Regulatory proposal presentation to the AER Public Forum

2021 - 2026 regulatory reset

April 2020

Thank you for your interest

"We are sorry to not be able to present our Regulatory Proposals for CitiPower, Powercor and United Energy in person.

In these extraordinary times, we are doing all we can to support our residential and business customers. Just as maintaining reliable electricity is vital as more people work and study from home, providing relief to those experiencing financial stress is an important part of our response.

We are also continuing to undertake critical works and maintenance while minimising impacts on customers. This will ensure our networks have the capacity to support our communities and economy to recover from this unprecedented emergency.

As we present this summary of our proposals for 2021-2026, we are fully aware that our operating environment has changed enormously since the documents were submitted to the AER in January 2020.

What has not changed is our commitment to deliver more to customers at a lower cost.

This presentation provides a summary of our three network proposals. Each features network investments to sustain high levels of reliability and safety as well as various initiatives responding directly to customer needs, expectations and priorities.

Importantly, while our networks are independently rated as the most efficient in the National Electricity Market (NEM), our proposals also demonstrate how we are continually working to improve our performance.

Ultimately, how the COVID-19 experience impacts our five year plans is uncertain. Please be assured we are closely monitoring the situation and reviewing forecasts and assumptions. We will work with the AER over the coming months to be flexible to evolving conditions and whatever happens, continue to provide safe, reliable and affordable electricity to our customers.

We look forward to receiving your questions. Our team is ready to respond and open to your feedback."

Tim Rourke
Chief Executive Officer

Contents

1. Executive summary

Introduction

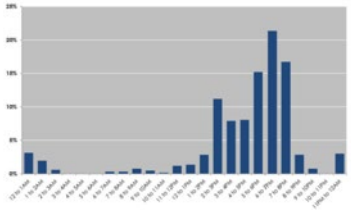
- This presentation provides a summary of the regulatory proposals for CitiPower, Powercor and United Energy
- While it includes an overview of the financial aspects of each proposal, we have put greater emphasis on detailing the initiatives which respond directly to the priorities identified by customers and stakeholders
- You'll find that while the principles behind each proposal are the same, the focus of investments, innovations and ongoing programs is often different
- This is relevant to the different geography, customer bases, economic drivers, assets or infrastructure, and levels of bushfire risk across our three networks
- All however, reflect a commitment to delivering meaningful outcomes for customers
- You'll find embedded videos throughout this presentation which provide some more insights into how each proposal is tailored
- Programs which are common to all three networks have been grouped separately to avoid duplication.

Customer and stakeholder priorities

1. **Electricity affordability**
2. **Network resilience**
   Defined as both reliable and safe
3. **Flexibility**
   To enable and accommodate energy options for customers

We face a challenging environment

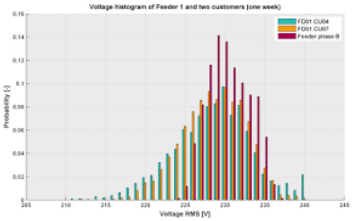
More **extreme climatic conditions** are making it harder to deliver a safe and dependable network



Peak demand continues to **grow** despite the increased focus on **energy efficiency** and the use of **solar PV**

Bushfire risk is resulting in:

- Rapid Earth Fault Current Limiter (REFCL) technology
- insurance cost and capacity challenges

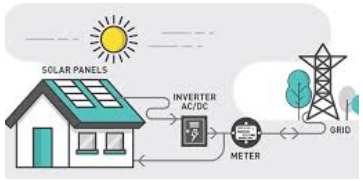


Regulatory change and customer demand are driving the need for improvement in **network visibility** and the **provision of data** to our customers

The historically **low risk free rate** further reduces the capacity of the business to absorb unfunded costs

A **heightened level of cyber threat** underpins the need to reinforce the systems supporting our network and protect our customers' data

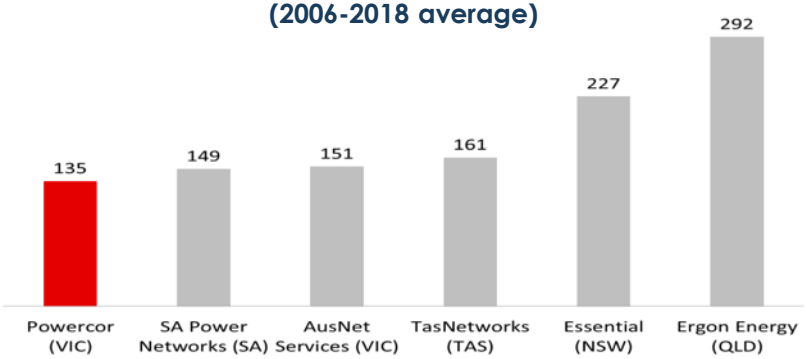
Stricter environmental requirements are resulting in a more proactive approach to oil and noise management



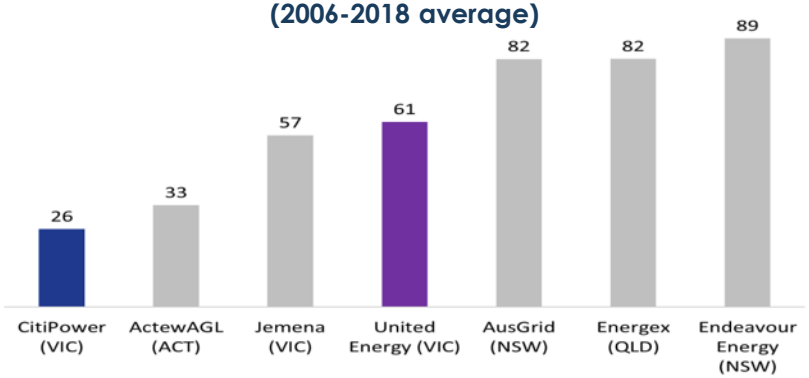
Customers are seeking a more **flexible** network that can incorporate new technologies and allow them to **export** excess solar electricity

We respond by focusing on safety, reliability and efficiency

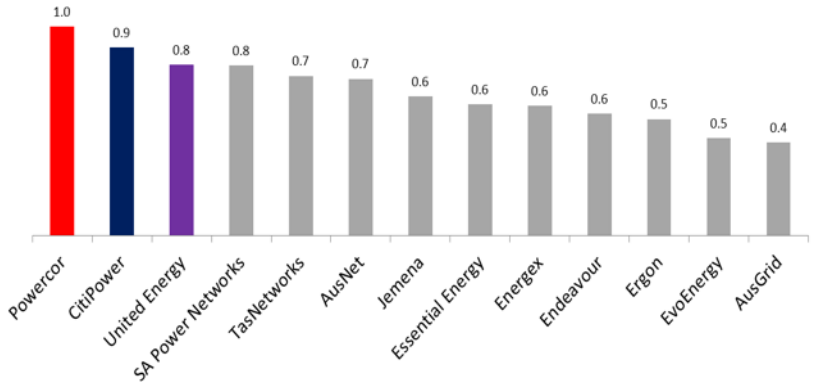
Rural networks unplanned minutes off supply (2006-2018 average)



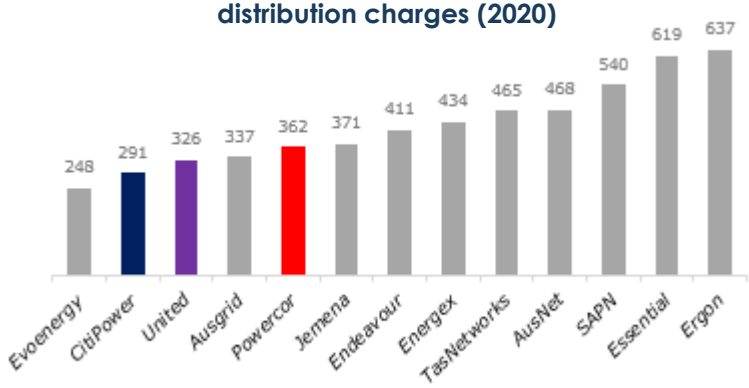
Urban networks unplanned minutes off supply (2006-2018 average)



Average operating expenditure productivity (2006 – 2018)



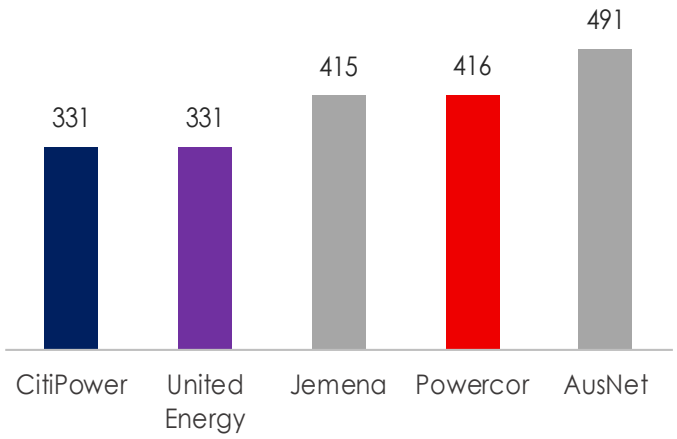
Typical residential customer distribution charges (2020)



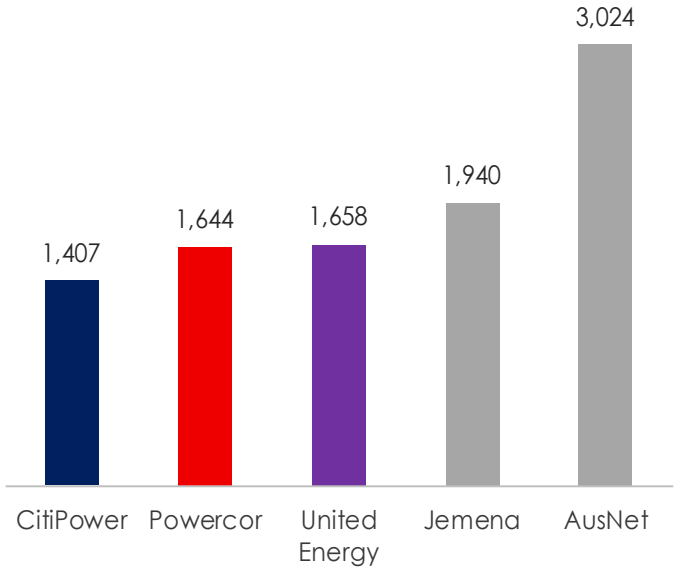
- Powercor is Australia's most reliable rural network—available for over 99.97% of the year
- CitiPower is Australia's most reliable network—available for over 99.99% of the year
- United Energy is amongst the most reliable urban networks
- Independent benchmarking has our three networks as the most efficient networks in Australia.

We will continue to deliver affordable services

Typical residential distribution & metering charges (2021/22)



Typical small business distribution & metering charges (2021/22)



- Our performance will benefit our customers through lower network charges
- Powercor is already delivering the lowest rural network charges in Australia
- CitiPower and United Energy are amongst the lowest urban network charges in the NEM.

