Although Essential Energy have some Type 5 capable meters installed, they are read as type 6 meters and so there is no material difference in the costs to maintain and read them.

Essential Energy considers that each category of operating expenditure has a different cost driver (i.e. meter maintenance, meter reading, and meter data services) and is thus allocated differently between Type 5 and 6 installations. Each category of operating expenditure and its respective cost driver is as follows:

- > **Meter maintenance** - costs are dependent on the type and quantity of meters installed on site. Accumulation meters attract, on average, a lower maintenance cost than an electronic TOU or interval meter.
- > **Meter reading** – For Essential Energy we estimate that 75 per cent of the time required to read meters is taken in getting to the premise. This is due to the large distances that must be covered in our network area. The remaining 25 per cent of the cost of reading meters is dependent on the number of registers to be read. Meter reading costs are assigned on this basis, with single read accumulation meters attracting the lowest cost and gross metered solar meters with 6 registers attracting the highest portion of these costs.
- > **Meter data processing** - the base cost driver is the volume of data being processed. Meter data services are higher for processing and managing multiple register readings per meter, such as TOU or Solar.

Capital costs

The capital costs represent the cost of financing the capital value of the meters installed at customer premises (the return on capital) as well as the return of this capital (regulatory depreciation). These costs are weighted on the historical purchase price of the various meter types.

Existing Metering Services assets (establishing the RAB)

Up until 30 June 2014, all metering assets form part of Essential Energy's total Regulated Asset Base (RAB) for standard control services. As a consequence of the change in classification by the AER of type 5 & 6 metering services, Essential Energy have separated the value of our existing types 5 & 6 metering assets from the standard control services opening RAB value as at 1 July 2014.

The value required to be deducted from the RAB for standard control services is \$118.2 million (nominal). This total is made up of a number of assets classes that are used, either wholly or shared, in the provision of type 5 & 6 metering services. This is shown in table 2 below.

Table 2 - Indicative starting value of metering services RAB at 1 July 2014 (\$M, 2013/14)

\$M, 2013/14	1 July 2014
Customer metering and load control	108.34
Information & Communication Technology	0.2
Furniture, fittings, plant and equipment	2
Motor Vehicles	2.3
Buildings	1.41
Land (non-system)	1.67
Other non-system assets	2.52
Total metering services RAB value	118.22

The following process was undertaken to establish the opening RAB value for metering services asset as at 1 July 2014. This is outlined below:

1. *Unbundling existing Metering Assets from existing (Standard Control RAB) assets*

This step involved removing wholly attributable assets from the standard control RAB and transferring them to the Metering Services RAB. Specifically, this pertains to the metering portion of the existing 'metering and load control' asset class.

The metering split was achieved by identifying the optimised depreciated replacement value of Type 5 and 6 meters versus load control relays and Type 4 meters relating to standard control. This detailed valuation was done in 2008 and provided the most reliable split of meters into these categories. This percentage was applied to the forecast 1 July 2014 opening RAB balance to calculate the portion of the opening RAB balance directly related to meters.

2. *Allocating shared asset categories to a Metering Assets RAB*

To allocate shared asset categories to a Metering Assets RAB we utilised an allocation proportion (given by the ratio of the Type 5 and 6 metering asset class value related to total system asset class value) to determine the proportion of each non-system asset class to be allocated to Metering Services.

There is no net change in total RAB value as a result of this apportionment to metering services. We propose to recover the metering services asset base over an accelerated period of 5 years (as opposed to the 6.1 year remaining life in the standard control service PTRM). This recovery will be revenue neutral, help facilitate contestability in the market and avoid Essential Energy having stranded assets with no opportunity for cost recovery.

Forecast capital expenditure

We forecast a total capital expenditure of \$45.6m for the four year period. The annual forecast opex is shown in Table 3.

Table 3 - Indicative forecast capex for transitional year and subsequent four years

Metering services Capex (\$2013/14M)	2015/16	2016/17	2017/18	2018/19
Replacement	\$ 7.85	\$ 8.23	\$ 11.41	\$ 11.37
Growth	\$ 3.34	\$ 7.07	\$ 3.61	\$ 3.54
Total	\$ 11.19	\$ 15.30	\$ 15.02	\$ 14.90

The total forecast capex is made up of a two components and these are:

1. the provision of new metering assets at new or upgraded premises (the labour associated with installation work is provided in a contestable environment, and therefore these costs are not included),
2. the reactive replacement of meters that have failed in service and form part of Essential Energy's Meter Replacement Plan.

The treatment of these two components is described further in section 6 below.

