



What we have delivered

**UE APP02 - What we have delivered -
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Regulatory proposal 2021–2026

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Contents

1	OVERVIEW	4
2	2016-2020 REGULATORY PERIOD	5
2.1	Efficient investment decisions through demand response and data analytics	5
2.2	Service provider contracting arrangements	8
2.3	Synergies through joint provision of corporate services	9
3	2021-2026 REGULATORY PERIOD	10
3.1	Our forecasts reflect new requirements and challenges	10

1 Overview

During the 2016-2020 regulatory period, we have delivered significant expenditure savings through:

- making efficient investment decisions by:
 - leveraging demand response and data analytics
 - efficiently deferring capital expenditure through improved risk modelling and investing in our zone substations to accommodate mobile transformers
- renegotiating service provider contracts through market testing
- realising synergies by moving to joint provision of corporate services with CitiPower and Powercor.

As a result of the savings achieved we have secured our position as an efficiency frontier network and have led the industry in our commitment to demand management and data analytics to drive efficient investment - paving the path for other networks to follow.

The savings delivered over 2016-2020 set us up well to continue to efficiently deliver our expenditure programs during 2021-2026 and effectively address the new challenges and opportunities we are presented with in the forthcoming period, including:

- numerous new and changed regulatory obligations which materially impact our operations
- significant uptake of renewable innovations including solar, batteries and electrical vehicles
- continuing customer and demand growth.

As an efficiency frontier network we cannot absorb additional costs resulting from these challenges. While the savings achieved in the current period will provide enduring benefits for customers, these savings have been realised and are not repeatable. Further efficiency savings can only be achieved through investments in new, higher risk, technological innovations. Consequently, in preparing our regulatory proposal we have been conscious of customer's desire for affordable network charges while making sure we invest to deliver a safe, reliability and secure network which also meets customer expectations regarding network flexibility and accessibility.

This attachment provides more details on the savings achieved over the current regulatory period and the new challenges ahead for the forecast regulatory period. This attachment also fulfils our obligations under Schedule 6 of the National Electricity Rules (**Rules**) to explain significant variations between our historical and forecast expenditure (sections 6.1.1 (7) and 6.1.2(8)).

2 2016-2020 regulatory period

During the 2016-2020 regulatory period we have delivered significant savings for our customers, as shown in table 1 below. These savings were achieved through three broad approaches:

- making efficient investment decisions
- renegotiating service provider contracts through market testing
- realising synergies by moving to joint provision of corporate services with CitiPower and Powercor.

Table 2 Expenditure savings compared with Australian Energy Regulator allowances, 2016-2020 (\$ million, 2021)

	Opex savings	Capex savings	Total savings
United Energy	133.3	199.8	333.1

Source: United Energy

2.1 Efficient investment decisions

We only invest when it is necessary and efficient for maintaining network safety and reliability. During the current period we have:

- led the way in rolling out behavioural and controlled load demand response programs, enabling us to mitigate the need to upgrade an high voltage (**HV**) feeder in lower Mornington Peninsula (\$30 million saving) and upgrade distribution transformers (\$10 million) to accommodate load growth - discussed more below
- leveraged smart meter data to better manage the network, including to:
 - monitor and manage loads on the low voltage (**LV**) network enabling deferral or avoidance of capital expenditure, for example through improved phase rebalancing and reduced asset overloading
 - improved voltage and current monitoring enabling avoidance of voltage investigations and quicker complaints resolution reducing our costs and customers time
 - proactive identification and response to safety risks arising through faulty neutrals or over voltages
 - faster fault identification and rectification and quicker rectification of customer fault calls
- investing in making our zone substations mobile transformer ready enabling us to defer transformer replacements over the longer term (post 2026) - discussed more below
- deferred investment in two transformers and two switchgear into the 2021-2026 regulatory period through improved risk modelling and making zone substations mobile transformer ready, refer to appendix A.2 for more detail.