We are offering further reductions over the next regulatory period and remaining the most affordable networks

95% of our customers consider affordability a top priority

2. Stakeholder engagement

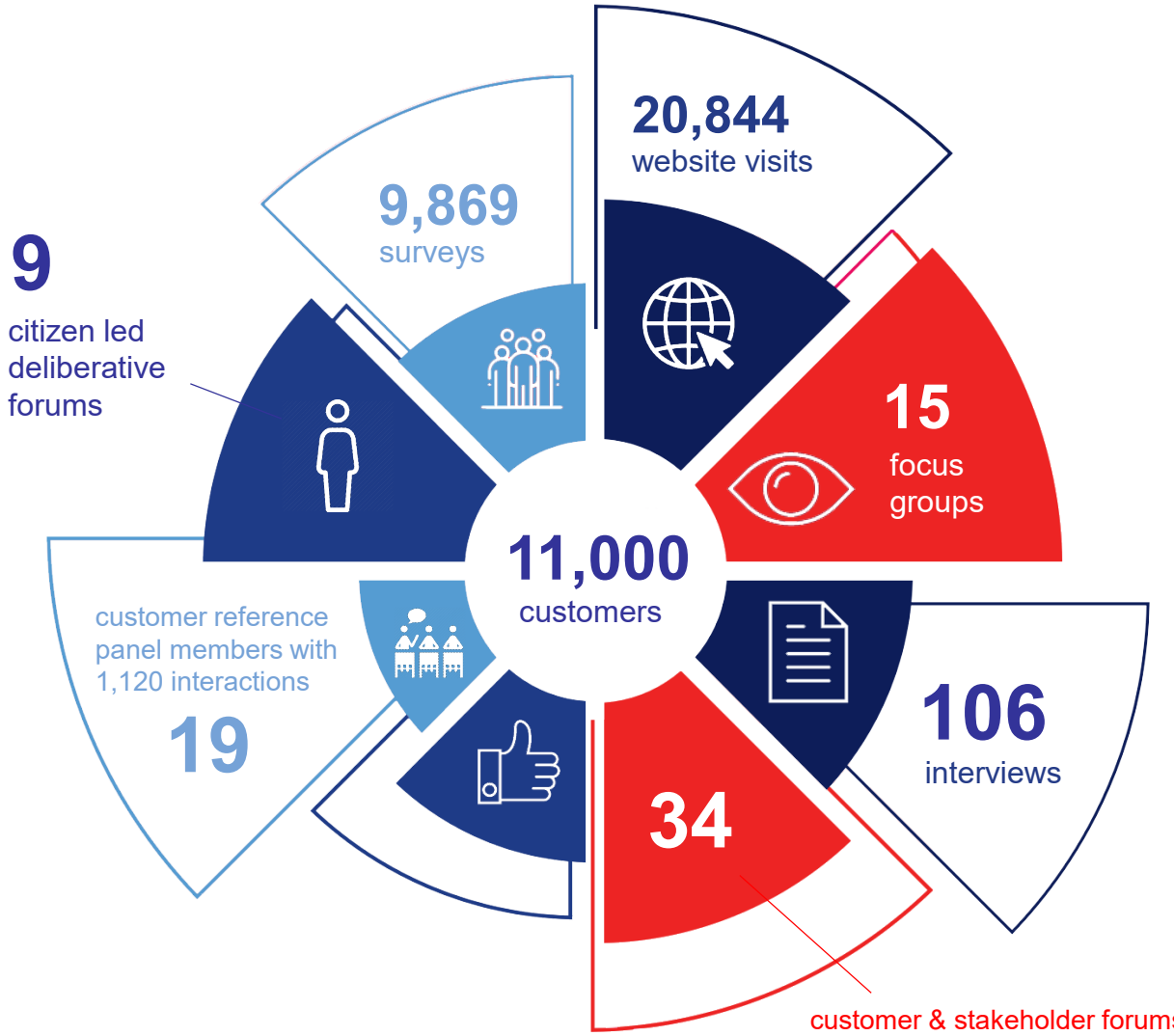
How a three year program of deep engagement with a diversity of stakeholders and customers shaped our proposals

Three year journey involving 11,000 customers and stakeholders

- We listened to the needs, priorities and expectations of stakeholders and provided opportunities for their input into our planning:
  - Customers and their advocates
  - Interested stakeholders and organisations
  - Government and various agencies
  - Customer Consultative Committee
- A shared engagement program undertaken by our three businesses between 2017 and 2019 was designed to be accessible, inclusive, transparent and measurable
- A dedicated **Energy Futures Customer Advisory Panel** oversaw and participated in our whole engagement program.

We took our customers on a journey to choose their preferred investments through a 'citizen led' approach

Surveys and interviews informed topics for deep dive discussions



Our proposals address directly the priorities identified by our customers and stakeholders

Our customers told us they want:

- **Affordable distribution charges** but did not support reducing services to reduce costs
- **Increased pole inspections**, especially in the south west region
- **Unlimited exports** for solar customers
- **Improved reliability** in worst-served areas
- Investment to **support regional communities**
- **No customers to experience outages** when it comes to Rapid Earth Fault Current Limiter (REFCL) installation and commissioning
- **New technology** to improve reliability, safety and encourage renewable generation
- **Access to data** that informs choices about energy use at different times of the day and how much appliances cost to run
- **Multi-modal communications** about outages, faults, programs and our services
- **Support for vulnerable** customers.

Our proposals therefore:

- **Offer reduced distribution and metering costs** while sustaining high standards of reliability, safety and flexibility
- **Amended our pole replacement program** to address community concerns
- **Redesigned our solar enablement approach** through extensive consultation with stakeholders
- Offer to **upgrade SWER to three phase** power in response to regional community concerns
- Plan to install **smart ACRs** to offset community concerns with respect to outages arising from mandated REFCL installations
- Adopted new technology such as **digital network** where economic in preference to traditional network expenditure
- Offer **customer enablement** based on extensive feedback on customer preferences for access to their data
- Adopt a **slower transition** to time-of-use pricing given bill impact concerns
- Expand **programs to help** vulnerable customers reduce their energy costs.

They also progress developments in our businesses to strengthen customer centricity

Exemplar initiatives	Action during current regulatory period	Indicative outcomes achieved	Actions proposed for 2021-2026 period
Improving communication and management of planned and unplanned outages	• Development of tailored online and automated services • Adoption of Interactive Voice Response (IVR) technology to automatically advise customers of outages	• 85% customer satisfaction • 808,714 (68%) calls answered by IVR	• Consolidation of online portals • Enhance speed of SMS notifications • Make all tools available to High Voltage customers and those with Distributed Energy Resources
Making new connections easier	• Development of online connection processes to improve service • Collaboration with developers and customers to improve timeliness and efficiency	• Electricity connections timeframes reduced by 50% from 34 to 16 days • 90% of customer target dates met	• Continued work to reduce timeframes • Greater coordination with local government and industry planning
Digital network enhancements	• Dynamic Voltage Management System developed to manage voltage levels • Develop programs which enable faster identification of customer faults and improve safety • Participate in AEMO's RERT scheme	• 85% reduction in electric shocks due to neutral issues in UE • Saved 100MW through RERT to prevent load shedding for 66,200 customers in UE	• Develop an associated dynamic model to predict and manage power flows, provide near real-time consumption and power quality information
Collaborating with communities to support vulnerable customers	• Partnership established with Western Bulldogs Community Foundation and Australian Energy Foundation	• Average annual saving of $220 per participant	• Expanding the program regionally and online to reach larger audiences
Ongoing innovation to unlock solar resources	• Developing smart inverter settings adopted by the Victorian Government • Landmark study of 38 billion data points	• Improved Model Standing Offer and industry training • Record number of solar alteration and pre-approval requests (avg 447 per week)	• Unlock 95% of solar export constraints • Allow customers to connect at least a 5kVA system

3. Our regulatory submissions

Plans for our three networks to each deliver more at a lower cost to customers

CitiPower

CitiPower - Proposal Summary

Network proposal	Net capex	Opex	Proposed revenue 2021 - 2026	Revenue 2016 – 2020	Revenue % change	Proposed exc. mandated[1] 2021 - 2026	Revenue [2] 2016 – 2020	Revenue % change
CitiPower	$852m	$569m	$1,499m	$1,537m	↓ - 2.5%	$1,433	$1,537m	↓ - 6.8%

- Our proposal assumes our current high rate of reliability of 99.99% will be sustained
- This equates to customers experiencing power outages totalling an average of 21 minutes annually
- Capital expenditure has increased relative to history due to asset replacement and Information Technology and Communications Technology (ICT) programs
- Operating expenditure has risen relative to history as a consequence of new regulatory obligations and additional customer benefits delivered through new programs
- Efficiencies in our operations mean we can offer this increased investment while reducing costs to customers
- During the 2016-2020 period we achieved $233 million in savings and this is now passed on to customers.

Delivering affordability: 10% real price decrease for households

We will continue to be the lowest cost urban distributor for residential charges through the period 2021 to 2026

Network Proposal	Price reduction - residential	Average charge - residential	Price reduction - small business
CitiPower	↓ $38 (10%)	$326	↓ $119

Comparative household electricity bill composition 2021/22

Average component costs for all participants in the supply chain by state vs CitiPower proposal

Source: *AEMC Residential Electricity Price Trends 2019*

Based on typical customer consumption of 4,000kWh per annum

Building network resilience - Key drivers

- **Residential growth** forecasts of more than 17,700 more customers
- Supporting **major infrastructure** developments under Victoria's 'Big Build'
- **Security of CBD supply** obligations to maintain electricity supply after the loss of two 66kV cables within 30 minutes' switching time
- Replacing or refurbishing **4,933 wood poles** ensuring the future resilience of our network
- Increased **environmental protection** to prevent waste and pollution impacts from zone substations with a focus on noise reduction and potential oil leaks
- **Protecting critical grid systems** and customer data in response to a heightened threat environment.

Building network resilience - Major infrastructure support

CBD security of supply ($26m)

- Melbourne's CBD has experienced significant growth requiring greater network capacity
- Compliance with the Electricity Distribution Code requires us to provide an 'N-1 secure' level of supply security to CBD load
- Load growth in the south-west of the CBD is limiting our transfer capability and without further investment by 2026 we will not meet an ‘N-1 secure’ planning standard
- Our preferred network solution is to redevelop our Tavistock Place zone substation, and construct new feeders to enable transfers between our Little Bourke and Little Queen zone substations.

Supporting major infrastructure projects

- The Victorian Government is undertaking a number of major infrastructure projects known as ‘Victoria’s Big Build‘
- We support this public infrastructure plan through numerous customer initiated and funded works for numerous suburban road upgrades and major connections including the West Gate Tunnel and Metro rail and tunnel projects
- Yarra Trams is also embarking on a ten year program of substantial tram track renewals and upgrades requiring our assets to be relocated. Between 2021 and 2026, this will cost around $14 million.

CITIPOWER

Building network resilience - Asset improvements

Asset health ($56m)

- To ensure our network is designed for today's demands and future growth we will continue our program to decommission zone substations in our Port Melbourne (cost $20m) and Brunswick (cost $29m) supply areas that exhibit declining health condition
- We will also plan for the progressive removal of the oil-filled J18/J22 circuit breakers with the highest risk of disruptive failure (cost $7m).