6. Revenue requirements for the 2014 – 2019 regulatory control period

In the sections above, we detailed the capital and operating expenditure as well as the value of the existing meter asset base. These are the inputs into the calculation of the revenue we would require in the final four years of the 2014-19 regulatory control period for the provision of metering services. This revenue forms the basis for our proposed charges.

We are proposing an annual charge to recover our existing asset base value (over an accelerated period of seven years), replacement meters and our ongoing operating costs. Essential Energy will also introduce an upfront charge for new meters (growth capital) so these costs will not add to the metering RAB. Our charging model is provided at Attachment 8.4 and the accompanying PTRM at Attachment 8.5.

Essential Energy has sought to develop a charge that meets the following principles:

- > *Facilitates customer choice* – this means providing cost reflective charging signals to customers to assist in their decision making about their choice of meter;
- > *Cost reflective* – to ensure customers make fully informed decisions we have sought to develop a cost reflective charge between the various Type 5 and 6 meters and their functionality. We have established our charges robustly by reference to our historical expenditure;
- > *Equitable* – our approach seeks to reduce cross subsidisation and not penalise customers for an inherited position or previous decision. Rather, our approach seeks to eliminate the existing asset base and provide information for customers decision making from this point forward;
- > *Administratively simple* – our approach has been developed within the constraints of a start date of 1 July 2015 and our existing IT and billing capabilities. We have sought to avoid an approach requiring significant implementation costs or an approach requiring significant ongoing reporting and reconciliation requirements. Our approach will provide customers with simple, transparent information.

We have calculated a charge that reflects the costs of providing a metering service, including the write down of the asset value over seven years. We have also developed a charge for customers who pay for their meter up front and this reflects the cost of providing operational services only without any return on or of capital.

7. Metering Services Charges

The Rules require us to provide indicative charges for Type 5 and 6 metering services. These indicative charges are provided in table 4 and 5 below.

Annual Meter Charges

Table 4 identifies our average annual charge for metering services. This charge consists of our recovery of the existing asset base (over the first seven years) and our ongoing operating and replacement expenditure.

The existing asset base component of the charge has been developed by dividing the total metering RAB annual write off by the total number of metering customers and by meter type, so as to not prejudice customers for past decisions or inherited metering configurations. The charges for ongoing operating and replacement expenditure have been developed on a 'per service' basis. This means that each unique data stream will attract a charge, for example, a basic and an off-peak (controlled load) data stream equates to two services.

Our tariff classes support this approach as all customers on the same tariff class will be receiving the same metering service. We have therefore utilised our existing IT functionality to attach an additional rate to each tariff category which comprises of the metering service charge. Our resulting metering charges are as shown in Table 4 below.

Table 4 – Metering services charges where meters funded by Essential Energy (real \$13-14)

\$2013/14	Charge per year			
	2015/16	2016/17	2017/18	2018/19
Price by tariff classes				
Residential Anytime	\$48.74	\$50.94	\$51.93	\$55.87
Residential TOU	\$57.02	\$59.24	\$60.29	\$64.26
Small Business anytime	\$48.74	\$50.94	\$51.93	\$55.87
Small Business TOU	\$57.02	\$59.24	\$60.29	\$64.26
Controlled Load	\$18.79	\$19.79	\$20.21	\$21.99
Solar (Gross meter only)	\$54.20	\$56.23	\$57.21	\$60.84

The charges for providing maintenance and data reading services for customers who pay upfront for their own meter are shown in Table 5 below. These charges are also developed on a 'per service' basis to reflect the cost of the data streams and read times of the differing meter, with each unique data stream attracting a charge as was the case described above.

Table 5 – Metering services charges where customers fund their own meters (real \$13-14)

\$2013/14	2015-16	2016-17	2017-18	2018-19
Anytime Customers	\$14.75	\$14.80	\$15.02	\$15.21
TOU Customers	\$19.65	\$19.71	\$20.02	\$20.26
Controlled Load	\$4.71	\$4.72	\$4.79	\$4.85
Solar Additions (assume single phase 2 element)	\$19.22	\$19.27	\$19.58	\$19.81

We have used this approach to develop charges which reflect the service and benefit customers are receiving from their respective metering service. We have sought to develop an approach that balances the need for cost reflectivity whilst providing a fair and appropriate charging signal from the perspective of the service a customer is receiving. Charges will be on a fixed cents per day basis similar to the service availability charge component of tariffs for standard control services.

This approach aligns with Essential Energy’s existing network tariff structure as customers are grouped according to the service provided. In effect, the metering tariffs have a one to one mapping to the network tariff list. Implementation of network tariff based charging can more easily be integrated into IT systems, as the framework has already been established and interface to retailers is relatively straightforward.

