

# Repex Major Projects



## Final Negotiating Position for the Customer Forum

10 April 2019

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### 1. Purpose

This note sets out AusNet Services final negotiating position regarding major repex projects. Specifically, the note:

- Provides updated repex major project portfolio options reflecting our finalised forecasts of project scope and timing;
- Summarises the findings of further customer engagement and research undertaken since the release of our Draft Proposal in February 2019;
- Provides further information on the customers and assets connected to the repex major project zone substations; and
- Sets out our final negotiation position, taking account of the above information.

### 2. Final proposed repex major projects

AusNet Services has refreshed the economic modelling that underpins each major repex project, to reflect the latest available information including finalised project scopes, costings and forecasts. The changes to the proposed portfolio of repex major projects resulting from this process, which is undertaken as part of finalising all elements of our capex program, are summarised in Table 1. Further detail on these changes is provided on page six.

The preferred portfolio of major repex projects for the 2021-25 period has reduced from nine to seven zone substation rebuilds. Ranked in terms of timing, the zone substation refurbishment projects are at the Thomastown, Benalla, Bayswater, Maffra, Watsonia, Traralgon (Stage 2) and Warragul zone substations.

# Repex Major Projects



Table 1: Changes to the repex major project portfolio

Project	Draft Proposal		Final Proposal		Changes to project
	Total Cost (\$m 2020)	Timing	Total Cost (\$m 2020)	Timing	Changes to project
<b>Maffra</b>	\$16.5	2022	\$10.1	2022	Scope reduced - no longer includes transformer replacement
<b>Watsonia</b>	\$19.1	2023	\$13.6	2023	Scope reduced - no longer includes transformer replacement
<b>Bairnsdale</b>	\$5.9	2023	\$5.9	Before 2021	Brought forward to the current regulatory period to align with delivery of the REFCL program
<b>Newmerella</b>	\$5.4	2024	\$11.8	After 2025	The economic timing is now in 2026. This change principally reflects refinements to the demand forecasts used within the economic model. Scope increased to also include replacement of transformers
<b>Traralgon</b>	\$8.7	2023	\$8.7	2023	No change
<b>Thomastown</b>	\$14.6	2021	\$14.6	2021	No change
<b>Benalla</b>	\$8.2	2022	\$8.2	2022	No change
<b>Warragul</b>	\$11.3	2023	\$12.2	2023	Minor refinement of cost estimate
<b>Bayswater</b>	\$11.1	2022	\$11.1	2022	No change
<b>Total cost</b>	<b>\$100.8</b>		<b>\$96.2</b>		
<b>Total cost (2021-25)</b>	<b>\$100.8</b>		<b>\$78.5</b>		

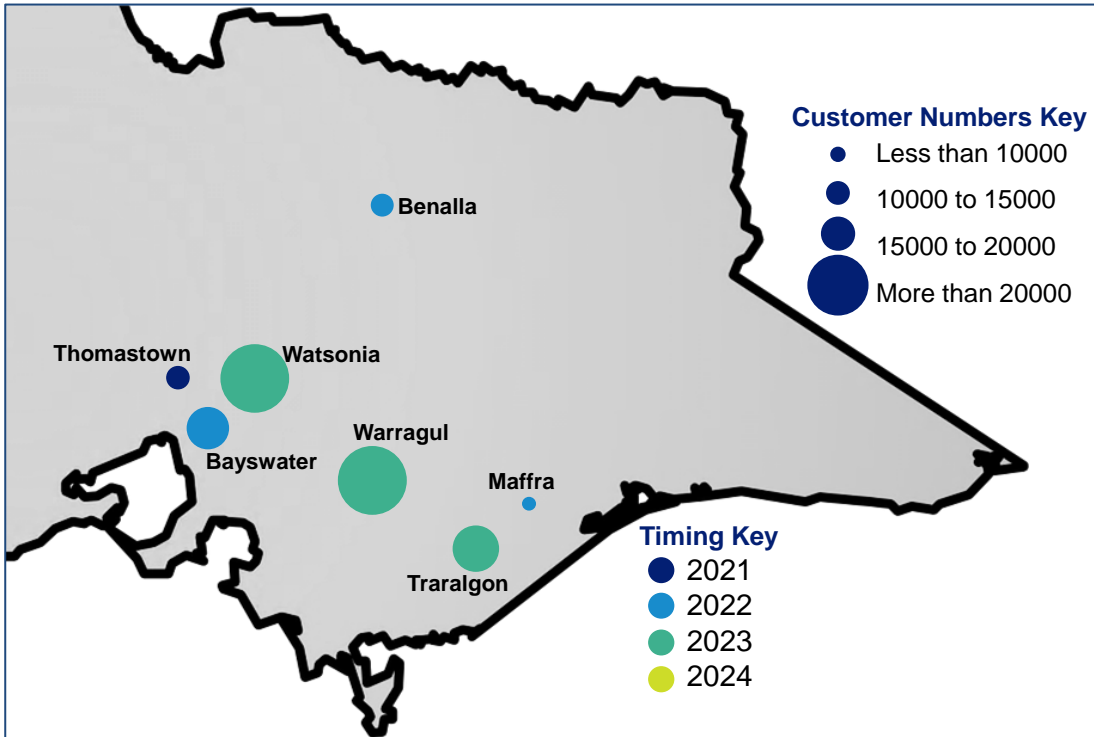
Note: Project timing refers to the year construction commences; costs shown are direct costs only (exclusive of overheads and escalation)

Reflecting these changes, AusNet Services' proposed major repex projects for negotiation with the Customer Forum are shown in the figure below.