Transformer / switchboard replacements ($47m)

- We will replace five zone substation transformers, two each at our North Richmond and Celestial Avenue zone substations, and one at our Victoria Market zone substation (cost $19m)
- We will also replace switchboards at our Little Queen and Collingwood zone substations (cost $28m)
- These substations have the original substation equipment in service. This is showing signs of condition deterioration, with risk monetisation showing replacement as the lowest cost option.

CBD cable pits ($14m)

- Our cable pit population is deteriorating, and recent inspections have revealed that up to 20% of pits inspected require remediation
- Previously, we have managed cable pit assets via a reactive approach
- Since 2018, we have adopted a proactive management approach to ensure the safety of our employees and the public, and maintain the reliability of supply in the CBD
- Our targeted remediation program will focus on pits installed in or adjacent to roadways, ensuring pits exposed to the greatest stress are prioritised.

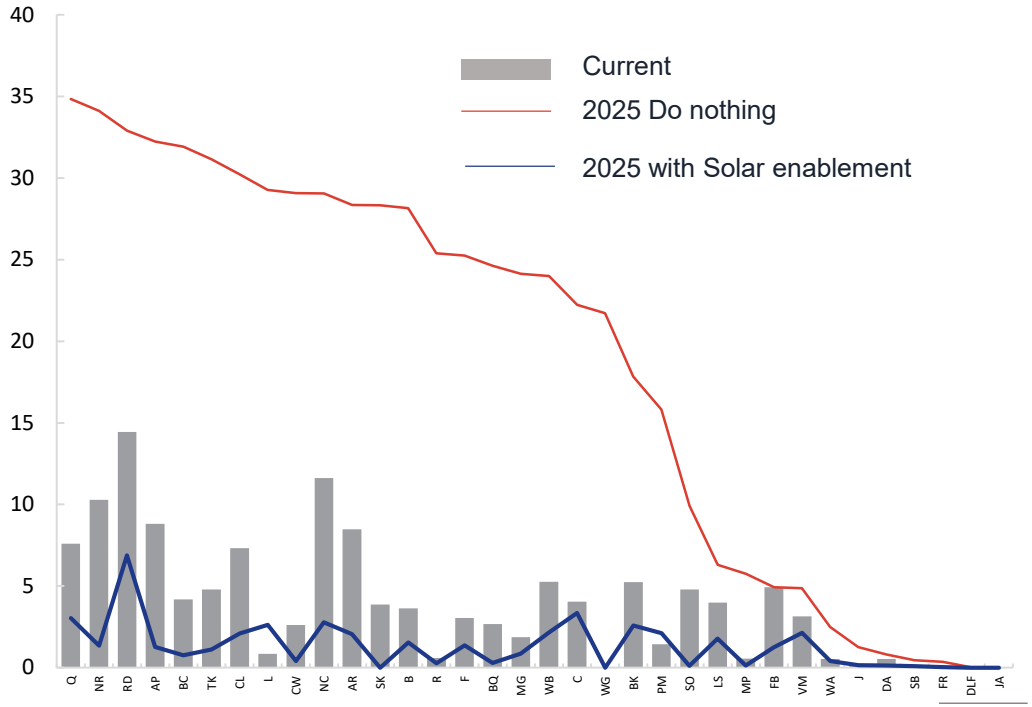
Offering flexibility

Solar enablement (Cost $32m, net benefit $32m)

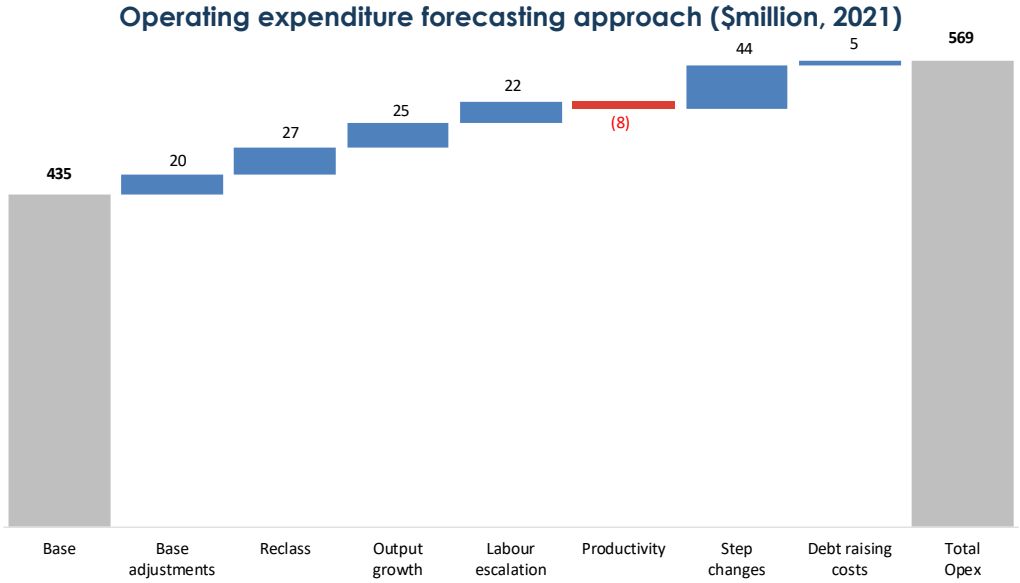
- The proportion of customers with solar is expected to grow from 4% (12,545) in 2019 to 24% (73,845) by 2026
- Our proposal will allow our customers to connect at least a 5kVa solar PV system
- The investment will enable us to improve outcomes by unlocking over 95% of the 104GWh of solar exports that would otherwise be constrained annually
- The program is estimated to cost $32 million and generate a net benefit for all customers of $32 million
- Without this investment, customers serviced by more than half our zone substations will experience export constraints more than 20% of the time
- We will remove solar constraints where it is economic to do so – that is where the benefits to customers outweigh the costs – and assist customers where it is not. This responds directly to customer feedback which did not support the high cost of removing all constraints.

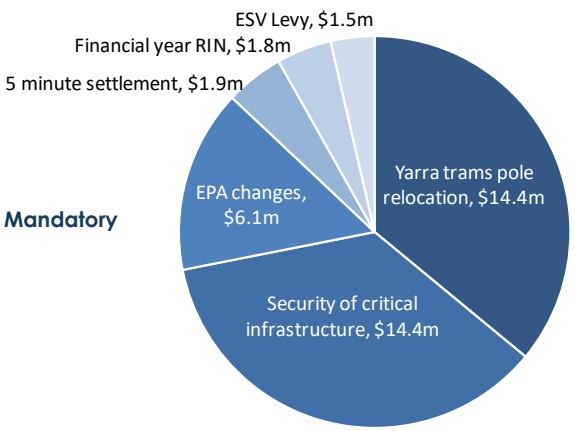
Solar capacity	By 2026
Increase MW	234
Increase %	202%

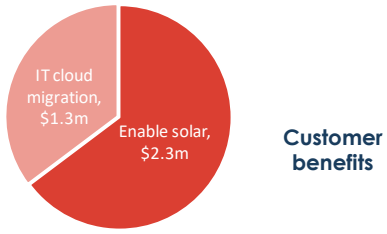
CitiPower – percentage of time solar is constrained by zone substation



Operating Expenditure



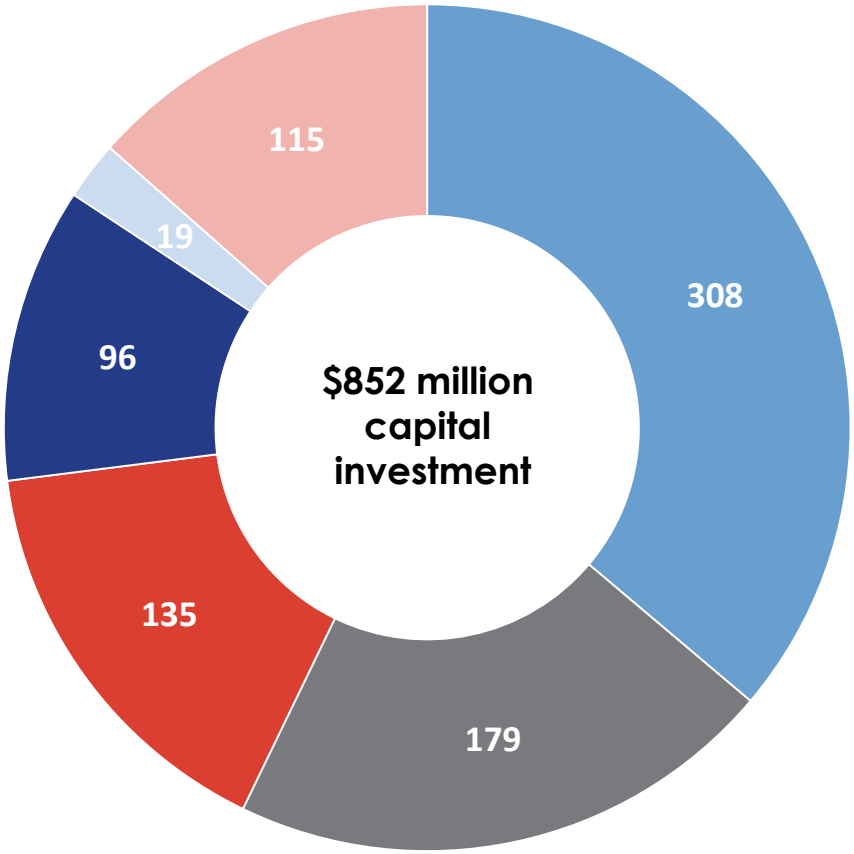




Step changes ($m, 2021)	
Mandatory	$40
Customer benefits	$4
Total	$44

- Our operating expenditure is the second most efficient in the NEM and our operating expenditure per customer is the lowest across the NEM
- As a frontier network, we have no contingency in our operations to absorb increasing costs from growing regulatory and service obligations, or material increases in the cost of complying with existing obligations
- We therefore must account for increasing cost pressures outside of our control through operating expenditure adjustments
- New obligations make up 92% of our proposed adjustments, with the remaining 8% delivering customer benefits
- The justification for each of our operating expenditure adjustments is provided in a series of business cases
- We have applied the AER's pre-emptive productivity adjustment to our efficient base operating expenditure
- We have relied on independent experts to validate our output growth and labour escalation assumptions.

Capital Expenditure



- Our replacement expenditure is driven by changes to our asset management and compliance obligations including wood poles (on average additional 845 pole interventions per year) and environment, and the outcomes of our risk monetisation approach (transformer and switchgear replacements)
- Our recurrent expenditure on Information Technology and Communications is consistent with history reflecting our business as usual requirements. It includes expenditure focussed on cyber security and maintenance of our core IT systems
- IT and communications expenditure includes new initiatives focussed on delivering customer benefits as well as new compliance obligations.