2.1.1 Demand response programs

We are the industry leaders in rolling out behavioural and controlled load demand response programs. For example:

- In 2016 we completed a regulatory investments test for distribution (**RIT-D**) that established a need to invest in the lower Mornington Peninsula to maintain supply security (voltage and capacity). We deferred \$30 million of capital investment by implementing a four year demand management program in collaboration with GreenSync. We propose to leverage demand response during 2021-2026 to continue to defer the \$30 million investment.
- We have been recognised within Australia and internationally for our work to establish the Summer Saver residential behavioural demand response program in 2014. Over 1,000 customers are participating each year

to provide demand response at constrained distribution substations throughout our network, resulting in \$10 million in capital expenditure deferrals.

Table 2 below provides a summary of our range of demand response programs.

Table 2 United Energy demand response programs 2016-2020

Program Name	Technology/Solution	Capacity	Target audience
Dynamic Voltage Management System (DVMS)	Voltage management at a zone substation level to reduce demand on the grid during peak periods and assist with steady state voltage Sponsor: ARENA	30MW – 42MW	All customers
Community Grid Project	Demand response and generation programme to provide network support services for the lower Mornington Peninsula Provider: GreenSync Pty Ltd	13MW	Commercial and industrial participants on the Mornington Peninsula
Summer Saver (DR Mobile App)	Behavioural demand response for residential customers on specific distribution substations and low voltage circuits in the United Energy service area	2MW	Residential customers on specific distribution substations
Solar-storage Project	Contracted residential customers with solar/storage systems to provide demand reduction to avoid periods of load shedding due to a lack of network capacity Sponsor: ARENA	0.5MW	42 residential customers on specific distribution substations
Commercial/Industrial Load Control	Contracted commercial and industrial customers to provide demand reduction to avoid periods of load shedding due to a lack of network capacity	2MW	Commercial and industrial participants

Source: United Energy

As we learn more about how our customers want to engage in demand response, greater numbers of customers are participating and consistently using less energy during critical periods.

In order to maximise the savings these programs can deliver, we are investing in understanding our customers better through various partnerships including:

- RACV channel partnership to test and learn from different brand associations and marketing channels.
- CitySmart and Queensland University of Technology (QUT) research project linking load profile analysis to customer archetypes to refine customer value propositions and messaging for demand response programs.
- Deakin University project to engage focus groups to research technology adoption by customers.

We will continue to engage customers as we expand our demand response programs across our networks over the 2021–2026 regulatory period.

2.1.2 Making zone substations mobile transformer ready

We currently own two mobile 66/22kV power transformers, and one mobile 66/11kV transformer. These transformers act as risk mitigation measures (i.e. reduce duration of customer outages following major failure) and allow us to efficiently manage energy-at-risk across multiple sites with a single asset.

By managing the consequence of failure, our mobile transformers also allow us to make prudent investment decisions. For example, where a zone substation has multiple transformers with poor condition history, or high conditional and joint probability failure risk, a mobile transformer may allow us to replace just one or two transformers (and manage the other towards failure).

To support the use of mobile transformers, preparation works must be undertaken at at-risk zone substations. We have, and continue to prepare many of our zone substations to readily receive a mobile transformer.

Mobile transformers enable us to defer transformer replacements over a longer period. The extent of deferral possible varies based on, for example, the load at risk and growth rate, age and the cost of the required site works. Over time, as these factors change, asset replacement or other intervention may become the more efficient option.

2.2 Service provider contracting arrangements

We achieved significant savings in our external spend through renegotiation of contracts for outsourced services, as shown in table 3 below.

Table 3 Outcomes from renegotiation of service provider contracts, 2016-2020 (\$million, 2021)

Service	Old approach	New approach	Date of change	Savings, %
Field services Including asset replacement, connections, augmentation, maintenance, and metering services	Two service providers based on cost pass through arrangements	Single service provider based on fixed price unit rates	February 2018	10%
Asset inspection	Single service provider with fixed unit rate	Single service provider with lower fixed price unit rates	July 2019	5%
Vegetation management	Two service providers covered full scope of vegetation services.	Single service provider aligned with CitiPower and Powercor. Service scope reduced to inspection and cutting only. Management, technology and audit services insourced.	October 2017	33%
Major projects	Two service providers based on cost pass through arrangements	Contestable panel of service providers with price tendered	October 2017	7.5%

Source: United Energy

2.3 Synergies through joint provision of corporate services

Since 2017 we migrated to a joint service provision model for our corporate services with CitiPower and Powercor. Services jointly provided include finance, regulation, corporate affairs, customer services,¹ IT, procurement and human resources.