# Repex Major Projects



Figure 1: Location of replacement expenditure major projects (zone substation refurbishments)



## 2. Final repex major project portfolios

Based on the above projects, AusNet Services has developed eight repex major project portfolio options for consideration by the Customer Forum. The eight options are defined in Table 2 below. The options previously presented to the Customer Forum in the October 2018 negotiation position note are also provided for comparison. With Newmerella now deferred to after 2025, Warragul and Traralgon are now considered the two lowest risk projects. The options therefore now include a new option that defers Warragul and Traralgon to after 2025 (option 8).

# Repex Major Projects



Table 2: Description of Repex Major Project Portfolio Options

	October 2018 negotiating position		Final negotiation position (April 2019)																																					
Option	Name	Description	Name	Description																																				
1	All projects commence 2021	The nine repex major projects all commence construction in 2021	All projects commence 2021	The seven repex major projects all commence construction in 2021.																																				
2	Proposed timing	<p>The proposed project timings are:</p> <table border="1"> <thead> <tr> <th>Project</th> <th>Timing</th> </tr> </thead> <tbody> <tr> <td>Thomastown</td> <td>2021</td> </tr> <tr> <td>Benalla</td> <td>2022</td> </tr> <tr> <td>Bayswater</td> <td>2022</td> </tr> <tr> <td>Maffra</td> <td>2022</td> </tr> <tr> <td>Traralgon Stage 2</td> <td>2023</td> </tr> <tr> <td>Watsonia</td> <td>2023</td> </tr> <tr> <td>Bairnsdale</td> <td>2023</td> </tr> <tr> <td>Warragul</td> <td>2023</td> </tr> <tr> <td>Newmerella</td> <td>2024</td> </tr> </tbody> </table>	Project	Timing	Thomastown	2021	Benalla	2022	Bayswater	2022	Maffra	2022	Traralgon Stage 2	2023	Watsonia	2023	Bairnsdale	2023	Warragul	2023	Newmerella	2024	Proposed timing	<p>The proposed project timings are:</p> <table border="1"> <thead> <tr> <th>Project</th> <th>Timing</th> </tr> </thead> <tbody> <tr> <td>Thomastown</td> <td>2021</td> </tr> <tr> <td>Benalla</td> <td>2022</td> </tr> <tr> <td>Bayswater</td> <td>2022</td> </tr> <tr> <td>Maffra</td> <td>2022</td> </tr> <tr> <td>Traralgon Stage 2</td> <td>2023</td> </tr> <tr> <td>Watsonia</td> <td>2023</td> </tr> <tr> <td>Warragul</td> <td>2023</td> </tr> </tbody> </table>	Project	Timing	Thomastown	2021	Benalla	2022	Bayswater	2022	Maffra	2022	Traralgon Stage 2	2023	Watsonia	2023	Warragul	2023
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3	Three lowest risk projects after 2025 + diesel generation	<p>The following three project are delayed after 2025:</p> <ul style="list-style-type: none"> <li>Bairnsdale</li> <li>Newmerella</li> <li>Warragul</li> </ul> <p>45MW of diesel generation is also installed to manage supply risk</p>	Lowest risk project deferred to after 2025 + diesel generation	Warragul is delayed to after 2025. Diesel generation is installed to manage supply risk.																																				
4	Three lowest risk projects after 2025	<p>The following three project are delayed after 2025:</p> <ul style="list-style-type: none"> <li>Bairnsdale</li> <li>Newmerella</li> <li>Warragul</li> </ul>	Lowest risk project deferred to after 2025	Warragul is delayed to after 2025.																																				

# Renex Major Projects



Option	October 2018 negotiating position		Final negotiation position (April 2019)	
	Name	Description	Name	Description
5	Defer all projects by 1 year	All timings shown in Option 2 delayed by one year.	Defer all projects by 1 year	All timings shown in Option 2 delayed by one year.
6	Defer all projects beyond 2025	All projects are deferred after 2025 and are assumed to commence in 2026.	Defer all projects beyond 2025	All projects are deferred after 2025 and are assumed to commence in 2026.
7			Alternative option developed for Customer Forum (reflected in Draft Proposal)	<ul style="list-style-type: none"> <li>Defer the Watsonia, Traralgon, Thomastown and Bayswater projects by one year</li> <li>Retain timings shown in Option 2 for Maffra, Benalla and Warragul</li> </ul>
8			Two lowest risk projects deferred to after 2025	<p>The following projects are delayed to after 2025:</p> <ul style="list-style-type: none"> <li>Warragul</li> <li>Traralgon</li> </ul>

Note: Project timing refers to the year construction commences.

# Repex Major Projects



The updated short-term and long-term price and reliability outcomes associated with each of the eight repex portfolios are presented in Table 3 on the following page.

As mentioned in section 2, AusNet Services has recently refreshed the economic modelling that underpins each major repex project. This refresh has involved the following key changes:

- Incorporated our newly developed, Victorian-wide best practice approach to quantifying safety risk;
- Updated the models to reflect more up-to-date winter forecasts of demand and energy, as well as updated information on asset condition;
- Ensured the project scope remains reflective of the most economically efficient solution; and
- Updated the expenditure forecasts to reflect any scope changes.

As a result of this refresh, the scope and cost of some projects has reduced, as shown in Table 1. This has reduced our proposed major projects repex for the 2021-25 period from \$101 million to \$78 million. While the finalised proposal would result in a higher level of supply risk during the 2021-25 period compared to the Draft Proposal (i.e. due to the lower number of projects and the reduced scopes for some projects), the dollar value of this higher supply risk is outweighed by the reduction in repex.

We consider this updated proposal addresses the feedback received from customer advocates that we ensure each individual project is economically justified, and that expenditure/risk trade-offs are made where possible. Importantly, the updated proposal goes further to addressing our customers' affordability concerns.

The changes described above have had implications for both the bill impact and the expected outage duration values. Specifically, the changes have:

- Reduced the customer bill impact of the proposed portfolio, in line with the reduced project scopes and costs; and
- Increased the expected outage duration of the proposed portfolio, reflecting the increased supply risk.

