2023-27 Revenue Proposal second cut forecast

Revenue Proposal Reference Group (RPRG)

30 April 2020

Apologies, minutes and actions

Matthew Myers

Actions from previous RPRG meetings

Action	Response
Provide information about the resource intensity of bottom-up assessments.	• On average, there are approximately 200 hours spent on each 'bottom up' project forecast for the Revenue Proposal. This includes planning analysis, condition assessments, scopes, estimates and management review. • Our aim is to complete ~60-70% of the total capex forecast in dollar terms.
Estimate wholesale/generation costs to customers during network constraint events related to the Market Impact Component (MIC) of the STPIS.	• Powerlink cannot estimate this amount, due to the range of factors involved which Powerlink has no visibility of. For example, it would depend on the hedge contracts between generators and retailers, plus whether generators have priced this constraint risk into those hedge contracts.
Share initial work Powerlink has done to identify step changes (e.g. list of all potential changes).	• An list is being prepared for distribution to the RPRG.
Clarify whether the RAB includes easements in National Parks.	• Where a National Park is extended over an existing easement, these easements remain in the RAB.

Actions from previous RPRG meetings

Action	Response
Provide information about the AER's methodology for assessing prudency and efficiency of cyber security spend (AER action)	The following response is from the AER: • Consistent with Expenditure Assessment Guideline, for an opex step change related to cyber security we would assess whether this is being driven by a new obligation. Our hurdle for this is that generally we would expect there to be an actual new obligation that has come into effect which will impact on a business over the next regulatory control period. This should impose new requirements on a business that are not included in base year expenditure. • We are aware that AEMO and COAG EC are currently considering new obligations / requirements for the sector, but that these are not yet in place and have not been formalised. • Where there are clear cyber security requirements in place, we would also assess the basis for the associated cost estimate and test its efficiency. Consistent with the way we assess capex projects, we would examine the business' approach to meeting the requirements, including any supporting strategies or how it fits within the businesses general planning processes. We would examine what options have been considered to meet these requirements, how the costs (and if relevant benefits) associated with these options have been determined and the least cost option established. • As with all step changes, we would expect any cost increases associated with cyber security to be material. • We are currently assessing the SA Power Network's cyber security step change proposal for the final decision (due to be released in April 2020). This was a new step change included in the revised proposal and was not considered in the draft decision.

Cut 2 Forecast

Matthew Myers

NOTE ON FIGURES

All figures presented are preliminary and indicative only.

They do not represent Powerlink's final position.

Purpose of today's session

- Provide an updated (Cut 2) forecast for Powerlink's 2023-27 Revenue Proposal. This forecast builds on the initial (Cut 1) forecast provided in December 2019.
- Gather input on Powerlink's Cut 2 forecasts for capex, opex, Maximum Allowed Revenue (MAR) and Regulated Asset Base (RAB).
- This will inform Cut 3, which will be the forecast used for our Preliminary Position and Forecasts Paper (PPFP) in July 2020.
- This will enable further engagement both within Powerlink and externally about potential challenges and opportunities.
- **Cut 2 is primarily a top-down forecast, based on a wide range of parameters and assumptions.**
- This initial forecast presentation should be read in conjunction with the explanatory "Key Inputs and Assumptions" sheet.