Powercor

Powercor - Proposal Summary

Network proposal	Net capex	Opex	Proposed revenue 2021 - 2026	Revenue 2016 – 2020	Revenue % change	Proposed exc. mandated[1] 2021 - 2026	Revenue [2] 2016 – 2020	Revenue % change
Powercor	$2,140m	$1,537	$3,434m	$3,350m	↑ 2.5%	$3,250	$3,318m	↓ -2.0%

- Our proposal assumes our current high rate of reliability > 99.97% will be sustained. This equates to power outages totalling an average of 129 minutes annually
- Capital expenditure has increased relative to history due to increases in our replacement and augmentation programs
- Operating expenditure has increased to accommodate additional costs arising from new regulatory obligations or the increasing costs of existing obligations, and the delivery of additional customer benefits through new programs.
- Efficiencies in our operations mean we can offer this increased investment while reducing costs to customers
- During the 2016-2020 period, we achieved $326 million in savings and this is now passed on to customers.

1. Mandated programs include REFCL, 5 minute settlement, change in wood pole replacement, change in environmental management regulations, security of critical infrastructure requirements, reclassification of food belt, change in ESV levy and financial year RINs
2. Excludes REFCLs

Delivering affordability: 6% real price decrease for households

We will continue to be the lowest cost rural distributor for residential charges through the period 2021 to 2026

Network Proposal	Price reduction - residential	Average charge - residential	Price reduction - small business
Powercor	↓ $24 (6%)	$407	↓ $68

Comparative household electricity bill composition 2021/22

Average component costs for all participants in the supply chain by state vs Powercor proposal

Source: *AEMC Residential Electricity Price Trends 2019*

Based on typical customer consumption of 4,000kWh per annum

Building network resilience - Key drivers

- **Residential growth** forecasts of more than 114,000 new customers over the 5 years
- Replacing or refurbishing **39,770 wood poles** ensuring the future resilience of our network
- Condition and age-based replacements for **high-volume assets** in a network with 88,406km of powerlines and 577,420 poles and 88,547 distribution transformers
- **Large-scale renewable generation** connections in some of the state's best resource areas for wind and solar generation
- **Mitigating bushfire risk** through ongoing delivery of commitments to the 2009 Victorian Bushfire Royal Commission
- **Improving regional service delivery** with upgrades to support the expansion of local industries and generate social and economic benefits.

Building network resilience - Asset replacement and upgrades

Wood pole replacement ($234m)

- We have responded to community feedback to enhance our pole asset management practices
- We have increased the requirement of sound wood remaining in a pole for it not to be replaced or reinforced
- We have amended our pole serviceability assumption regarding the fibre-strength of wood poles recognising the importance of network resilience
- The changes in our pole management practices will result in a responsible and sustainable wood pole replacement and reinforcement program and an increase in annual pole intervention volumes to 6,200 in Powercor
- Our risk-based asset management approach aligns with the conceptual framework set out in the AER's recent asset replacement guidance practice note.

Supporting regional business customers ($9m)

- Through our stakeholder engagement program it was clear that regional infrastructure located in dairy farm intensive regions is not meeting our customers' needs
- Rural customers generally receive lower levels of service than urban customers, due to lower customer density resulting in higher costs to service and relatively low unserved energy
- The benefits of our proposed investment will exceed the costs if the broader economic impacts of enhancing capacity—such as more regional employment and growth—are considered.

Facilitating strong population growth ($28m)

- Melbourne's western suburbs and the Surf Coast area are developing rapidly, with each generating load growth
- Residential construction activity in this area is expected to exceed 12% over the 2021–2026 regulatory period
- To meet this growth, we will establish new zone substations in Torquay (part of the Surf Coast REFCL project) and Tarneit (cost $20m), undertake major zone substation upgrade works at Bacchus Marsh (cost $8m), and establish new feeders to alleviate capacity constraints.

Powercor AUSTRALIA

Building network resilience - Bushfire mitigation programs

Mitigating REFCL reliability impacts ($13m)

- Our experience with REFCLs demonstrates that significantly more customers are being taken off supply for faults occurring downstream of ACRs and fuses
- The impact to customers from the decline in reliability will worsen over time as more REFCLs are installed on our network
- We are working closely with specialist vendors to develop 'smart' ACRs, which are compatible with REFCLs
- Using this new technology we can mitigate the adverse reliability impacts of REFCLs.

REFCL compliance ($199m)

- **Surf Coast supply area** (cost $73m) - We need to maintain a reliable supply of electricity to customers in the Waurn Ponds supply area as the level of energy at risk continues to grow over time. Our preferred option, establishing a new Torquay zone substation will also support the least-cost compliance option for meeting our regulatory obligations to install REFCLs at our Waurn Ponds zone substation by April 2023
- **REFCL Tranche 3 sites** (cost $36m) - we have now installed REFCLs at ten zone substations throughout our network, and must install REFCLs at a further 12 zone substations by 2023. Consistent with the Rules, our regulatory proposal includes REFCL expenditure associated with our tranche 3 contingent project application that will be incurred in the 2021–2026 regulatory period
- **Corio** (cost $29) - proposing to install a REFCL at Corio
- **REFCL ongoing compliance** (cost $61m) - as more underground cables are installed in residential and industrial subdivisions, or cables are replaced as part of our ongoing bushfire mitigation program, we will require additional GFNs and hardening works to ensure we continue to meet the specified technical requirements.

EDO Fuses ($11m)

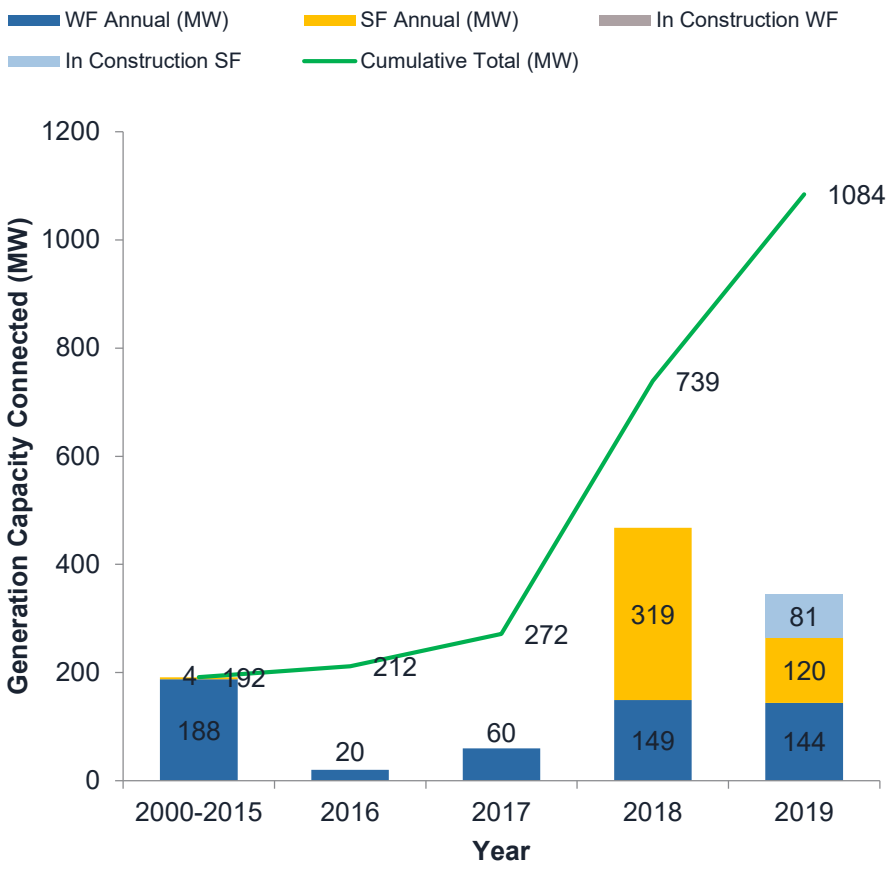
- To **reduce bushfire risk** across our network we will proactively replace expulsion dropout (EDO) fuses with fault tamers
- Across our HV network we have EDO fuses that can, in some cases, start a fire
- Therefore this program will target high-consequence electrical line construction areas and some high bushfire risk areas.

Building network resilience - Renewable generation connections

Connecting renewables ($118m)

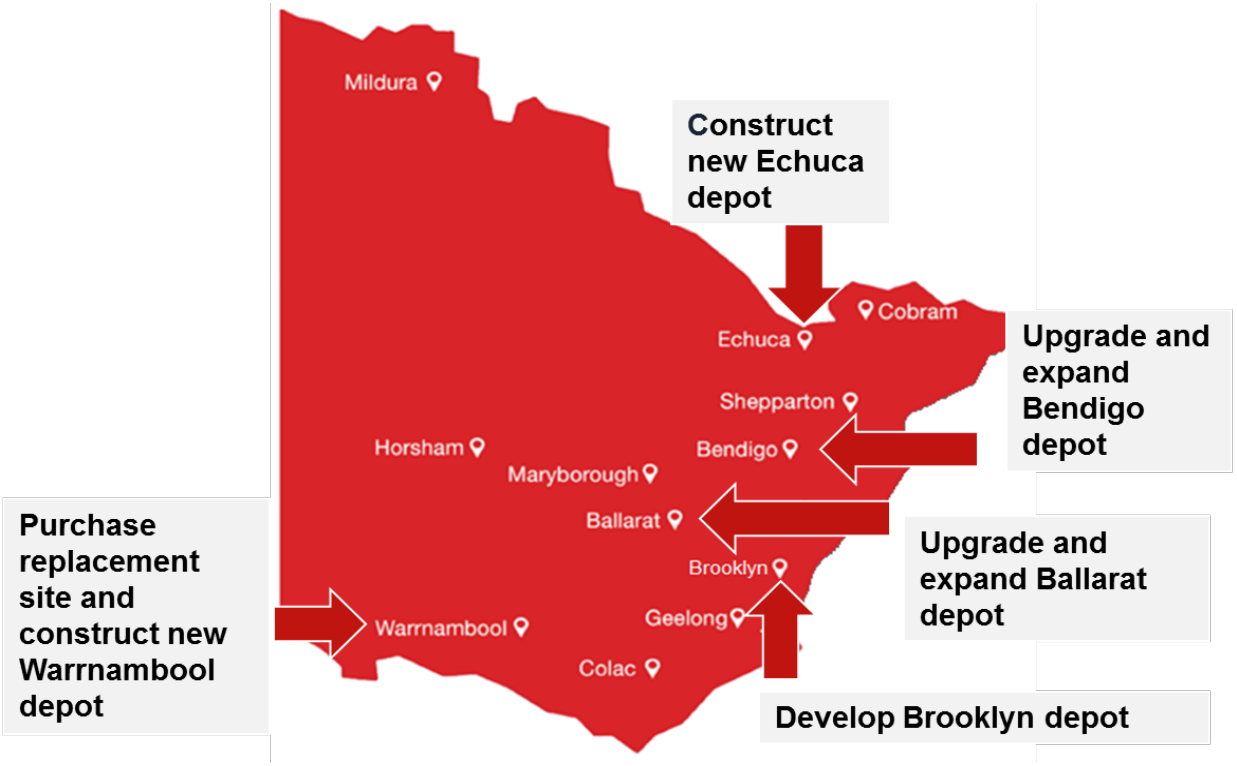
- A total of 345MW generation capacity of large scale solar and wind farms was connected to the Powercor network in 2019, bringing the total connected capacity since the year 2000 to 1,112MW
- The connection of renewable generation to the network has grown rapidly fuelled by Victorian Government incentives
- Our network covers some of the best renewable resource areas in Victoria (wind generation is prevalent in the south of our network and solar generation in the north)
- Developing these areas will support the Victorian Government to meet its 50% renewable energy target by 2030
- The forecast increase in connection activity over the next regulatory period is significant for Powercor (3,695 MW or 82%) reflecting:
  - changes to the National Electricity Rules
  - higher wholesale prices
  - the Victorian Government's Renewable Energy Auction Scheme
  - businesses seeking to achieve carbon neutrality.