The "mean time to restore" (i.e. the time it takes to restore supply after an outage) underpinning the expected outage duration figures have also been increased (from 40 to 120 minutes), to align more closely with the assumption used in our economic model. This change has impacted both the total expected number of outages and the total expected outage duration for each option.

# Repex Major Projects



Table 3: Comparison of Repex Options – per total AusNet Services Customers

Option	Description	Total Capital Cost \$M (\$2020) <sup>2</sup>	Present Value (PV) Project Cost \$M	PV cost over 50 year asset life/customer <sup>3</sup>	Average annual cost per AusNet Services customer <sup>4</sup> (2021-25)	Total cost per AusNet Services customer <sup>4</sup> (2021-25)	Total expected no of outages (2021-25) <sup>5</sup>	Total expected outage duration (minutes per connected customer) (2021-25) <sup>5</sup>
1	All projects commence 2021	\$103.6	\$88.6	\$115.3	\$4.06	\$20.32	0.8	92.7
2	Proposed timing	\$106.0	\$86.6	\$112.1	\$2.57	\$12.84	1.3	158.7
3	Lowest risk project deferred to after 2025 + diesel generation	\$145.5	\$118.2	\$154.1	\$3.05	\$15.26	1.4	165.9
4	Lowest risk project deferred to after 2025	\$106.5	\$85.5	\$111.1	\$2.30	\$11.52	1.4	165.9
5	Defer all projects by 1 year	\$106.4	\$83.4	\$108.6	\$1.43	\$7.13	2.0	234.1
6	Deferral all projects beyond 2025	\$109.5	\$77.8	\$103.9	\$0.00	\$0.00	3.4	406.9
7	Alternative option developed for Customer Forum	\$106.8	\$85.3	\$110.6	\$1.87	\$9.35	1.8	216.9
8	Two lowest risk projects deferred to after 2025	\$106.8	\$84.8	\$110.4	\$2.12	\$10.59	1.5	182.7

**Notes:**

1. There will be an additional small operational cost for maintenance/testing of installed generators which has not been included in the cost approximations above.
2. The capital costs include labour escalation and overheads.
3. The PV of cost over the 50 year asset life represents the revenue associated with the projects (i.e. opex and return on and return of capital), in present value terms. The present value is the present day value of a future stream of payments. It relies on the idea of the time value of money – that one dollar in the present day is worth more than the same dollar at a future date.
4. The average annual cost per customer represents the revenue associated with the projects (i.e. opex and return on and return of capital) and is an annual average over 2021-25, expressed in nominal dollars. The total cost per customer is a five-year total of the average annual cost.
5. These outages will only be experienced by customers connected to these nine stations and the outage durations shown are only those related to zone substation plant expected outages. Note that average annual outage duration (or USAIDI) at the original nine project locations over the last 10 years is 252 minutes and reflects outages from a variety of causes (not just plant failure). The number of minutes in any year can vary significantly e.g. due to weather conditions. Option 2 (the proposed timing) is in line with current plant reliability.

# Repex Major Projects

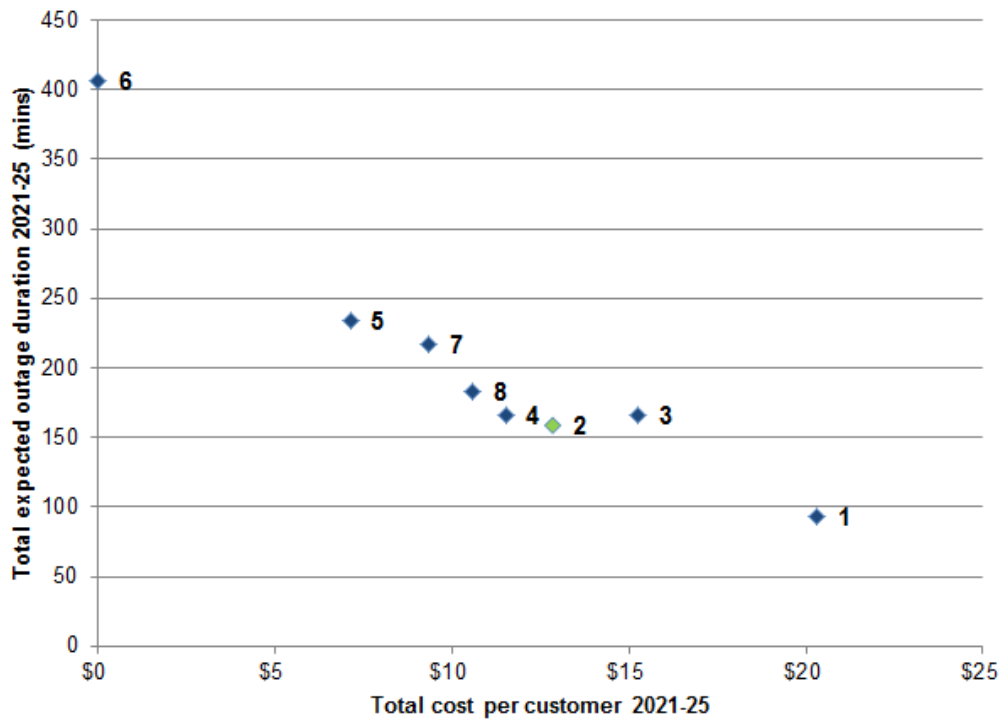


The cost of the six portfolios varies in present value (PV) terms from \$78m (Option 6 – deferring all projects beyond 2025) to \$118m (Option 3 – the lowest risk project after 2025 + diesel generation). The PV project cost of the preferred portfolio (Option 2) is \$86m. However, the eight portfolio options would have quite different reliability outcomes for customers.