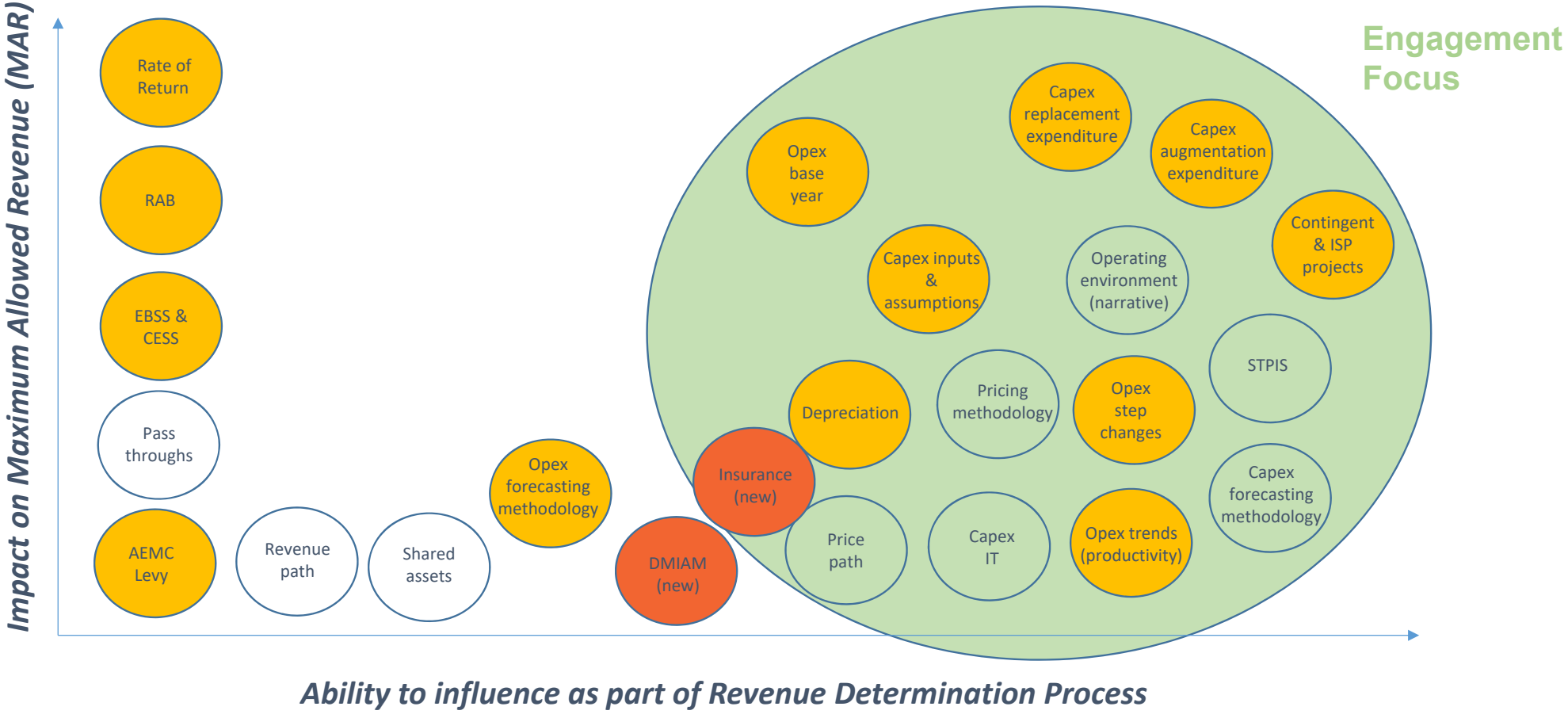
Feedback and response from the 1st cut forecast

Customer panel question	Powerlink response
Why has Powerlink has taken a 2% inflation forecast vs. using the AER methodology to determine inflation? What does this mean for MAR?	• We have used the AER's inflation methodology for Cut 2, which results in inflation of 2.33%. • The RoR, MAR and RAB section of this presentation has a detailed slide regarding inflation and impacts to MAR, which responds further to this question.
What is the level of 'bottom up' vs. 'top down' forecasting in the capex Hybrid + model, and how much 'bottom up' will be done before release of the Preliminary Position and Forecasts Paper (PPFP) in July 2020?	• We are targeting ~60% of forecast network capital expenditure supported by 'bottom up' information. This includes condition assessment reports, planning analysis of options, project scopes and estimates, risk/cost analysis etc. • We plan to have around half of this work completed by the time of PPFP in July 2020.
What opex productivity target will Powerlink set as part of the trend and will it target higher productivity than the industry average?	• We are currently targeting 0.14% productivity. This is the TNSP industry trend based on November 2019 data, and is consistent with the AER's current approach to calculating productivity.

Feedback and response from the 1st cut forecast

Customer panel question	Powerlink response
What is Powerlink's opex performance within the current period?	• Powerlink is forecasting to be within the AER's allowance for the current period. • COVID-19 will impact opex delivery. We have not forecast these impacts.
What legislative/regulatory uncertainties exist and how are you addressing these?	• Powerlink's *Business Narrative* document provides a high-level outline of some of the regulatory and policy uncertainties in the current environment and how Powerlink takes account of these.
How much might revenues/prices increase if Powerlink applied the same WACC as the current period to the forecast for 2023-27?	• If WACC for our current regulatory period (~6%) was applied to Cut 2, MAR would be ~$620m higher. • This would equate to an ~$11 price increase for average residential customers in 2022-23.

What engagement elements does Cut 2 include?



Impact of COVID-19

- COVID-19 is impacting our current regulatory period and may impact our next regulatory period. We have not tried to forecast or anticipate potential impacts of COVID-19 within this forecast.

- From a Revenue Proposal perspective, these impacts could include but are not limited to:

    - lower demand and energy – potential impacts to timing of projects (including ISP projects) and network utilisation;
    - capex – deferral of capex in the current year and the potential knock-on effect of this in future years;
    - opex – use of year 3 (19/20) as the base year, impacts on rate of change elements (e.g. output growth and productivity);
    - insurance premiums – potential further upward pressure;
    - incentive scheme performance – EBSS, CESS and STPIS;
    - benchmarking; and
    - ability to effectively engage, both within the business and externally, on the Revenue Proposal.

- The short- and long-term potential impacts of COVID-19 remain too uncertain to appropriately forecast now. Powerlink will undertake this work once these impacts are better understood.

High level overview

What's changed since the 1st cut in Dec 19?