Large Renewable Generators Connected to Powercor Network



Building network resilience - Upgrading regional services

Depot upgrades ($79m)



- Supports improved customer services and responsiveness in regional areas
- Provides undercover facilities for all major vehicles and equipment to support a longer asset life
- Improves driver safety and ease of mobilisation of crews and resources
- Provides our people with safer, fit-for-purpose facilities.

Building network resilience - Improving responsiveness & reliability

Networks communications ($25m)

- Telstra's 3G communications network will be progressively retired to make way for 5G technology
- In order to not lose our capability to remotely communicate with devices used to operate, control and monitor the network, and collect metering data, we must upgrade our infrastructure to be 4G and 5G compatible
- In addition, our radio network operates over frequency bands that are licensed by the Australian Communications and Media Authority (ACMA)
- ACMA advised we will lose some of our existing frequency licences to make way for new technologies that require an increase in bandwidth (such as 5G cellular)
- Consequently we must upgrade our current radio components to operate at a higher frequency.

Distribution feeders ($16m)

- Localised load growth continues to drive demand-related high voltage (HV) feeder investment throughout our network.
- Most of our forecast investment on our HV feeder network is targeted in western Melbourne and growth regions around Geelong and Ballarat
- These investments are all located in areas where existing network capacity is limited.

Transformer / air break switch replacements ($17m)

- We will replace one 66kV regulator and three zone substation transformers—two at Robinvale zone substation, and one at Warrnambool zone substation (cost in forecast period $10m)
- We have also commenced a program to progressively replace all HV air-break switches fitted with specific expulsion interrupters, and propose to continue these works over a 12 year cycle. Some of these switches can only be operated when de-energised, while other types cannot be operated at all (cost $7m)
- Replacing these switches will reduce the minutes off supply our customers experience due to planned outages.

Powercor AUSTRALIA

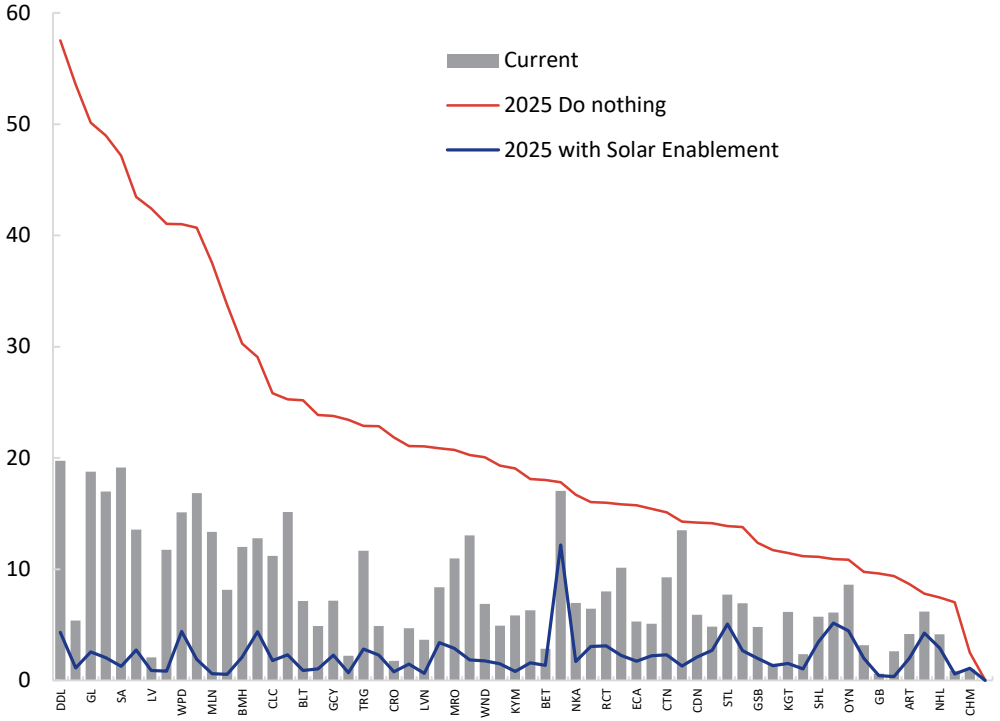
Offering flexibility

Solar enablement (Cost $61m, net benefit $77m)

- The proportion of customers with solar is expected to grow from 18% (133,401) in 2019 to 34% (288,928) by 2026
- Our proposal will allow most of our customers to connect at least a 5kVa solar PV system
- The investment will enable us to improve outcomes by unlocking over 95% of the 361GWh of solar exports that would otherwise be constrained annually
- The program is estimated to cost $61 million and generate a net benefit for all customers of $77 million
- Without this investment, customers serviced by almost half our zone substations will experience export constraints more than 20% of the time
- We will remove solar constraints where it is economic to do so – that is where the benefits to customers outweigh the costs – and assist customers where it is not. This responds directly to customer feedback which did not support the high cost of removing all constraints.

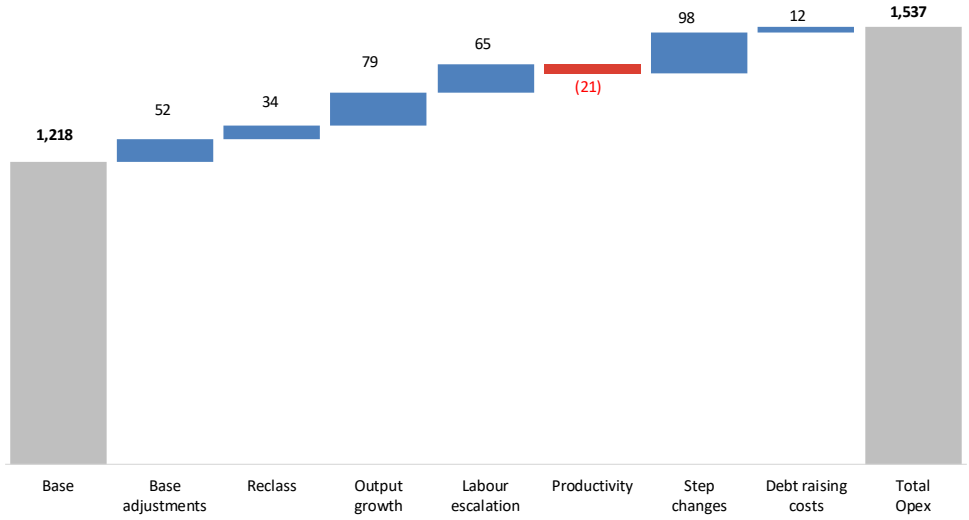
Solar capacity	By 2026
Increase MW	750
Increase %	120%

Powercor – percentage of time solar is constrained by zone substation

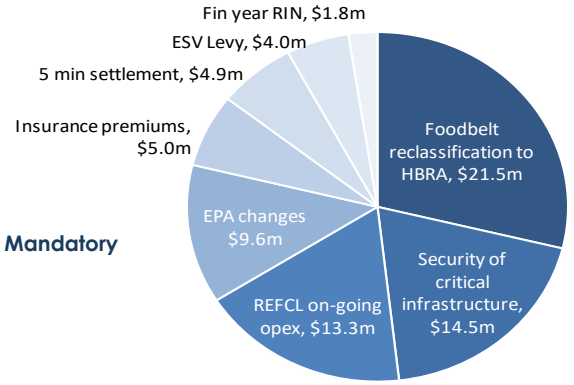


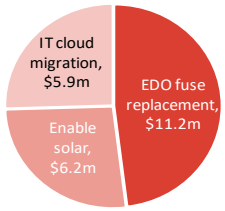
Operating Expenditure

Operating expenditure forecasting approach ($million, 2021)



Step changes ($million, 2021)

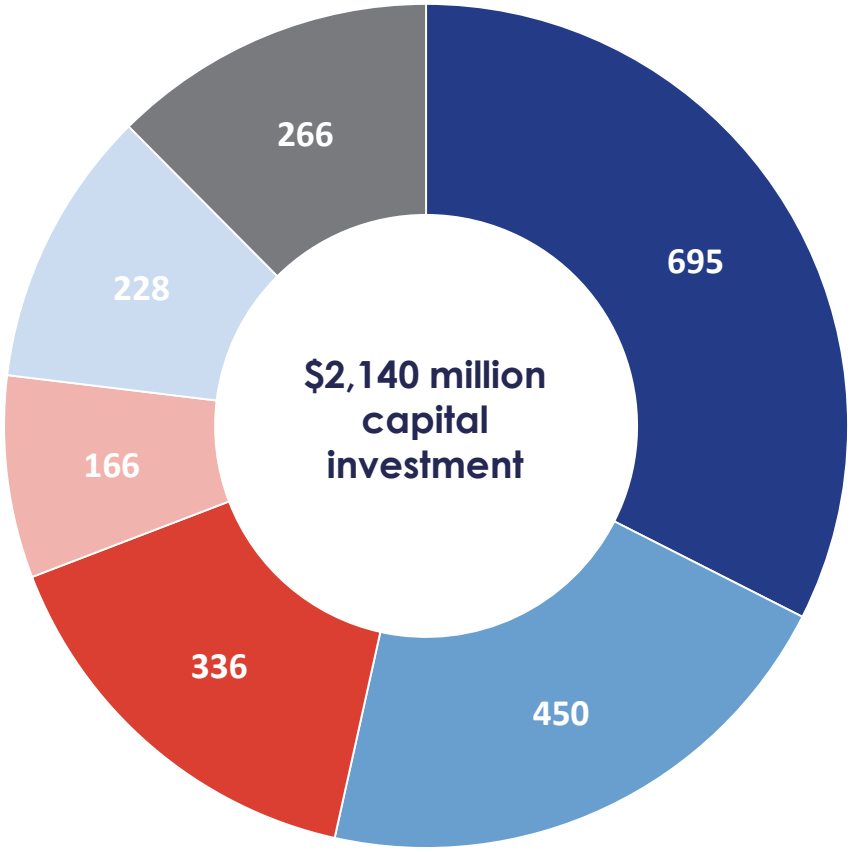




Step changes ($m, 2021)	
Mandatory	$75
Customer benefits	$23
Total	$98

- Our operating expenditure is the most efficient in the NEM and our operating expenditure per customer is the third lowest across the NEM
- As a frontier network, we have no contingency in our operations to absorb increasing costs from growing regulatory and service obligations, or material increases in the cost of complying with existing obligations
- We therefore need to account for increasing cost pressures from circumstances outside of our control through operating expenditure adjustments
- These obligations make up 76% of our adjustments. The remaining adjustments include solar enablement, IT cloud migration & EDO fuse replacement, which will deliver benefits for our customers
- The justification for these adjustments is provided in a series of business cases attached to our proposal
- We have applied the AER's pre-emptive productivity adjustment to our efficient base operating expenditure
- We have relied on independent experts to validate our output growth and labour escalation assumptions.