The updated cost and reliability outcomes associated with each portfolio are plotted in the figures below. Outage duration and costs for customers are plotted both for the short term (2021-25) and the long term (over the life of the assets). As suggested by the AER,<sup>1</sup> we have presented the cost per customer as a five-year total, rather than an annual average, consistent with the values shown for expected outage duration.

## Short Term

**Figure 2: Price-Reliability Trade-Off of Repex Portfolio Options (cost versus outage duration) – Short Term 2021-25**



1. All projects commence 2021
2. Proposed timing
3. Lowest risk project (Warragul) deferred to after 2025 + diesel generation
4. Lowest risk project (Warragul) deferred to after 2025
5. Defer all projects by 1 year
6. Defer all projects beyond 2025
7. Alternative option developed for Customer Forum
8. Two lowest risk projects (Warragul + Traralgon) deferred to after 2025

<sup>1</sup> AER, *AusNet trial - AER staff guidance note 9*, p.26



# Repex Major Projects



Figure 2, which plots the cost and outage duration for 2021-25 shows that:

- The best reliability outcome is achieved by commencing all projects in 2021 (Option 1). However, this option would have a 58% higher total bill impact over 2021-25 relative to the optimal project timings (Option 2)
- Option 4 (deferring Warragul to after 2025) produces an outcome closest to that of the preferred portfolio (Option 2). The cost of Option 4 is 10% lower, but this option results in a poorer reliability outcome (166 minutes versus 159 minutes outage duration over 2021-25). Although the difference in the reliability outcome is not significant in the 2021-25 period, the reduced reliability would continue after 2025 up until the Warragul project is complete.
- Option 7 (defer the Watsonia, Traralgon, Thomastown and Bayswater projects by one year) and Option 8 (defer the Watsonia and Traralgon projects out of the period) would also deliver cost reductions of 27% and 18%, respectively, compared to Option 2. However, they would also lead to additional expected outage duration of between 24 and 58 minutes.
- Option 3 is capable of providing a similar reliability outcome to the preferred portfolio (Option 2), but at a 19% higher cost.

## Long Term

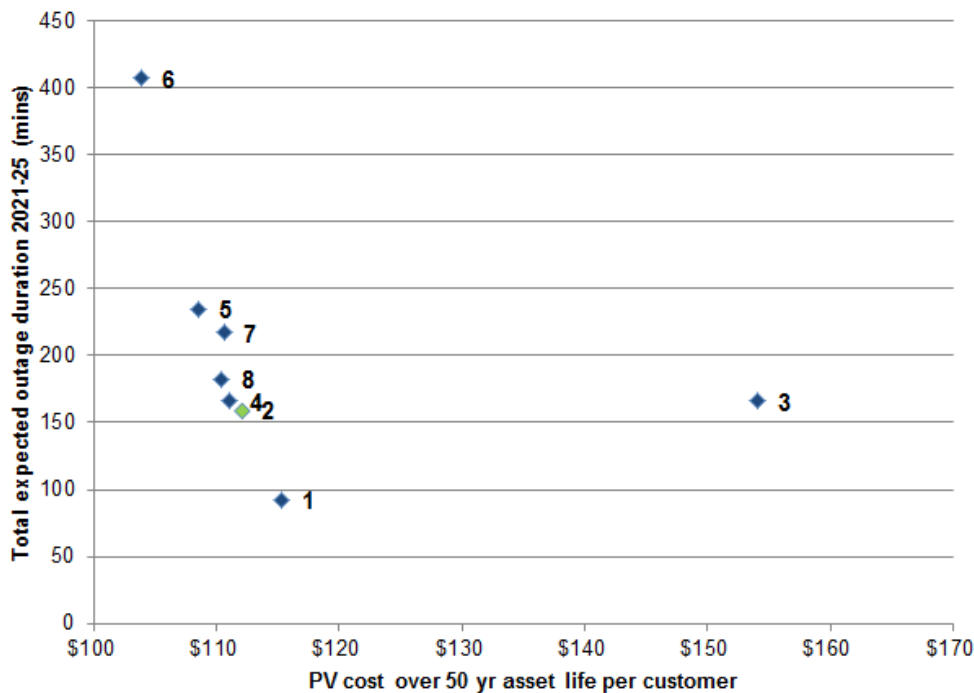
Figure 3, which plots the long term cost (the revenue associated with the projects in present value terms) and outage duration for 2021-25, shows that:

- Option 3 that defers the lowest risk project out of the 2021-25 period and uses diesel generators to maintain supply to customers has the highest cost over the long term;
- Portfolio options that defer the major projects have moderate impacts in terms of lower reliability, particularly Options 4 and 8; however
- Option 2, remains the preferred option in terms of cost and reliability outcomes in the long term.

# Repex Major Projects



Figure 3: Price-Reliability Trade-Off of Repex Portfolio Options - Long Term Life of Assets



- 1. All projects commence 2021
- 2. Proposed timing
- 3. Lowest risk project (Warragul) deferred to after 2025 + diesel generation
- 4. Lowest risk project (Warragul) deferred to after 2025
- 5. Defer all projects by 1 year
- 6. Defer all projects beyond 2025
- 7. Alternative option developed for Customer Forum
- 8. Two lowest risk projects (Warragul + Traralgon) deferred to after 2025

### 3. Further customer research and engagement undertaken in February / March 2019

#### March 12 repex workshop

On 12 March 2019, AusNet Services conducted a stakeholder workshop on its proposed major repex projects.<sup>2</sup> The workshop included discussion of the cost-benefit analysis we use to determine economic project timing, the various portfolios presented to the Customer Forum, the price/reliability trade-offs of these portfolios and the preliminary findings of the customer survey conducted in February/March 2019 (discussed further below).