Topic	Key changes
Capex	• This is the **very first view** based on the Repex Model and provides a 'top down' forecast of reinvestment expenditure based on the RIN data submitted to the AER in October 2019. Cut 1 was based on Powerlink's Transmission Annual Planning Report (TAPR) June 2019. • Minor augex to address emerging issues related to declining system strength and declining minimum demand. • Several contingent projects removed based on current thinking. • Capex 'range' has been removed and a single forecast is now being presented.
Opex	• Step changes have been included in Cut 2. • Output growth parameter has been updated to include impacts of the QNI Minor project on energy throughput and maximum demand, as well as impacts from potential decommissioning of some transmission lines. • Opex 'range' has been removed and a single forecast is now being presented.
RAB/RoR/MAR	• Inflation forecast of 2.33% is now being used, per the AER's methodology. • Cost of debt updated to reflect Powerlink's most recent prevailing interest rate and assume this remains unchanged for the 23-27 regulatory period, resulting a RoR forecast of 4.51% to 4.05% over the 23-27 regulatory period (base case). • MAR is lower by ~$211m (6%) in the central case for Cut 2.
Incentive schemes	• No change to CESS (-$2m) / EBSS (-$23m) from Cut 1.

Cut 2 – high level overview

All figures are preliminary

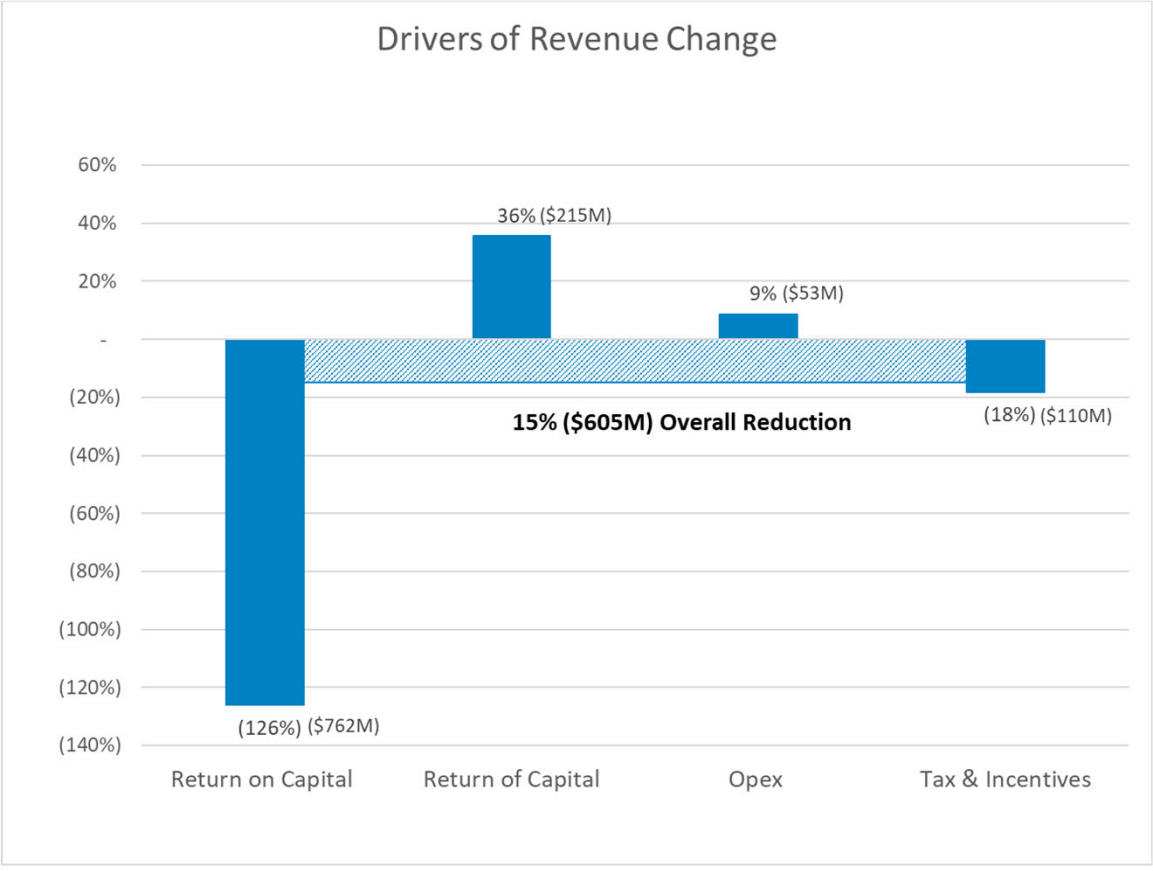
Key component	AER Allowance 2018-22	Dec 19 1st cut forecast 2023-27	Difference $ and % (1st cut vs. AER allowance)	April 20 2nd cut forecast 2023-27	Difference $ and % (1st cut 'central case' vs. 2nd cut)	Difference $ and % (2nd cut vs. AER allowance)
Maximum Allowed Revenue (MAR)	$4,034.6	$3,533.6 – $3,844.9	Low ($501.0) – High ($189.7) Low (12.4%) – High (4.7%)	$3,323.7 - $3,597.4	Low ($209.9) – High ($247.5) Low (6.3%) – High (6.9%)	Low ($710.9) – High ($437.2) Low (17.6%) – High (10.8%)
Rate of Return (RoR)	~6%	4.3% – 5.0%	$ is N/A (1.7%) – (1.0%)	4.3% - 4.8%	$ is N/A (0.0%) – (0.2%)	$ is N/A (1.7%) – (1.2%)
Opening Regulated Asset Base (RAB)	$7,684.9 (2017/18)	$6,469.5 – $6,792.6 (2026/27)	($1,215.5) – ($892.4) (15.8%) – (11.6%)	$6,778.9 (2026/27)	$272.8 4.0%	($906.0) (11.8%)
Opex	$1,074.9	$1,087.7 – $1,109.7	$12.8 – $34.8 1.2% – 3.2%	$1,132.1	$33.4 3.0%	$57.2 5.3%
Capex	$916.6	$942.1 – $1,274.7	$25.5 – $358.1 2.8% – 39.0%	$1,299.1	$217.8 20.2%	$382.5 41.7%