Capital Expenditure



- Replacement
- Augmentation
- Connections (net)
- IT and communications
- Non-network
- Overheads and equity raising costs

- Our replacement expenditure is driven by changes to our asset management and compliance obligations including wood poles (on average additional 6,200 pole interventions per year) and environment
- The major augmentation programs are: bushfire mitigation including the rollout of Rapid Earth Fire Current Limiters (REFCLs); and solar enablement
- We are required to ensure specific zone substations in our network are supported by REFCL technology by an April 2023 compliance deadline
- Our work in solar enablement is in line with customer feedback that we should be taking steps to prepare for a future driven by increased solar, batteries and electric vehicles.

United Energy

United Energy - Proposal Summary

Network proposal	Net capex	Opex	Proposed revenue 2021 - 2026	Revenue 2016 – 2020	Revenue % change	Proposed exc. mandated[1] 2021 - 2026	Revenue [2] 2016 – 2020	Revenue % change
United Energy	$1,219m	$798m	$2,091m	$2,160m	↓ - 3.2%	$1,989	$2,160m	↓ - 7.9%

- Our proposal assumes our current high rate of reliability > 99.99% will be sustained. This equates to power outages totalling an average of 44 minutes annually
- Capital expenditure has increased relative to history across all categories except connections. The expenditure increases are driven by changes to asset management and compliance obligations.
- Efficiencies in our operations mean we can offer increased investment while reducing costs to customers
- During the 2016-2020 period we achieved $233 million in savings and this is now passed on to customers.

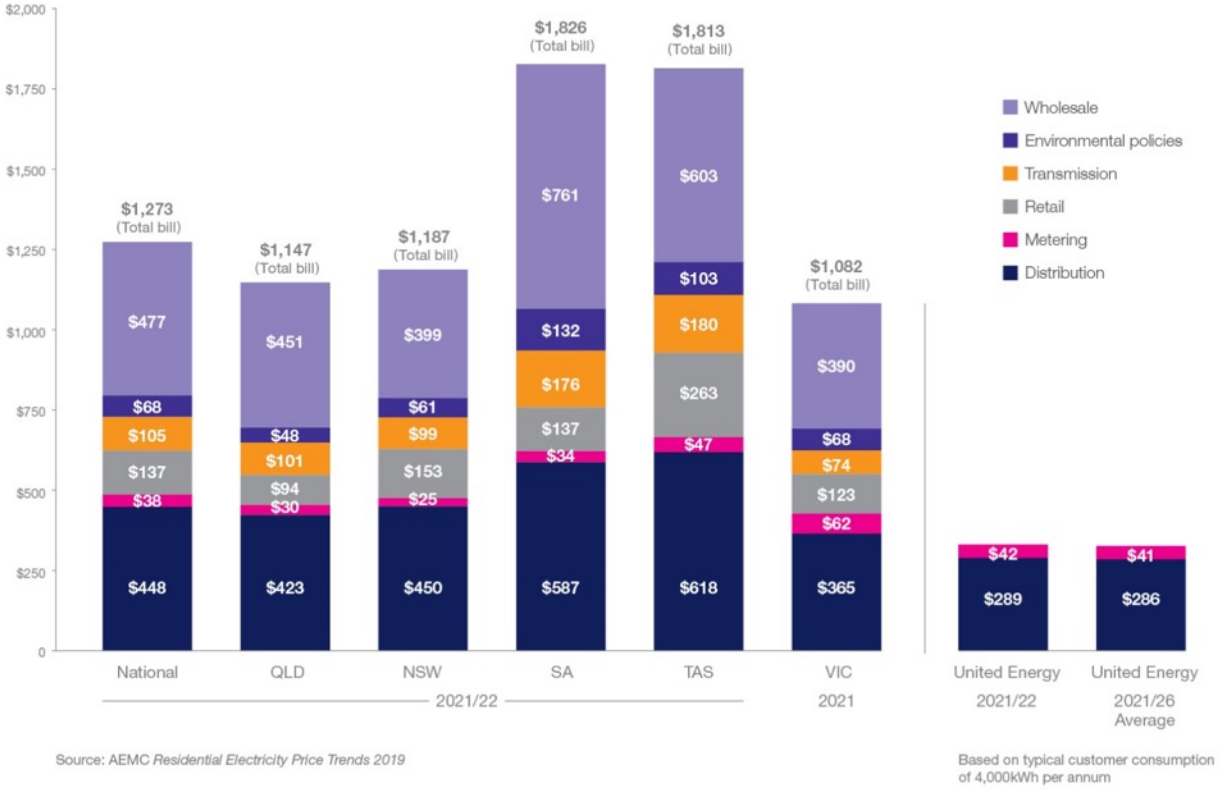
Delivering affordability: 14% real price decrease for households

We will continue to be one of the lowest cost distributors for residential charges through the period 2021 to 2026

Network Proposal	Price reduction - residential	Average charge - residential	Price reduction - small business
United Energy	↓ $54 (14%)	$327	↓ $238

Comparative household electricity bill composition 2021/22

Average component costs for all participants in the supply chain by state vs UE proposal



Source: AEMC *Residential Electricity Price Trends 2019*

Based on typical customer consumption of 4,000kWh per annum

Building network resilience - Key drivers

- **Residential growth** forecasts of more than 55,000 new customers over the 5 years
- Replacing or refurbishing **15,722 wood poles** ensuring the future resilience of our network
- Support for **major infrastructure** developments under Victoria's 'Big Build' such as the Suburban Rail Loop, North East Link and numerous road upgrades
- **Improving local service delivery** through upgrades to three depots
- **Online customer service** enhancement to meet expectations for near real-time information and opportunities for automated services
- Increased **environmental protection** to prevent waste and pollution impacts from zone substations with a focus on noise reduction and potential oil leaks.

Building network resilience - Preventing asset failure

Transformer / switchgear / service line replacements ($76m)

- Our asset management approach for zone substation transformers and switchgear is focused on the overall risk at the zone substation (rather than individual assets), and includes our use of relocatable transformers to reduce the duration of any major outages
- The increase in replacement volumes reflects the decline in health of some assets and the increasing consequences of asset failure over time
- We propose to undertake a proactive replacement of all PVC grey twisted and neutral screen lines types. We have preferred a proactive program on the basis it delivers lower failure costs which more than offsets the higher installations costs of the proactive program.

Zone substation and feeder upgrades ($41m)

- **Doncaster** ($6m) - as the level of energy at risk continues to grow, we intend to first establish a new feeder from our neighbouring Box Hill zone substation in 2020 which will defer the need for further investment until 2024. After 2024, a fourth transformer and two new feeders will be required at Doncaster to support future demand
- **Keysborough** ($7m) - our existing Keysborough zone substation comprises just a single transformer. As such, there is an increasingly high level of energy at risk hence we are adding an additional transformer
- **Mornington** ($7m) - our preferred network option to address growing population and increasing energy at risk includes the staggered installation of two new feeders, and the addition of a third transformer at Mornington zone substation
- **Malvern** ($8m) – as several of the feeders supplying this area are heavily utilised and forecast to be overloaded, the preferred network option is the installation of new feeder bays at East Malvern zone substation
- **HV feeders** ($13m) - we continually monitor our feeder capacity and apply an economic approach to balance the risk of overloads with affordability.

united energy

Building network resilience

Network communications $6m

- Telstra's 3G communications network will be progressively retired to make way for 5G technology
- We will lose our capability to remotely communicate with devices used to operate, control and monitor the network, and collect metering data
- We investigated several options including using other providers' 3G networks, and the targeted refurbishment of assets
- The preferred option is to upgrade our existing infrastructure to be 4G and 5G compatible.

Relocatable transformers

- Relocatable transformers are a risk mitigation measure that allows us to efficiently manage energy-at-risk across multiple sites with a single asset
- They also allow us to make prudent investment decisions as we may replace just one or two transformers (and defer replacement of others)
- Preparation works must be undertaken at at-risk zone substations before they can be used.

Supporting Victoria's "big build" Customer funded

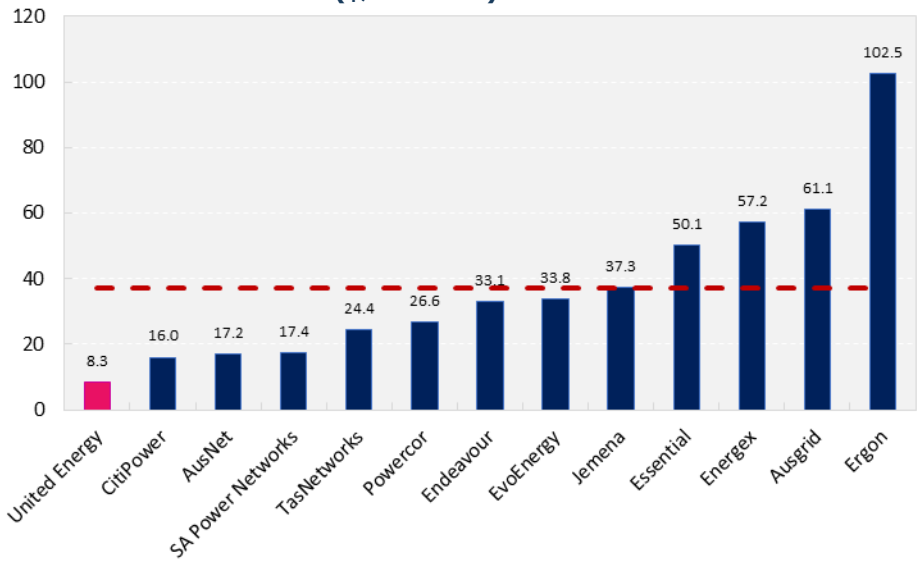
- **Suburban Rail** - we will provide supply for the construction and operation of the Box Hill-Burwood-Glen Waverley and the Monash-Clayton-Cheltenham tunnels
- **Lathams road** - we will relocate assets to support the widening of Lathams Road in Seaford
- **North East Link tunnel** - we will provide electricity supply for the construction of the tunnel
- ongoing **transport infrastructure development** - to increase power supply capacity from growing demand on tram and train routes
- **key public services development** - including the new Monash Heart Hospital.