The workshop attendees were unable to endorse a particular portfolio without further detailed information on the economic justification for the eight projects being proposed (e.g. how the various risks are quantified) and on how the price and reliability impacts had been calculated. We are in the process of providing this information to the attendees and/or highlighting where it will be provided within our regulatory submission.

Nonetheless, the workshop was instructive insofar as it revealed the nature and extent of the information stakeholders are expecting networks to provide during their consultation processes and in their regulatory submissions.

<sup>2</sup> The workshop also covered AusNet Services' proposed pole and conductor replacement programs for the 2021-25 regulatory period

# Repex Major Projects



## February / March customer survey

In February and March 2019, a survey was undertaken to establish, among other things, preferences regarding the timing of the major repex projects among customers who are supplied by the zone substations where the projects will take place. The survey covered approximately 500 customers across the residential (76%), business (17%) and farming (7%) customers segments.

In relation to customers' price and reliability trade-off preferences, the survey found that:<sup>3</sup>

- 95% of respondents considered it either quite important or very important that current reliability be maintained;
- Without having regard to cost, 87% of respondents considered we should be addressing the risk of reduced reliability in their location in the next five years to seven years;
- For residential customers:
  - 75% would prefer to pay an additional \$0.17-\$0.80 per annum during the next regulatory period to improve reliability in their location,<sup>4</sup> rather than face a 50% increased risk of power outages if the works were deferred and then pay a greater amount in 2026 and beyond
  - 70% would prefer to pay an additional \$0.80-\$3.38 per annum during the next regulatory period to improve reliability across all locations, rather than face a 50% increased risk of power outages if the works were deferred and then pay a greater amount in 2026 and beyond
- For business/farm customers:
  - 79% would prefer to pay an additional \$1.54-\$6.95 per annum during the next regulatory period to improve reliability in their location, rather than face a 50% increased risk of power outages if the works were deferred and then pay a greater amount in 2026 and beyond
  - 68% would prefer to pay an additional \$7.42-\$33.59 per annum during the next regulatory period to improve reliability across all location, rather than face a 50% increased risk of power outages if the works were deferred and then pay a greater amount in 2026 and beyond.

These findings indicate that the surveyed customers have a strong preference to maintain current reliability levels and are not willing to accept the lower reliability associated with project deferral, despite the bill reductions this would provide.

We acknowledge that the survey is not without limitations, including the statistical significance of the sample size, and the ability of respondents to fully understand the stated price increases in the context of changes in their overall energy costs. The survey also does not consider the views of customers outside the locations, who would be affected by the cost, but not the reliability, impacts of the projects.

The above findings could also be supplemented by further research into customers' willingness to pay (or preference to avoid) the full cost of the major repex project in their location, seeing as they are the sole beneficiaries of the project going ahead. While this scenario does not reflect the actual pricing arrangements through which the costs of the major repex projects are recovered, we agree with the AER<sup>5</sup> that it would be informative to gauge customer preferences under this alternative scenario.

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<sup>3</sup> Helen Bartley, *Major Replacement Projects Customer Survey Results - Prepared for AusNet Services Customer Forum*, March 2019, pp. 28-35

<sup>4</sup> By replacing a poor condition asset with a new asset, the major repex projects will improve local reliability. However, as reliability elsewhere on the network is expected to decline due to deteriorating assets that are not being replaced, overall reliability will be maintained. AusNet Services proposed repex major projects are therefore consistent with "a maintain case", in line with the Rules requirement that networks are funded through their expenditure allowances only to maintain current levels of reliability

<sup>5</sup> AER, *AusNet trial - AER staff guidance note 9*, p.26

# Repex Major Projects



Nonetheless, we consider the research findings set out above are indicative of customer price and reliability preference and, in the absence of location-specific VCRs in each zone substation location, are a useful and relevant source of information for the Customer Forum to have regard to in its negotiations with us.

## 4. Additional information on each zone substation location

We have compiled information on the customers in each of the seven zone substation locations that would be affected by the seven zone substation projects. This information is provided in Appendix B. As the Customer Forum has requested, we will seek to embed this type of information in future Distribution Annual Planning Reports (DAPR), as well as in the planning reports submitted to the AER as part of the EDPR process.

## 5. AusNet Services' final negotiation position

AusNet Services' final negotiation position for repex major projects is to:

- Deliver the seven major repex projects in line with the preferred timing shown under Option 2, consistent with:
  - The updated cost-benefit analysis we have undertaken for each project; and
  - Our customers' demonstrated preference that reliability be maintained during the 2021-25 regulatory period.
- Embed more customer-friendly information in future DAPRs and in the planning reports submitted to the AER as part of the EDPR process, similar to the information provided in Appendix B.

As noted in its guidance note,<sup>6</sup> the AER is currently conducting a review to determine updated VCRs for use in cost-benefit analysis. This review is expected to be finalised by 31 December 2019. To the extent the AER's updated VCRs are materially higher or lower than the VCRs currently relied upon, the economic timing of the projects may differ from the preferred timing set out in this note.