Notes:

- *The AER allowance 2018-22 figures in this table have not been updated since the December 2019 Cut 1 (e.g. for inflation), to enable comparison with the original Cut 1 forecast. Some figures may not align to comparisons later in this presentation due to updated inflation figures and rounding.*
- *All figures are in $m (2021/22 real) and are for the full five-year regulatory period.*
- *No opex step changes were assumed in Cut 1.*
- *RoR / Weighted Average Cost of Capital (WACC) is nominal vanilla.*

Drivers of MAR change

All figures are preliminary



Revenue for 2023-27 regulatory period is forecast to decrease by ~15% ($605m) compared to the current regulatory period. The key contributors are:

- Return on Capital is lower by $762m due to lower RoR caused by the low risk free rate environment.
- Return of Capital is $215m higher, primarily driven by higher overall capital expenditure.
- Opex is $53m higher, primarily driven by potential step changes and increases in insurance premiums and the AEMC Levy.
- Tax and Incentives are $110m lower, causing 18% of the reduction due to the change in estimating taxation as a result of the 2018 AER's Tax Review and a forecast EBSS penalty.

Notes:

- *Based on RoR 'central' scenario for Cut 2.*

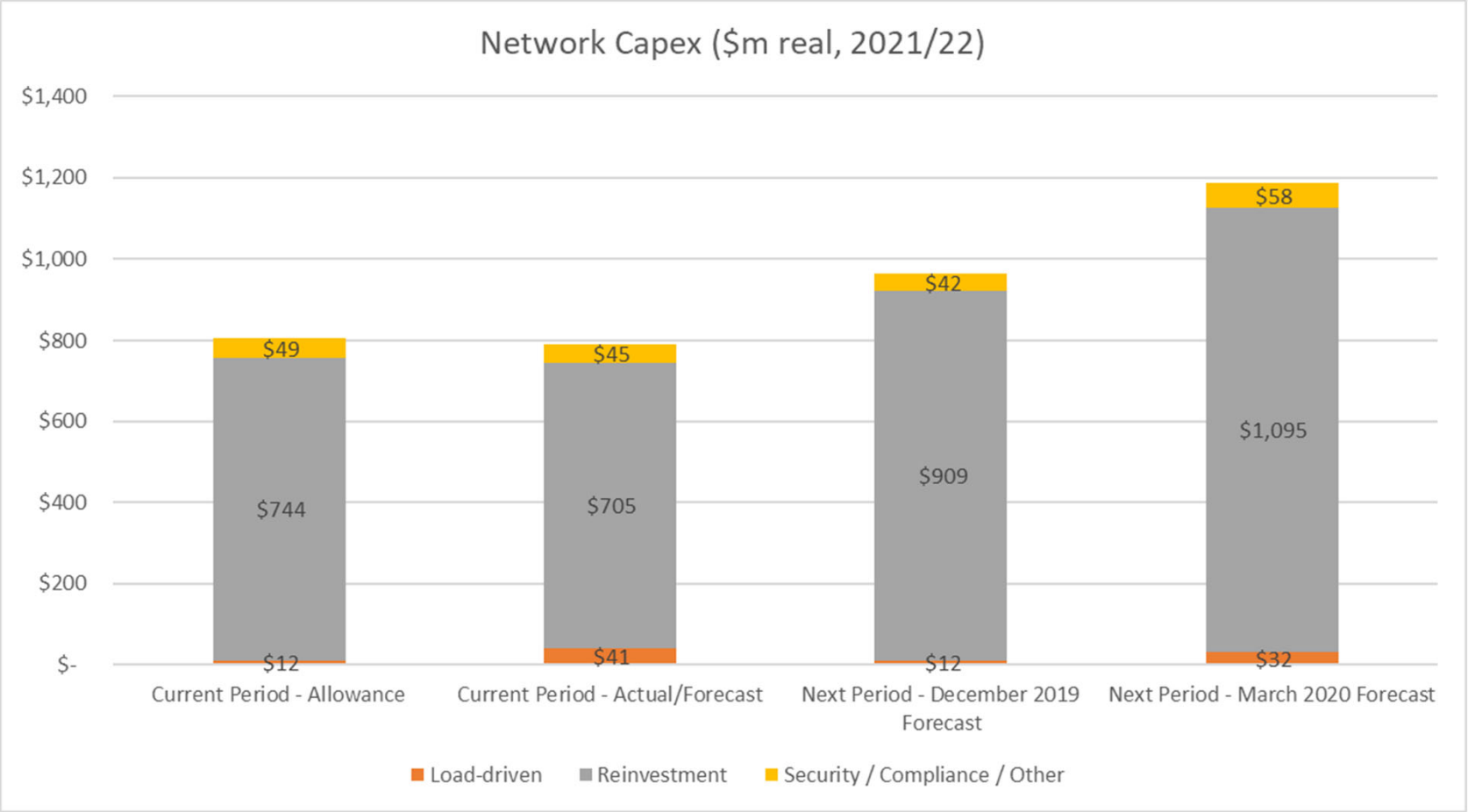
Capital expenditure

Summary of key observations – capex

Topic	Key observations
Current regulatory period	• Current period actuals expected to land near to the AER allowance, a reduction of ~35% from the previous period. • The impact of COVID-19 on the capital expenditure profile for the rest of the current regulatory period is unknown at this time.
Forecast regulatory period	• Next period forecast is ~42% above the current period AER allowance. This is driven primarily by reinvestment in transmission lines and secondary systems. • Reinvestment expenditure remains the main capex category. • The process of refining the inputs to the Repex Model to reflect Powerlink's Asset Management Planning is underway and will reduce the forecast in future updates.
Contribution to MAR	• Capex contributes <5% to MAR within the regulatory period.

Forecast capex – network

All figures are preliminary

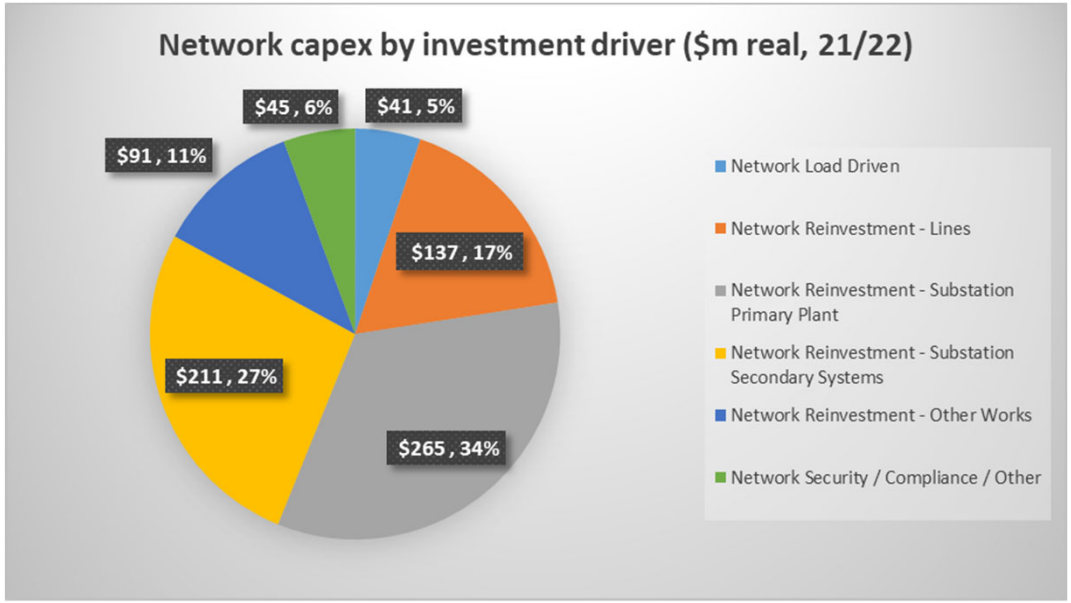


Note – Cut 1 (Dec 19) and Cut 2 (Apr 20) forecasts reflect the 'central' scenario only and are high-level, indicative only.