Migrating to CitiPower and Powercor's corporate service model enabled us to deliver savings through:

- economies of scale - enabling the same services to be provided with fewer resources, including:
 - rationalisation of internal resources, particularly at management level
 - combined tendering of outsourced services which allowed us access to lower charges given the larger work volumes, for example materials procurement, Lidar and vegetation cutting and inspection
- reduced reliance on outsourced service providers, for example IT management and project delivery, contact centre for faults calls and management of vegetation services which are now insourced and provided jointly with CitiPower and Powercor
- adoption of efficient processes and practices delivered through CitiPower and Powercor's World Class savings program, including new technologies and automated processes, consolidation of insourced functions and reduced management to staff ratios.²

¹ Excluding customer service functions which are currently outsourced and planned to be insourced by December 2022, including billing, general enquiries contact centre, meter data management, connections processing and approvals and quality assurance services.

² Refer to CP APP 02 and PAL APP 02: *What we have delivered* appendix.

3 2021-2026 regulatory period

The savings achieved during 2016-2020 are embedded in our expenditure forecasts for 2021-2026. This ensures we continue to deliver our expenditure programs at low cost to customers. The 2021-2026 regulatory period however presents new challenges which necessitate continued investment in innovative and compliance based solutions which include:

- new and changed regulatory obligations which materially impact our operations
- significant growth of renewable innovations including solar, batteries and electrical vehicles
- continued strong customer and demand growth.

As an efficiency frontier network we cannot absorb additional costs resulting from these challenges. While the savings achieved in the current period will provide enduring benefits for customers, these savings have been realised and are not repeatable. Further efficiency savings can only be achieved through investments in new, higher risk, technological innovations. Consequently, in preparing our regulatory proposal we have been conscious of customer's desire for affordable network charges while making sure we invest to deliver a safe, reliability and secure network which also meets customer expectations regarding network flexibility and accessibility.

The impact of these challenges on our expenditure forecasts is discussed briefly below. More detail is provided in our regulatory proposal and the respective business cases for each project.

3.1 Our forecasts reflect new requirements and challenges

3.1.1 Operating expenditure

Our operating expenditure forecasts are based on our efficient 2019 actual operating expenditure which embeds the savings achieved during the 2016-2020 regulatory period.

Our operating expenditure forecasts include a step up on recent history, primarily as a result of new regulatory obligations and changes in our operating environment, including:

- efficient deferral of network capex through extending our successful demand response programs
- amendments to the Environmental Protection Act and associated draft Regulations which require a more proactive approach to environmental management
- security of critical infrastructure requirements to increase data protection
- Australian Energy Market Commission (**AEMC**) Rule change to introduce five minute financial settlement for wholesale market trading.

Our operating expenditure forecasts are also driven by continued customer and demand growth.

3.1.2 Capital expenditure

The efficiencies derived in delivering our capital expenditure program in 2016-2020, ensure we will continue to efficiently deliver our capital expenditure initiatives for the forthcoming 2021-2026 period. Our capital expenditure forecasts are a step up on recent historical spend. This reflects new investments required to meet regulatory obligations or deliver greater customer benefits through improved safety, maintaining reliability and enabling our customers. Key new investments include:

- digital network - investment in innovative technology providing better visibility of the low voltage network, enabling us to more effectively manage the network and defer network augmentation

- five minute settlement - requires major changes to our IT systems and communications network to retrieve, process and deliver energy data to market in 5 minute (rather than 30 minute) intervals in accordance with the AEMC Rule change
- depot upgrades - upgrading our Burwood, Keysborough and Mornington depots to ensure these meet industry standards and comply with legal requirements
- solar enablement - enabling solar exports by removing over 95% of solar constraints on the network, where customer benefits exceed the cost. This involves a relatively modest program of investment including applying new inverter settings, developing a dynamic voltage management system, tapping and targeted augmentations
- demand driven augmentation - meeting demand growth in the Mornington, Doncaster, Keysborough and Malvern supply areas
- environmental - amendments to the Environmental Protection Act and associated draft Regulations which require a more proactive approach to environmental management
- pole replacements - to maintain the safety and reliability of the network with an aging pole population, we are proposing an enhanced risk-based approach to asset management which addresses concerns raised by Energy Safe Victoria and the community regarding the long term sustainability of our wood pole replacement practices.