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<sup>6</sup> AER, *AusNet trial - AER staff guidance note 9*, p.26

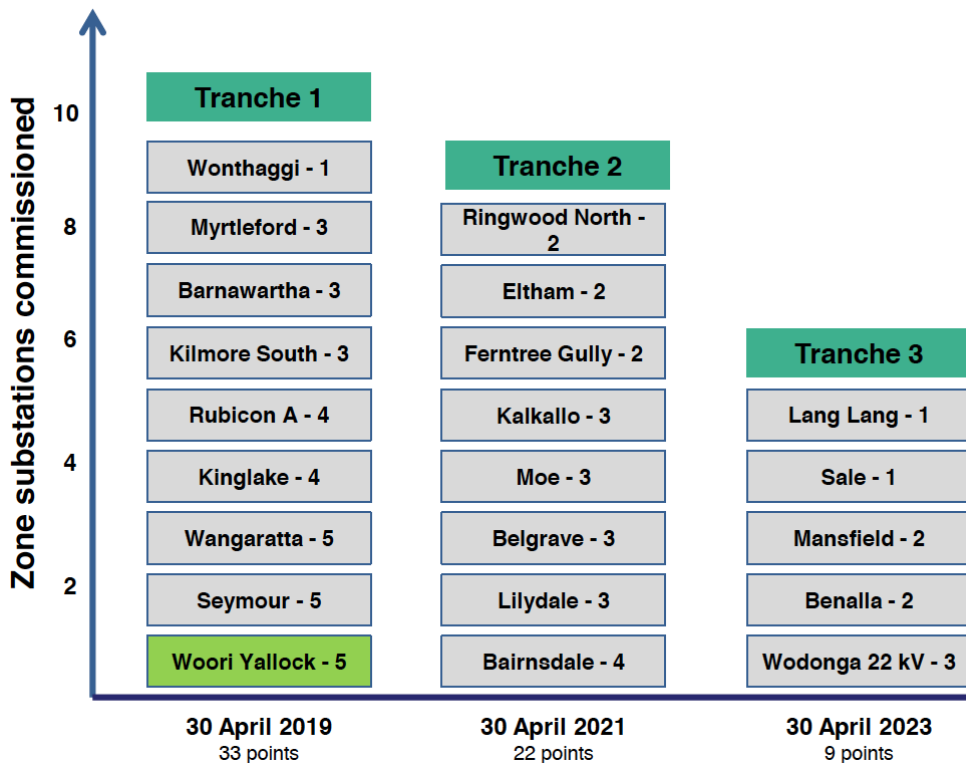
# Repex Major Projects



## Appendix A: Major repex projects impacted by the REFCL program

The Customer Forum sought confirmation of whether the timing of further major repex projects could be impacted by the REFCL program. The figure below shows the original scope and timelines for the REFCL program.

Figure A1: REFCL location and timing of implementation



As discussed previously with the Customer Forum, the Bairnsdale and Moe major repex projects have been brought forward to the 2016-20 regulatory period, in order to align asset replacement activities with the REFCL work required to meet the 30 April 2021 milestone shown in the figure above.

We can now confirm that the Benalla major repex zone substation is also impacted by the REFCL program. The scope of the Benalla project is to:

- Install a 22kV indoor switchboard and retire the existing 22kV switchyard; and
- Replace 66kV circuit breakers and 66kV line switches.

Both the 22kV and 66kV works are economically justified and, therefore, were originally intended to be delivered as a major repex project.<sup>7</sup> However, the 22kV works are now shown to be required for the REFCL program. The 66kV works are not required for the REFCL program. We now intend to deliver the 22kV and 66kV works as separate projects, but undertake them in parallel to maximise efficiencies. These developments mean that AusNet Services has no ability to vary the timing of the 22kV works, given its REFCL obligations. While the 66kV works could theoretically be deferred as a separate project, this approach would fail to achieve any project efficiencies and, therefore, increase the total cost to customers across the two projects.

<sup>7</sup> The costs of both the 22kV and 66kV works are, therefore, included in the project costs shown in Table 1.

# Repex Major Projects



## Appendix B: Information on customers in each zone substation location

This appendix provides additional information on customer characteristics for each zone substation including the mix of customers, socio-economic and health characteristics of households, and expected take up of solar. Information is also provided on SWER line connections to the major project zone substations.

### Bayswater

The Bayswater zone substation is located in the Knox Local Government Area (LGA).

#### Mix of customers:

There are 17,050 customers connected to Bayswater zone substation, 82% of which are residential. The remaining customers are classified as being either commercial (11%) or industrial (7%). Industrial customers consume the greatest share of energy (37%), closely followed by commercial customers (35%).

There are several major commercial customers connected to the Bayswater zone substation. The two largest are Fonterra Australia's dairy processing facility and Godfrey Hirst Carpets' manufacturing facility. In terms of electricity consumption, Fonterra is AusNet Services' 8<sup>th</sup> largest customer Godfrey Hirst Carpets a top 10 customer. Godfrey Hirst Carpets is the largest exporter of residential and commercial carpets in Australia and New Zealand and has a dedicated feeder connected to Bayswater.

#### Socio-economics characteristics of households:

Data from the Department of Health and Human Services<sup>8</sup> (from 2015) indicates that the level of relative socio-economic disadvantage within the Knox local government area (LGA) is low. The LGA has an IRSD score of 1,049, which is ranked at 68<sup>th</sup> highest score out of 79 and is above the Victorian average of 1,010.<sup>9</sup> Other socio-economic characteristics suggest lower levels of disadvantage including a lower proportion of low income families with children, the 10<sup>th</sup> highest median household income, strong employment and lower levels of rental stress.

In terms of health outcomes, Knox is ranked 9<sup>th</sup> out of 79 LGAs in Victoria for the percentage of population reporting asthma. There are 167 life support customers connected to the Bayswater zone substation.

#### Solar penetration:

Solar penetration is currently 12% and is expected to increase to 15% by 2025.

#### SWER lines:

There are no SWER lines as Bayswater is within the metropolitan region.

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<sup>8</sup> <https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles>. The lowest ranked community on the IRSD score at 1 is Greater Dandenong with an IRSD of 895, the average score is 1,100 and the highest score is 1,098 is shared by Booroondara and Nillumbik.

<sup>9</sup> The index of relative socio-economic disadvantage (IRSD) is a score derived from a range of Census variables considered to reflect levels of disadvantage, including income level, employment status and level of educational attainment. The average IRSD score across Australia is 1,000 and Victoria is 1,010 - lower scores indicate greater levels of relative disadvantage.

# Repex Major Projects



## Benalla

Benalla is in the Hume LGA.