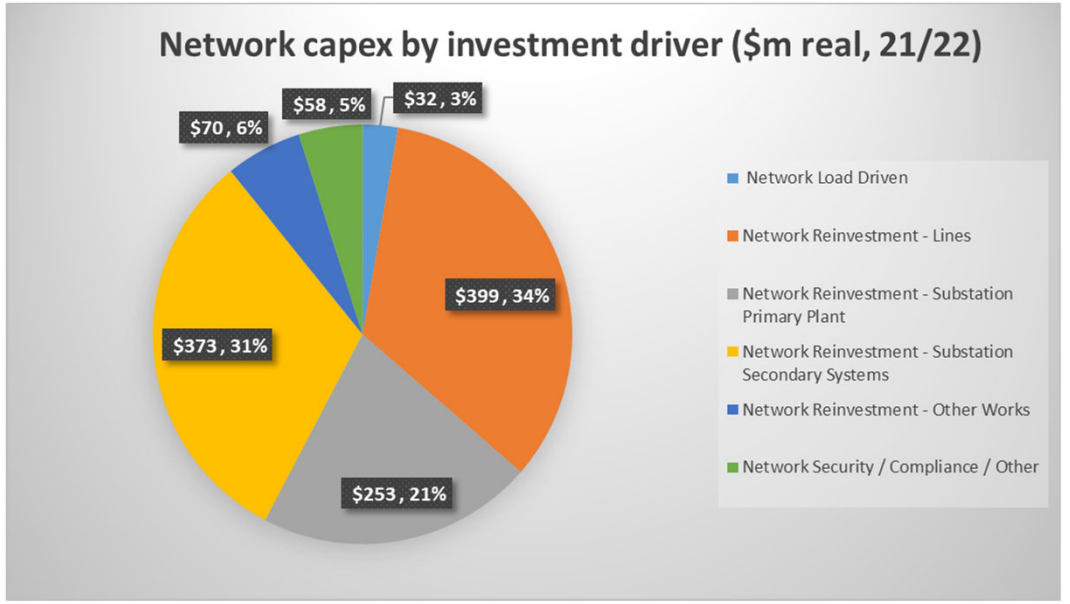
Network capex breakdown

All figures are preliminary

Current period actuals and forecast – 2018-22



Next period forecast – 2023-27

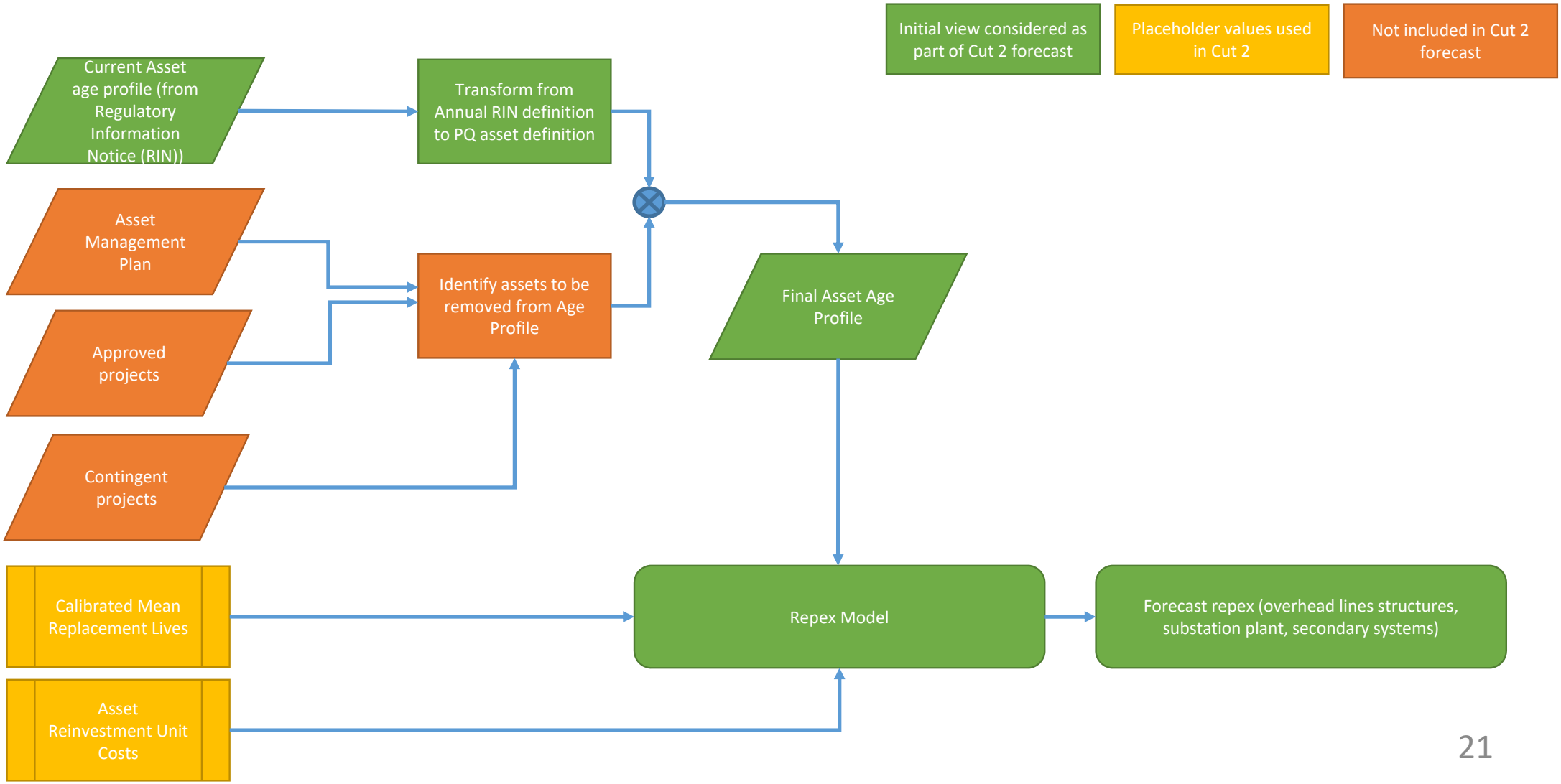


Note – refer to March 2020 RPRG meeting slides for details about drivers for investment in the next period.