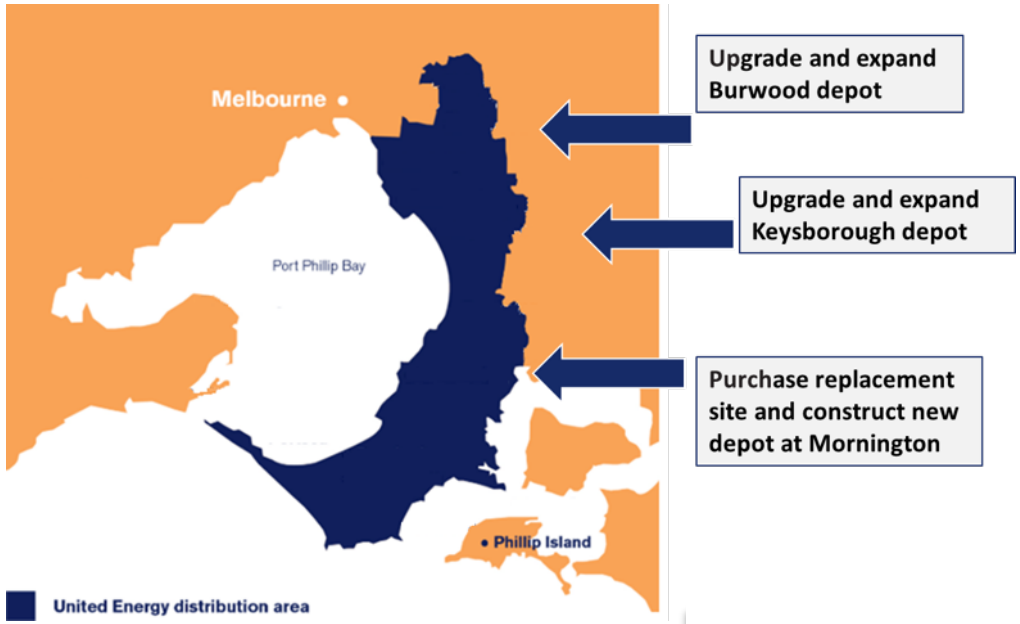
united energy

Building network resilience - Depot upgrades

- Our depot facilities will be upgraded at Burwood ($31m) and Keysborough ($22m), and replaced at Mornington ($16m)
- Since the acquisition of United Energy, we determined these depots were in a poor state of repair
- United Energy has had the lowest investment in property per customer in the NEM over the past 10 years
- Constraints will also be reached at these sites over the next regulatory period in terms of storage capacity and ability to service vehicles
- These logistical requirements are essential to continuing to deliver high standards of regional services to customers and for us to meet our legislated health and safety obligations to our employees.

Average property expenditure per customer (2009 – 2018) ($, nominal)





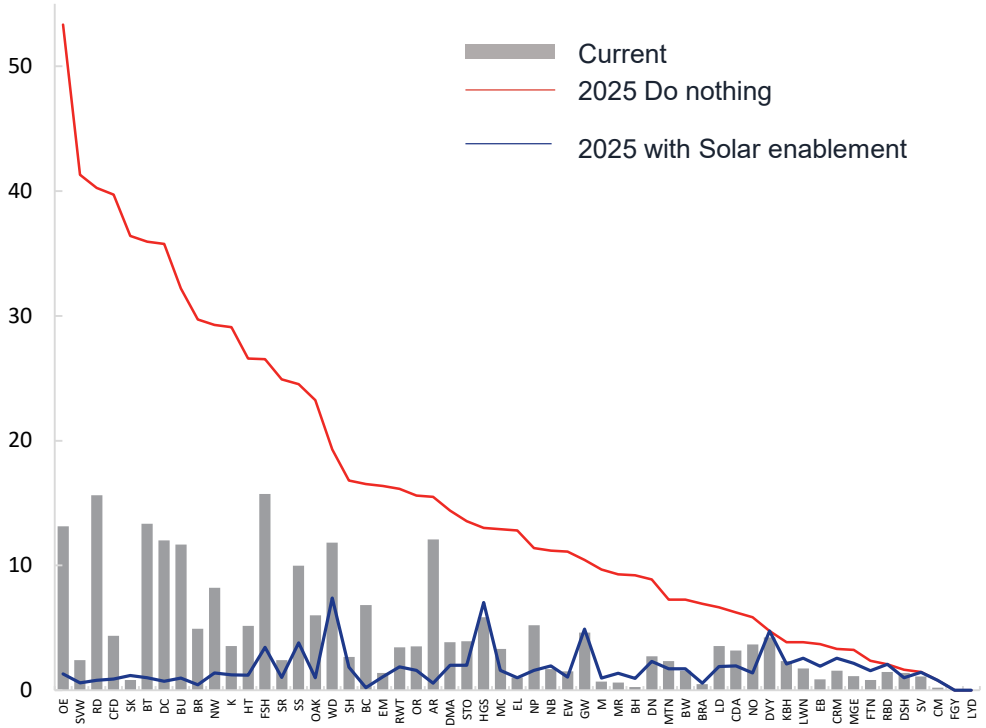
Offering flexibility

Solar enablement (Cost $42m, net benefit $73m)

- The proportion of customers with solar is expected to grow from 11% (75,053) in 2019 to 23% (163,766) by 2026
- Our proposal will allow our customers to connect at least a 5kVa solar PV system
- The investment will enable us to improve outcomes by unlocking over 95% of the 201GWh of solar exports that would otherwise be constrained annually
- The program is estimated to cost $42 million and generate a net benefit for all customers of $73 million
- Without this investment, customers serviced by almost a third of our zone substations will experience export constraints more than 20% of the time
- We will remove solar constraints where it is economic to do so – that is where the benefits to customers outweigh the costs – and assist customers where it is not. This responds directly to customer feedback which did not support the high cost of removing all constraints.

Solar capacity	By 2026
Increase MW	380
Increase %	140%

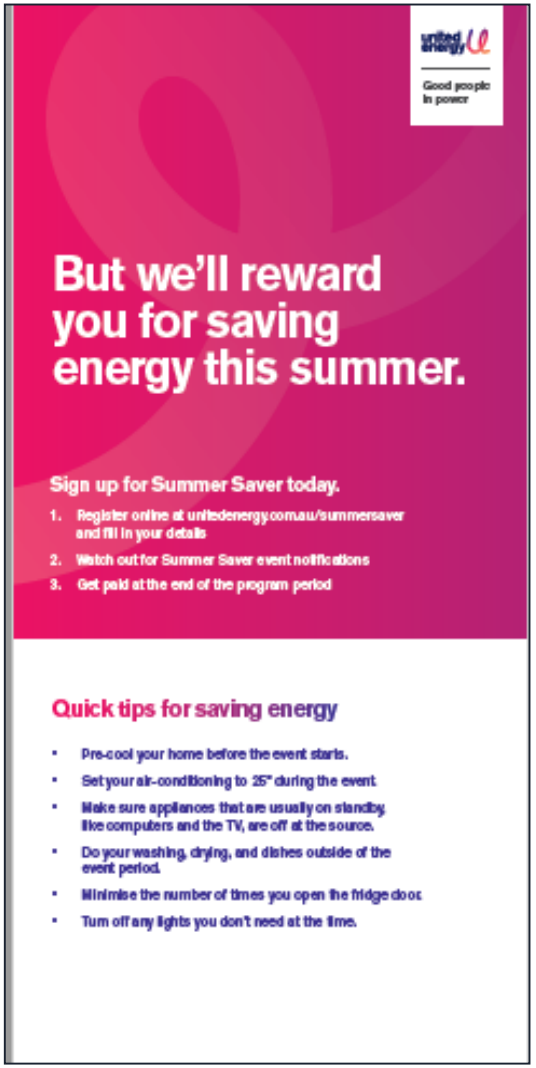
United Energy – percentage of time solar is constrained by zone substation



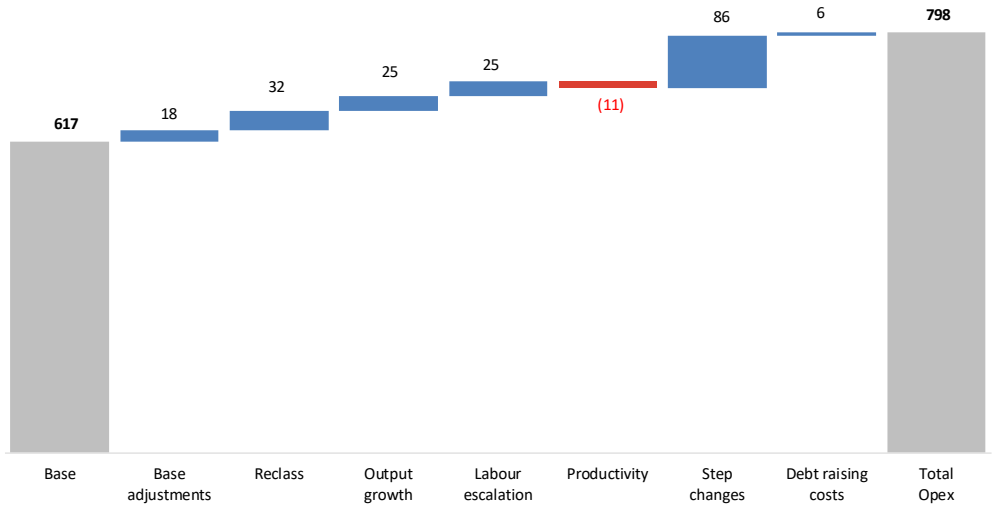
Offering flexibility

Demand management
Benefits $12m / Cost $9m

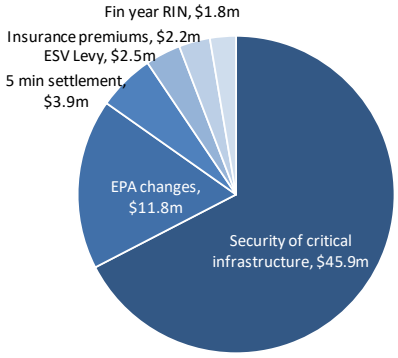
- Managing demand during peak periods in summer and winter relies both on our network planning and direct collaboration with customers
- We are proposing three demand management programs that will defer capital investment in United Energy:
  - Lower Mornington Peninsula demand management program to continue an already efficient deferral of capital investment in the area
  - HV feeder demand management program, which extends our successful 'Summer Saver' program
  - Cranbourne Terminal Station non-network solution to address growing demand together with AusNet Services.