### Mix of customers:

The Benalla zone substation has 12,183 customers connected. Two-thirds (67%) of customers are residential, followed by farms (23%), commercial (9%) and industrial (1%). Industrial customers are consuming the greatest amount of energy at 38%, commercial customers 22% of energy and residential customers 28% energy.

Our Large Customer Liaison has recently engaged with two large customers who rely on the Benalla zone substation. D&R Henderson is a particleboard manufacturer and sawmilling organisation and Australian Munitions (part of Thales Australia) is the largest supplier of explosive ordnance to the Australian Defence Force. D&R Henderson is a top 10 customer measured by consumption.

### Socio-economics characteristics of households:

Benalla has a lower socio-economic ranking based on the IRSD score. The score for Benalla is 957, ranking at number 16 (where the lowest ranked community on this score at 1 is Greater Dandenong with an IRSD of 895, the average score is 1,100 and the highest score is 1,098).

32% of all households are classified as experiencing rental stress and are spending more than 30% of their income on rental payments – this would be the 3<sup>rd</sup> highest percentage in Victoria. Unemployment rates and low income households are also comparatively higher in Benalla than the rest of the state. Notably, notifications of influenza per 100,000 people are the highest in the state.

There are 183 life support customers connected to the Benalla zone substation.

### Solar penetration:

Solar penetration is currently 22% and is expected to increase to 31% by 2025.

### SWER lines:

There is and 875 km of SWER line connected to the zone substation. This is the longest of the seven repex major projects.

## Maffra

### Mix of customers:

There are 8,417 customers connected to Maffra zone substation. The majority (65%) of these customers are residential. The mix of other customer types are farms (25%), commercial (8%) and industrial customers (2%). The farming customers consume the largest proportion of energy (31%), with the small number of industrial customers consuming 28% of total energy.

The largest customers connected to the zone substation are Australian Sustainable Hardwoods (ASH) and Saputo. ASH are a significant employer of the Heyfield township and one of AusNet Services' largest customers. The Saputo dairy processing facility purchases milk from 400 dairy farmers in the district and is highly sensitive to supply interruptions, including momentary outages. Saputo has a dedicated feeder from Maffra and is one of our top 10 largest customers.

# Repex Major Projects



## **Socio-economics characteristics of households:**

The Shire of Wellington is the LGA which includes the town of Maffra. Almost half (44%) of the households within Wellington are considered low income (income less than \$400 per week) and this contributes to the IRSD score of 974. Wellington ranks at 25 on this index (with 1 the lowest index and 79 the highest) and is below the index average of 1,010. Hence, this is an area of relative disadvantage.

The number of people receiving disability support services per 1,000 is the highest in the state and there are 94 life support customers connected to Maffra.

## **Solar penetration:**

Solar penetration is currently 24% and is expected to increase to 33% by 2025.

## **SWER lines:**

The length of SWER line connected to Maffra is 159km.

## **Thomastown**

### **Mix of customers:**

There are 14,163 customers connected to Thomastown zone substation, 85% of which are residential. The remaining customers are classified as being either commercial (12%) or industrial (3%). The commercial customers consume the greatest share of energy (52%), with residential and industrial customers consuming similar amounts at 26% and 22% respectively.

Thomastown zone substation supports industrial customers such as Turi Foods which is a food product supplier and Component Industries (part of Gospel Resource) which is a metal stamp manufacturer.

### **Socio-economics characteristics of households:**

The Thomastown zone substation is located in the Whittlesea LGA. Whilst the IRSD score and amount of low income households are similar to the state mean, the number of vulnerable customers within the Whittlesea LGA is potentially significant as it ranks highly in the state for unemployment levels (6<sup>th</sup>) and low English proficiency (6<sup>th</sup>).

In terms of health, Whittlesea is ranked 1<sup>st</sup> out of 79 LGAs in Victoria for the number of people who do not meet physical activity guidelines and there are 163 life support customers connected to the Thomastown zone substation.

### **Solar penetration:**

Solar penetration is currently 10% and is expected to increase to 13% by 2025.

### **SWER lines:**

There are also no SWER lines connected, since Thomastown is within the metropolitan region.



# Repex Major Projects



## Traralgon

### Mix of customers:

The Traralgon zone substation has 17,471 customers connected. 83% of the total customers are classified as residential, 8% commercial, 8% farms and 1% industrial. Residential customers consume 44% of the energy supplied, commercial customers 38% and industrial customers 10%.

Traralgon zone substation supplies power to a number of large customers such as Central Gippsland Water, Traralgon College, and La Trobe Regional Hospital.

### Socio-economics characteristics of households:

The Traralgon zone substation is located in the La Trobe LGA which ranks poorly in most of the key socio-economic indicators. The La Trobe IRSD score is 940 which would rank in the top 10 in the state for relative disadvantage.

The unemployment rate sits at 7.8% which ranks as the 7<sup>th</sup> highest in Victoria. The proportion of households experiencing rental stress and with low incomes are higher compared to the rest of the state.

In terms of health outcomes, the number of people reporting high blood pressure is the highest in the state. There are 201 life support customers connected to the zone substation.

### Solar penetration:

Solar penetration is currently 19% and is expected to increase to 25% by 2025.

### SWER lines:

There are 208km of SWER lines at Traralgon.

## Warragul

### Mix of customers:

There are 22,649 customers connected to Warragul zone substation, 78% of which are residential. The remainder are farms (14%), commercial (7%) or industrial customers (1%). Commercial customers consume the greatest share of energy (46%), with residential customers consuming 34% and industrial customers 6% of total energy.

Fonterra Australia is a major customer with another key manufacturing site connected at Warragul. Fonterra is AusNet Services' 8<sup>th</sup> largest customer in terms of consumption. They have a dedicated feeder connected to Warragul.