Refining the repex model

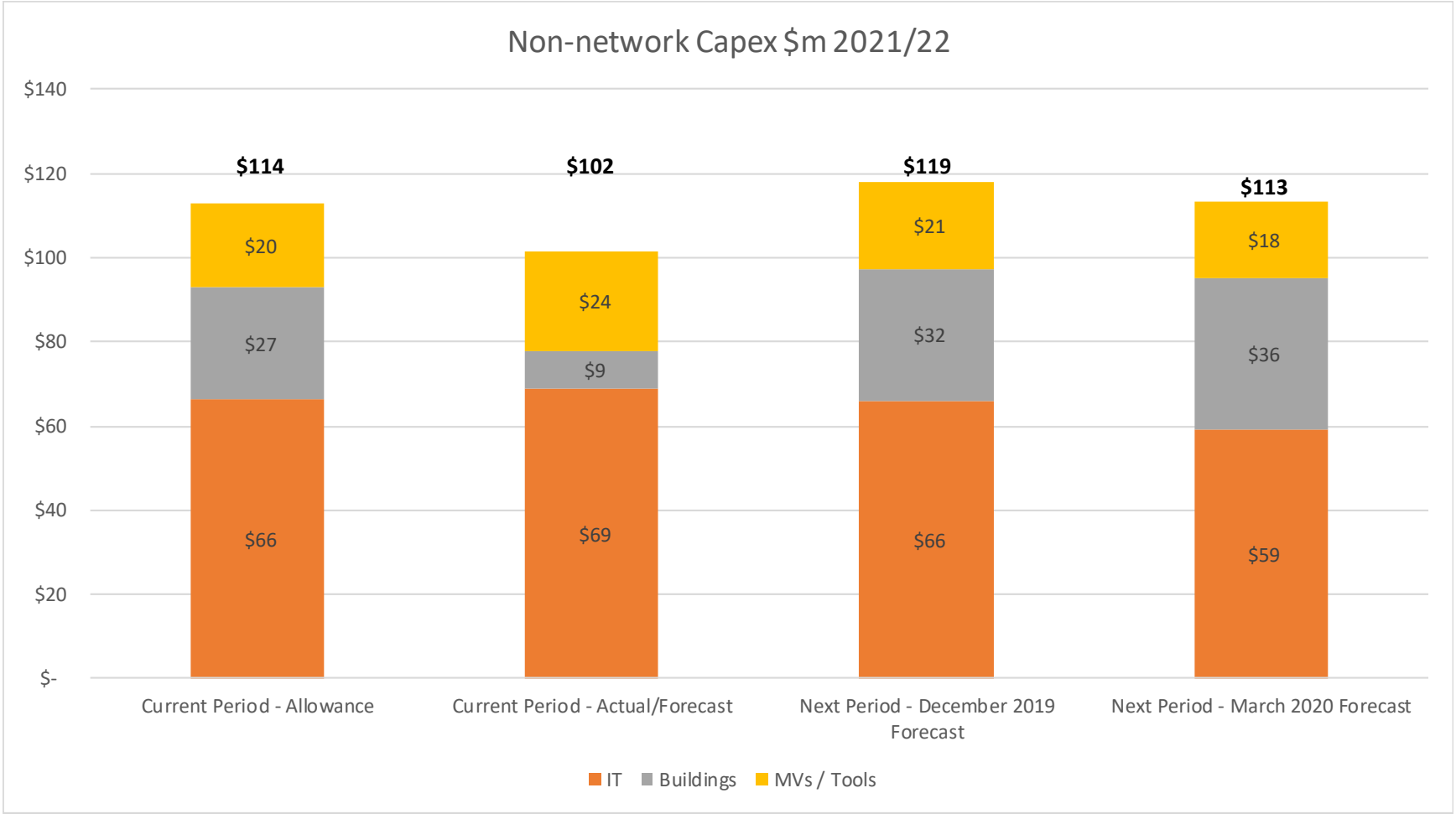
- In developing the Repex Model for its last Revenue Proposal, Powerlink devoted considerable time and effort to ensure the input parameters properly reflected Powerlink's condition drivers and asset management practices.
- Specific areas of focus included:
    - **Asset population and age profile** – removing assets from the model which are unlikely to be required to be replaced when they reach their technical end-of-life.
    - **Historical asset replacement quantities** – removing replacement quantities that are not primarily condition based.
    - **Corrosion zone modelling** – segmenting the tower population into different zones, to allow for different replacement lives based on the rate of degradation observed in those zones.
- Powerlink also engaged Nuttall Consulting to independently review the top-down forecasting approach for the last Revenue Proposal. Nuttall found Powerlink's overall approach to calibrating the model to be suitable for forecasting, and in some instances superior to the normal application of the Repex Model.
- Cut 2 is based on the **very first view** of the repex model, with many inputs still to be updated and verified. This is demonstrated in the diagram on the next slide.
- Powerlink anticipates its repex forecast to decrease from Cut 2 after these additional inputs are considered.