A.1 2016-2020 expenditure savings

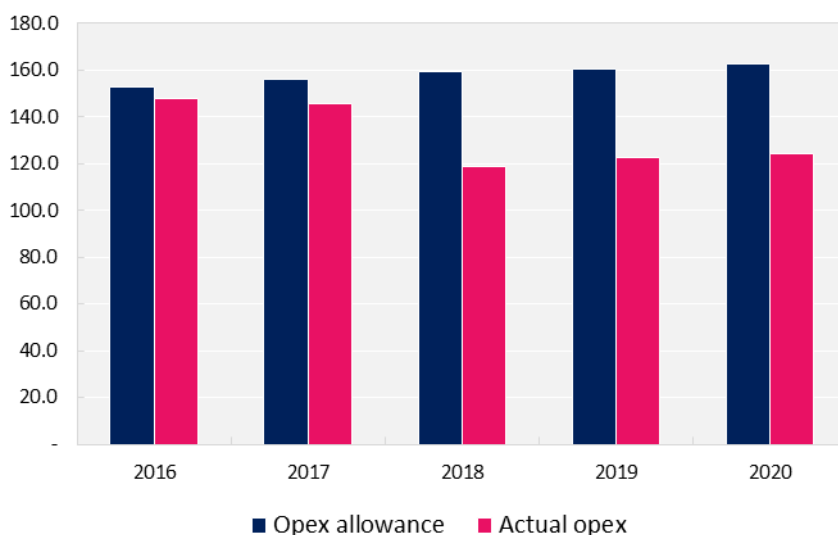
As a result of our efficiency initiatives, discussed above, we have generated significant expenditure savings over the 2016-2020 regulatory period compared with the Australian Energy Regulator's regulatory allowances, as shown in table 4 and figures 1 and 2 below.

Table 4 Expenditure savings compared with Australian Energy Regulator allowances, 2016-2020 (\$ million, 2021)

	Opex savings	Capex savings	Total savings
United Energy	133.3	199.8	333.1

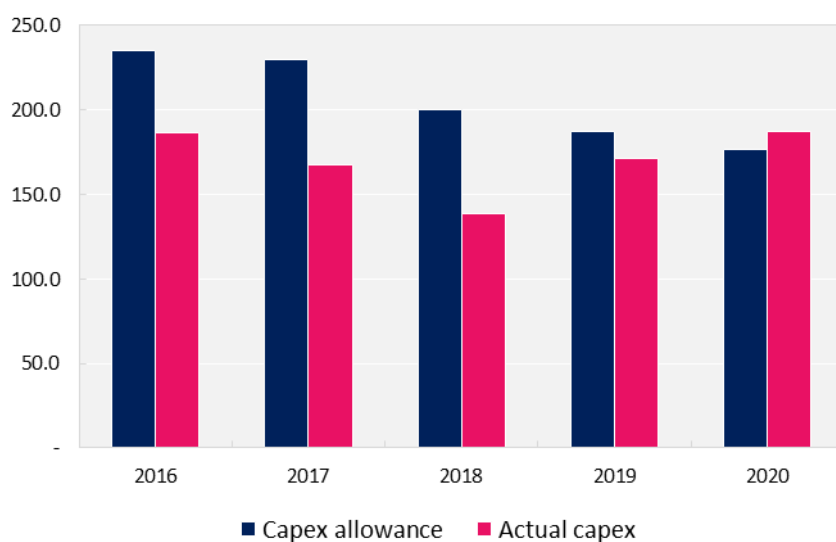
Source: United Energy

Figure 1 2016-2020 operating expenditure actual spend and AER allowance (\$ million 2021)



Source: United Energy

Figure 2 2016-2020 capital expenditure actual spend and AER allowance (\$ million, 2021)



Source: United Energy

The resulting carry over amounts under the Efficiency Benefit Sharing Scheme (**EBSS**) and Capital Expenditure Sharing Scheme (**CESS**) are set out in the tables below.