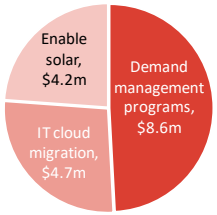


Operating Expenditure



Step changes ($million, 2021)



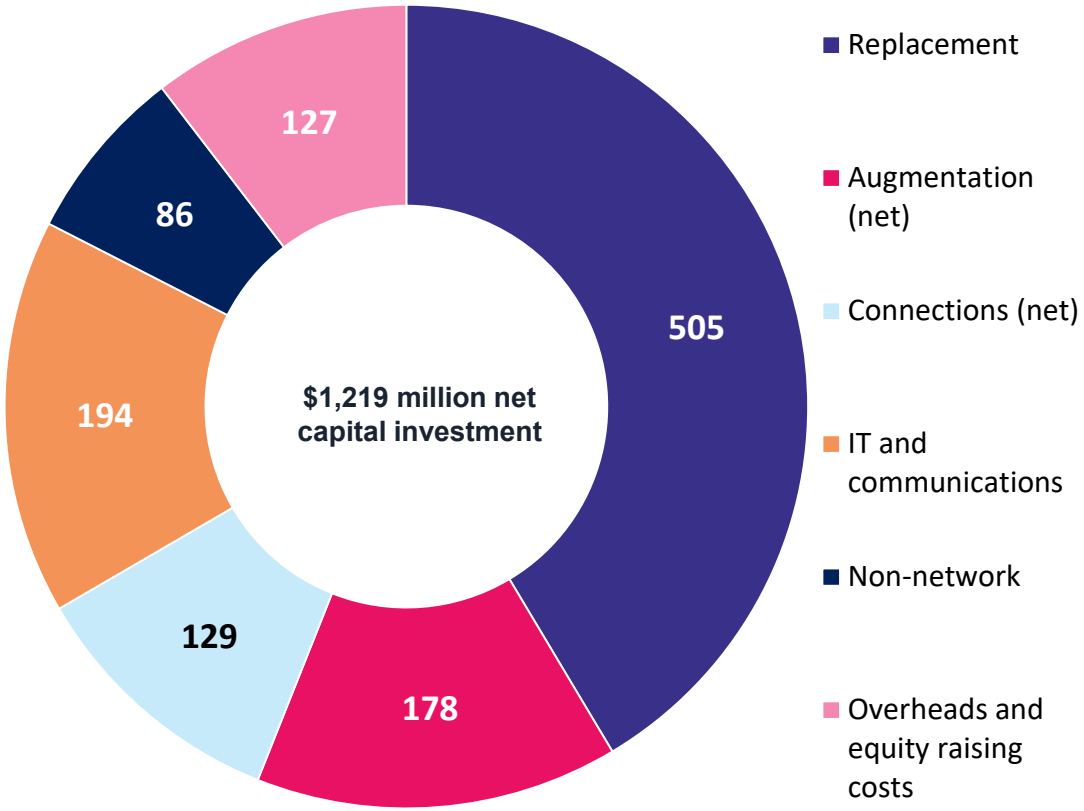


Customer benefits

Step changes ($m, 2021)	
Mandatory	$68
Customer benefits	$18
Total	$86

- Our operating expenditure is the third most efficient in the NEM and our operating expenditure per customer is the second lowest across the NEM
- As a frontier network, we have no contingency in our operations to absorb increasing costs from growing regulatory and service obligations, or material increases in the cost of complying with existing obligations. We therefore need to account for increasing cost pressures from circumstances outside of our control through operating expenditure adjustments
- These obligations make up 80% of our adjustments. The remaining adjustments include solar enablement, IT cloud migration and demand management programs, which will deliver benefits for our customers
- The justification for these adjustments is provided in a series of business cases attached to our proposal
- We have applied the AER's pre-emptive productivity adjustment to our efficient base operating expenditure
- We have relied on independent experts to validate our output growth and labour escalation assumptions

Capital Expenditure



- Our replacement expenditure is driven by changes to our asset management and compliance obligations including wood poles (on average additional 1,115 pole interventions per year) and environment, and the outcomes of our risk monetisation approach (transformer and switchgear replacements)
- Augmentation expenditure includes the targeted rollout of smart network devices at non AMI sites to support our digital network developments and solar enablement
- This is in line with customer feedback that we should be taking steps to prepare for a future driven by increased solar, batteries and electric vehicles
- Our recurrent expenditure on IT and communications is consistent with history reflecting our business as usual requirements. It includes expenditure focussed on cyber security and maintenance of our core IT systems
- Non-current expenditure includes new initiatives focussed on delivering customer benefits as well as new compliance obligations.

4. Shared programs

Efficiently implementing programs that build network resilience and offer flexibility for customers of all three networks

Customer enablement (Cost $89m, net benefit $25m)

- Our customer enablement program includes:
  - consolidating our online portals to provide an integrated customer experience (single username, password and interface)
  - improving customer access to data analytics and new applications to inform energy choices
  - improving the effectiveness and speed of SMS notifications during outages, solar output and exports
  - introducing new portals for United Energy
  - making all these tools available to high voltage customers and those with distributed energy resources including embedded generators
- Our customers will benefit through saved time and effort in accessing their information and receiving faster and more accurate notifications about outages and their solar rooftop systems.

Digital network (Cost $59m, net benefit $311m)

- The predicted take-up of new technologies and products by our customers creates the need for more advanced capability to monitor local power flows
- Digital network will allow us to manage the network efficiently in near real-time, enhance network safety and reduce network augmentation in order to lower customer bills
- It requires new network devices to provide real-time consumption and power quality information, new IT and communications, to:
  - **promote** the **uptake of new technologies** eg EVs
  - **optimise load control** of customer appliances
  - enhance **cost reflective pricing**
  - improve the **equity of energy usage**
  - proactively **manage asset failures**
  - **avoid replacement of low voltage fuses**
  - more accurately map and support **vulnerable customers**
  - keep **customers safe** - improving the way we identify loss of neutral at customers' homes.

Facilities security
CP $12m PAL $36m

- Security of our critical assets including zone substations, distribution assets and depots will be enhanced following an independent review by the Bell Rock group highlighting concerns of increasing theft and unauthorised access
- We will install new fencing, enhance monitoring measures such as installing anti-theft alarms and lighting, and establish a control room to proactively manage security alerts.

Security of critical infrastructure
CP $14m PAL $15m UE $46m

- In 2017, the Australian Government introduced a series of requirements to address national security risks related to critical infrastructure, including electricity distribution systems
- Specifically these requirements relate to system and data controls and require us to operate and maintain critical systems and data within Australia
- We will incur additional ongoing operational expenditure to comply with these obligations.

Intelligent engineering
Benefits $49m / Cost $14m

- We plan to leverage new technology to invest in our systems' accuracy and capabilities (their 'intelligence'), allowing our employees and the community to better manage their works
- For example, we will improve the accuracy of 'dial before you dig' to deliver improved safety outcomes, protect network assets when our customers perform works and save customers time (average annual applications 363k, customer time saved 97k hours)
- Improving our data management capabilities will also decrease network design planning timeframes, as more accurate data will allow us to automate processes, reduce network planning and design costs.

Transition to cloud
Benefits $24m / Cost $12m

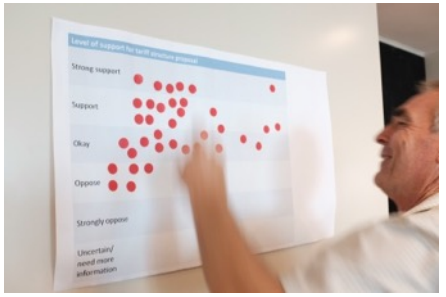
- We will migrate some of our existing ICT infrastructure to cloud-hosting
- This delivers savings to customers through a reduction in ICT capital expenditure which exceeds the increase in operating expenditure for cloud subscriptions
- Our proposed cloud migration also provides longer term benefits such as easy scalability and adaptability of our ICT environment to changing requirements, meaning customers will only pay for the capacity and services we need.

5. Tariff structure

Offering flexibility and choice to households and business customers

A collaborative approach to tariffs based on customer feedback

- For our household and small business customers we took a collaborative approach to engagement with the four other Victorian electricity distribution businesses and have proposed an aligned position
- We heard both support for change but calls for restraint in terms of the pace of change and to also look out for vulnerable customers
- We are mindful of the impact tariff structures have on our customers, as any change will make some customers better off and others worse off
- In developing our proposal, we embarked on an extensive consultation process with a wide range of stakeholders including all our customer segments, customer advocates, retailers and the Victorian Government
- Common residential and small business tariff structures across the State are preferred by all stakeholders to make pricing simpler and fairer for all Victorians.



Our proposed tariffs offer flexibility and choice

Households

- We will create a new two-rate time of use (ToU) tariff for households with a **3 pm to 9 pm every-day peak period**
- Any customer can **opt-in** to this **network tariff**
- New connections, customers who upgrade to three-phase power supply and customers who install solar PV will be **assigned** to this network tariff **by default**
- Any customer who has chosen or been assigned to this network tariff can **choose to move** to a single rate or demand network tariff.

Small business

- Have a shorter **peak window of 9 am to 9 pm**
- New connections, customers who upgrade to three-phase power supply and customers who install solar PV will be **assigned** to this network tariff **by default**
- We will also **move** customers **from** our **legacy ToU** tariff onto the **new default ToU** tariff.

Other

- For small business customers consuming **over 40MWh per year and less than 160MWh** per year, who are all already on a demand tariff, we are **not proposing any changes** to our tariff structures or assignment criteria
- For our large business customers using **over 160MWh** per year, we are **changing** the **time** we measure **demand** from all hours of the day to **8am to 8 pm** workdays.

Our stakeholders told us what is important to them in tariff design

Simplicity. Network prices should be readily understood by customers, retailers and stakeholders

Economic Efficiency. Customers face the correct price signals so that their consumption decisions reduce total network costs

Adaptability. Network pricing design should be capable of being applied to future network configurations and technologies

Affordability. Access to network services should be affordable, including for vulnerable customers

Equity. Each customer should pay a fair share of network costs

- At an initial household and small business public forum in November 2017, we heard how customers and stakeholders prioritised the objectives we should consider when developing tariff structures
- These five objectives provided a framework to determine how we designed our proposed household and small business tariff structures, and how we would assign and transition customers to tariffs
- It was recognised that no single tariff option can address all of these objectives, which means that we needed to consider trade-offs or compromises between objectives.

Effective tariffs need to reflect the changing needs of our customers

- Our costs, and therefore customers' bills, are influenced by the need to meet peak demand on the electricity network
- In most parts of Victoria peak demand occurs in the late afternoon on a very hot day when customers are using air-conditioners
- However, CitiPower can peak in the early afternoon, which must be taken into account when designing uniform tariffs across the State
- Our customers' usage profiles are changing. In future, peak demand will be affected by growth in air conditioners and other appliances, electric vehicles, solar PV, home batteries and new connections growth
- While single-rate tariff structures incentivise customers to decrease total usage, they do not specifically encourage customers to decrease usage at peak times
- By reducing growth in peak usage, we can reduce future network capacity requirements and put downward pressure on customer bills in the long-term
- By applying off-peak rates around midday when most solar is exported, solar customers have an incentive to reduce midday solar exports.

Tariff reform that supports our vulnerable customers

- Any change to tariff structures will mean that some customers are better off and some worse off
- We observed from our stakeholder engagement that the level of support for change depends materially on the outcomes for vulnerable customers
- Due to the difficulty in identifying vulnerable customers, we decided to adopt a more conservative assignment and reassignment policy to ensure that vulnerable customers would not be adversely affected by the proposed changes.
- A more gradual transition that focuses on readying customers for ToU over time and making incremental changes to peak periods was considered more palatable by a number of stakeholders
- This approach would also make moves toward cost-reflective tariffs in future, which are key to ensuring long-term peak demand is as efficient as possible.

6. Conclusion

Delivering more at a lower cost to customers

- Our proposal offers the right balance between investment and affordability
- It allows us to continue operating a safe and reliable network while further reducing network and metering charges
- Customers want and need affordability but did not support reducing services to reduce costs
- Our proposals demonstrate a commitment to improve service delivery and increase network investment to enhance and accommodate customer choices
- Our customers priority on a flexible network reflects their expectation that technology and options will rapidly expand
- This is evident by the forecast increase in installed solar on our networks as customers seek to lower energy bills, have greater energy independence and help the environment
- It is also reflected in their interest in access to data. Two-thirds of residential customers we consulted said they would use near real-time data to help reduce energy costs.
- We look forward to answering your questions regarding these proposals.