Network tariff based charging is readily understandable to the customer, simple in concept and, because it is aligned with the broader network service being offered, we consider it is a reasonable approach.

For a detailed view of our costs and charging approach, please refer to Attachments 8.4 and 8.5.

Upfront Meter Charges

Metering hardware costs and applicable overheads will be charged as an up-front fee. Charges will be reflective of the different type of meter that a customer may choose and the functionality of that meter.

Table 6 below outlines our charges for a customer initiated upgrade, additional meter at an existing site or a new meter at a new customer site. The charge would be additional to any ancillary network service charges that are incurred through ASPs for new and upgraded installations.

Table 6 – Metering services charges – up front meter charges (real \$13-14)

\$2013/14	Charge per meter
Meter Type	
Single Phase Accumulation	\$35.51
Three Phase Accumulation	\$134.14
Single Phase TOU	\$98.82
Single Phase 2 element (TOU)	\$232.40
Three Phase TOU	\$325.42
Three Phase CT	\$463.33

Compliance with control mechanism

The AER has decided to apply caps on the charges for metering services. It has indicated that through the distribution determination process it will confirm the basis of the control mechanism for alternative control services, which is the method of calculating the cap on each service.

We intend to comply with this control mechanism and await confirmation from the AER’s final determination as to what is required to demonstrate compliance. Tables 4 and 5 above identify the average annual charge for metering services that we intend to use as the cap. Charges shown will have an annual CPI increase applied.

Meter exit fee

Through their retailer, a customer can choose to have a Type 4 meter installed, where currently Essential Energy provides a Type 5 or 6 meter. A key element of the AEMC’s proposed approach for competition in metering services is for a transparent and clearly defined exit fee to exist where a consumer chooses to upgrade a meter that is currently managed and maintained by the LNSP. This fee allows the LNSP to recover sunk costs.

The AEMC considers that the exit fee be determined by the AER in order to provide sufficient transparency for all parties regarding fees, and certainty to networks that they are able to recover costs appropriately. The AEMC proposed a set of criteria for the AER to have regard to when making an exit fee determination. Among other things, these included:

- > the exit fee must be reasonable;
- > the exit fee must be based on the average remaining asset life of the existing meter type and operating costs;
- > the exit fee may include efficient and reasonable costs of processing the consumer transfer to another RP;
- > a cap must be placed on the exit fee. We consider that this should be, at a maximum, no more than three times the annual metering charge. This is to provide consumer confidence that costs will not be exceedingly high when looking to change their meter;
- > the LNSP must remove the cost of the replaced metering installation from its asset base and reduce the DUOS tariff to the retailer accordingly; and
- > the existing contribution that consumers have already paid towards the existing metering stock.

Essential Energy has considered the AEMC criteria and developed an exit fee with the following characteristics:

- > the exit fee allows for the full recovery of stranded costs;
- > historical choices such as hardware or installation type do not adversely affect the customer;
- > stranded asset costs include both metering assets and supporting assets involved in the provision of metering services;
- > the value of the stranded assets is based on the Type 5 and 6 Metering RAB; and
- > Operational unit costs are unaffected by minor changes in the number of Type 5 and 6 Metering customers.

In practice, the exit fee developed comprises of two components, the stranded asset costs and administration costs as follows:

- > Stranded asset costs are a proportion of the RAB value which is attributed to the metering installation being removed/upgraded. This proportion is simply the RAB value divided by the number of customers with a Type 5 or 6 Meter; and
- > Administration costs relate to the administrative requirement to change records to reflect the changed status, and the processing costs of relaying this information.

The exit fee takes the form of an upfront charge as shown in Table 7 below, which is incurred when the customer elects to upgrade to a meter that is not a Type 5 or 6 meter.

Table 7 – Metering services exit fee (real \$13-14)

Network Tariff	Hours	2015-16	2016-17	2017-18	2018-19
Stranded asset costs		\$77.23	\$69.99	\$59.93	\$51.93
Administration costs	0.5	54.34	\$54.99	\$56.13	\$57.28
Exit fee (type 5 or 6 meter) total		\$131.57	\$124.98	\$116.06	\$109.21

8. Stakeholder engagement and Benchmarking

Stakeholder engagement

Chapter 2 of our regulatory proposal outlines the processes we have undertaken to engage with customers. As charges payable to Essential Energy for network and metering services are billed to the customer's retailer (and not the customer directly), we have also engaged with retailers to understand impacts to their billing systems, and ASPs to inform them of the new approach to metering. We have incorporated the feedback provided by retailers in determining the method with which we will bill retailers.