Table 3 Efficiency benefit sharing scheme calculations, \$m 2021

	2016	2017	2018	2019	2020
Adjusted benchmark EBSS operating expenditure	153.0	156.3	159.6	160.6	162.7
Actual EBSS operating expenditure	148.0	145.4	118.6	122.4	124.5
Incremental efficiency	-3.9	5.8	30.2	-2.8	-

Source: United Energy

Table 4 Efficiency benefit sharing scheme carryover, \$m 2021

	2021/22	2022/23	2023/24	2024/25	2025/26
EBSS efficiency carryover	31.2	30.3	12.3	-1.4	-

Source: United Energy

Table 5 Capital expenditure sharing scheme calculation, \$m 2021

	Present value
Total efficiency gain	199.8
Network service provider share (30%)	59.9
Financing benefit	20.0
CESS payment in 2021 - 2026	40.0

Source: United Energy

A.2 Deferred capital projects

We have deferred capital expenditure projects from 2016-2020 into the 2021-2026 regulatory period where it has been efficient to do so, while maintaining network safety and reliability.

The following table describes the deferred projects and explains the reason for the deferral.

Table 6 Description of deferred projects

Deferred project	Explanation of deferral
DC 4th transformer	<p>For 2016-2020 we proposed to install a fourth DC transformer in 2019 to mitigate demand constraints.</p> <p>We deferred this project due to lower than expected demand growth.</p> <p>We will instead alleviate demand constraints by installing a feeder from BH zone substation in 2020. This is a lower cost solution which enables us to defer installing a fourth transformer for four years.</p> <p>For 2021-2026 regulatory period, we propose to install the fourth DC transformer in 2023/24 2024/25.</p>
MC #1 transformer	<p>For 2016-2020 regulatory period, we proposed to replace the 66/22kv MC transformer based on asset condition and failure consequences because the risk of asset failure was found to be high based on our risk assessment approach.</p> <p>We have since improved our risk assessment approach, including to focus more on overall risk at the zone substation (rather than the asset itself) and to take into account common cause failure. This involves assessing the risk of asset failure taking account of actual asset performance for comparable assets, for example in terms of age, load and condition. The zone substation is also ready to accept a mobile transformer to manage the consequence of asset failure. Our improved risk analysis found we could defer replacement of MC#1 transformer without increasing the risk of asset failure.</p> <p>For 2021-2026 regulatory period, we propose to replace the MC transformer in 2025/26 based on our improved risk assessment approach.</p>
BU switchboard	<p>For 2016-2020 regulatory period, we proposed to replace an 11kV indoor switchboard based on asset condition and failure consequences because the risk of failure was found to be high based on our risk assessment approach.</p> <p>Our improved risk assessment approach, which takes account of common case failure, found the switchboard replacement could be deferred without increasing the risk of asset failure.</p> <p>For 2021-2026 regulatory period, we propose to replace the BU switchboard in 2025/26 based on our improved risk assessment approach.</p>
SR switchboard	<p>For 2016-2020 regulatory period, we proposed to replace an 11kV indoor switchboard based on asset condition and failure consequences because the risk of failure was found to be high based on our risk assessment approach.</p> <p>We installed line breakers to implement an open bus scheme. This reduced fault levels and enabled us to mitigate the risk of the switchboard failure and efficiently defer replacement.</p> <p>For 2021-2026 regulatory period, we propose to commission our new the SR switchboard in 2021/22 based on our improved risk assessment approach.</p>

Source: United Energy

The table below provides the value of deferred projects which are repropose for 2021-2026.

Table 7 Deferred projects value (\$ million, 2021)

Project	2016-2020 allowance	2016-2020 expenditure	Unspent allowance	2021-2026 proposal
DC 4th transformer	7.4	0.0	7.4	6.4
MC #1 transformer	2.9	0.0	2.9	1.6
BU switchboard	2.6	0.0	2.6	1.8
SR switchboard	3.3	1.4	1.9	1.0
Total	16.2	1.4	14.8	10.8

Source: United Energy

We have not adjusted the capital efficiency sharing scheme calculation to exclude the deferred projects because:

- the decision to defer was efficient, reducing costs for customers while maintaining network safety and reliability
- the deferrals do not materially increase our capital expenditure forecasts.