### Socio-economics characteristics of households:

The Warragul zone substation is located in the Baw Baw LGA. The socio-economic indicators suggest significant disadvantage in this area. In terms of the IRSD score, at 998 Baw Baw is ranked at 47 out of 79 and is below the state average score of 1,010. 28% of residents are affected by rental stress ranking within the top 20 in the state.

# Repex Major Projects



Baw Baw has the highest percentage of people over the age of 18 who are current smokers (30%) which dwarfs the state average of 13%. There are 301 life support customers connected to the Warragul zone substation, the highest number among the seven repex major project zone substations.

## **Solar penetration:**

Solar penetration is currently 19% and is expected to increase to 25% by 2025.

## **SWER lines:**

There are 219km of SWER lines at Warragul, the second longest among the major repex projects.

## **Watsonia**

### **Mix of customers:**

The Watsonia zone substation supplies the largest number of customers (23,647) of the seven zone substations. The overwhelming majority of these customers are residential (91%), with 8% commercial and 1% industrial. Consumption of total energy is distributed quite evenly. Commercial customers consume 49% and residential customers 46% of energy supply by the zone substation. Industrial customer consume 5%.

Watsonia zone substation supplies power to a number of large customers such as Greensborough Plaza, KDR Victoria (part of Yarra Trams), and La Trobe University.

### **Socio-economics characteristics of households:**

The Watsonia zone substation is located in the Banyule LGA. This appears to have a relatively higher socio-economic status. The IRSD score of 1047 ranks at number 67 out of 79 and is above the state average score of 1,010. The other key socio-economic characteristics of customers connected to the Watsonia zone substation indicate that they are generally better off in terms of income level, employment status and English proficiency.

In terms of health outcomes, Banyule is ranked in the top 10 in the state for people reporting arthritis and there are 276 life support customers connected to the Watsonia zone substation.

### **Solar penetration:**

Solar penetration is currently 13% and is expected to increase to 19% by 2025.

### **SWER lines:**

As Watsonia is within the metropolitan area, there are no SWER lines.

# Repex Major Projects



## Socio-economic summary

	IRSD <sup>10</sup>	Low income <sup>11</sup>	Rental stress <sup>12</sup>	Unemployment <sup>13</sup>	Low English proficiency <sup>14</sup>
<b>Victoria (average)</b>	<b>1010</b>	<b>39.9%</b>	<b>25.1%</b>	<b>6.3%</b>	<b>4.2%</b>
<b>Bayswater</b>	1049 (68)	37.8% (63)	24.1% (46)	5.0% (51)	2.8% (24)
<b>Benalla</b>	957 (16)	44.8% (22)	32.0% (3)	7.2% (20)	0.4% (56)
<b>Maffra</b>	974 (25)	44.0% (25)	26.4% (31)	5.2% (48)	0.4% (52)
<b>Newmerella</b>	958 (17)	47.0% (9)	29.6% (13)	6.7% (24)	0.4% (58)
<b>Thomastown</b>	989 (38)	42.8% (34)	29.8% (11)	7.9% (6)	7.8% (6)
<b>Traralgon</b>	940 (7)	45.2% (17)	28.9% (16)	7.8% (7)	1.0% (33)
<b>Warragul</b>	998 (47)	41.5% (41)	28.0% (18)	4.0% (63)	0.4% (57)
<b>Watsonia</b>	1047 (67)	36.9% (68)	22.7% (56)	4.8% (53)	2.8% (26)

<sup>10</sup> The index of relative socio-economic disadvantage (IRSD) is a score derived from a range of Census variables considered to reflect levels of disadvantage, including income level, employment status and level of educational attainment. The average IRSD score across Australia is 1000 and Victoria is 1010 - lower scores indicate greater levels of relative disadvantage.

<sup>11</sup> Income is the percentage of the population aged 15 and over with a gross individual income of less than \$400 per week.

<sup>12</sup> These are low income households (in the bottom 40% of income distribution) that spend more than 30% of income on rent payments.

<sup>13</sup> The percentage of the labour force (15 years or older who are either working or actively looking for work) which is unemployed.

<sup>14</sup> The percentage of the population who indicated in the 2011 Census they spoke English 'not well' or 'not at all'.

# Repex Major Projects



## Health Summary

	Asthma	Overweight	Life expectancy	Smoking	Other notable
<b>Victoria (average)</b>	10.9%	50.0%	M 80.3 F 84.4	13.1%	n/a
<b>Bayswater</b>	14.5% (9)	54.2%	M 79.7 (25) F 83.0 (62)	13.3% (44)	People reporting type 2 diabetes (12)
<b>Benalla</b>	11.6% (35)	54.9%	M 78.4 (51) F 83.2 (60)	14.6% (36)	Notifications of influenza per 100,000 (1)
<b>Maffra</b>	14.4% (10)	54.1%	M 78.0 (59) F 83.1 (61)	14.8% (33)	People receiving disability services support per 1,000 population (1)
<b>Newmerella</b>	13.0% (21)	54.4%	M 78.4 (51) F 83.3 (59)	11.8% (58)	Cancer incidence per 1,000 population (6)
<b>Thomastown</b>	10.2% (51)	55.7%	M 80.2 (17) F 84.6 (20)	15.1% (31)	People who do not meet physical activity guidelines (1)
<b>Traralgon</b>	9.8% (58)	58.6%	M 76.9 (71) F 82.2 (75)	24.4% (4)	People reporting high blood pressure (1)
<b>Warragul</b>	8.0% (74)	52.7%	M 78.5 (48) F 83.8 (40)	29.7% (1)	People reporting being pre-obese (5)
<b>Watsonia</b>	11.1% (39)	49.3%	M 80.6 (12) F 84.2 (28)	8.6% (73)	People reporting arthritis (8)