Forecasting repex using the repex model



Forecast capex – non-network

All figures are preliminary



Potential contingent projects

Project name	Stream	Driver	Description of potential project works	Indicative timing	Indicative cost ($m)
Galilee Basin coal mining area	1	New coal mining load of up to 400MW.	Install a third 275kV circuit between Broadsound-Lilyvale and capacitor banks at Lilyvale.	No specific timing – load driven	~117 (based on 18-22 Revenue Proposal)
CQ-NQ grid section	1	Combination of above loads of up to 580MW.	String second side of the Stanwell-Broadsound 275kV transmission line.	No specific timing – load driven	~55 (based on 18-22 Revenue Proposal)
QNI Medium (ISP)	2	Increased renewable generation in NSW and Darling Downs REZs	Single 500KV circuit between Western Downs-Wollar with 330kV connections to Armidale and Dumaresq.	2026 – 2028	1,040-1,925 285-530 (Qld only)
Far North Queensland REZ (ISP)	2	Increased wind generation in Far North Queensland.	Rebuild Ross-Chalumin 275kV double circuit transmission line to higher capacity, plus add single circuit Ross-Chalumbin line. Uprate the Strathmore-Ross circuit.	2026 – 2036	405-695
Gladstone Reinforcement (ISP)	2	Retirement of Gladstone Power Station. Renewable growth in North Queensland.	Install a 275kV double circuit transmission line between Calvale-Larcom Creek, plus a third transformer at Calliope River. Rebuild the Bouldercombe-Calliope River 275kV single circuit to a higher capacity.	2025 – 2035	175-325
CQ-SQ Reinforcement (ISP)	2	Increase in renewable generation in Central and/or North Queensland.	Install a 275kV double circuit transmission line between Calvale to Wandoan South.	2024 – 2036	226-420
Calliope River to South Pine Reinvestment	3*	Asset condition.	Progressive refit (life extension) of the existing 275kV single circuit lines between Gladstone and Brisbane or rebuild existing single circuits as double circuit.	2024 - 2029	226 (total)
Bouldercombe to Calliope River Reinvestment	3*	Asset condition.	Refit (life extension) of the existing Bouldercombe to Calliope River 275kV single circuit lines.	2026	~35
Ross to Chalumbin Reinvestment	3*	Asset condition.	Refit (life extension) of the existing Ross to Chalumbin 275kV double circuit line.	2026	85 - 165
Bouldercombe to Nebo Reinvestment	3*	Asset condition.	Refit (life extension) of the existing Bouldercombe to Nebo 275kV single circuit line.	2028	80

Stream 1 = load/generation driven, Stream 2 = ISP, Stream 3 = contingent replacements.

- *Ability to define Rules compliant triggers for Stream 3 is still being assessed.*
- *Estimated contingent project threshold is currently ~$35m (5% of first year MAR).*

Projects removed from this list since January 2020:

- **Bowen Basin and Abbott Point load-driven projects** – these projects may not reach the contingent project $ threshold, due to other developments having occurred in the area.
- **Surat Basin load-driven project** – this project need may be able to met by installing a static VAR compensator (SVC), depending on the size of the potential demand increase.
- **QNI Large (ISP) project** – need would be assessed as part of the QNI Medium RIT-T. Powerlink's current view is that the need is likely not to eventuate in the next regulatory period.

Decisions to remove these projects are not final, this is just an indication of our current thinking.

Operating expenditure

Summary of key observations – opex

Topic	Key points
Current regulatory period	• Powerlink's goal is to operate within the current AER allowance on average for the regulatory period, however COVID-19 will impact opex delivery for the remainder of this period – 2019/20 - 2021/22. We have not forecast these impacts. • Non-controllable opex – AEMC levy increasing at a higher rate than inflation. • Insurance costs are increasing due to a hardening market. These increases are occurring within this period and forecast to continue into the next period.

Forecast regulatory period	• Opex is forecast to be 5.8% higher than current period opex AER allowance[1]. This is primarily driven by increases in:
	  • Insurance (up $18.1m / 35%)
	  • AEMC levy (up $8.3m / 36%)
	  • Potential step changes of ~$26m.
	• Cut 2 uses the AER allowance for 2019/20 (year 3) as the base year, however we are reviewing the use of year 3 (2019/20) as our base year due to COVID-19 impacts.

Forecast trend	• The trend applied to opex is based on the AER's current rate of change calculation (Output growth + Price growth – Productivity). • The rate of change forecast for Cut 2 is 0.92%.
Contribution to MAR	• Opex contributes ~30% to MAR within the next regulatory period.

[1] *– note this is against an updated AER allowance for opex reflecting latest inflation information and is not comparable to the original AER allowance shown on slide 11 used for Cut 1.*

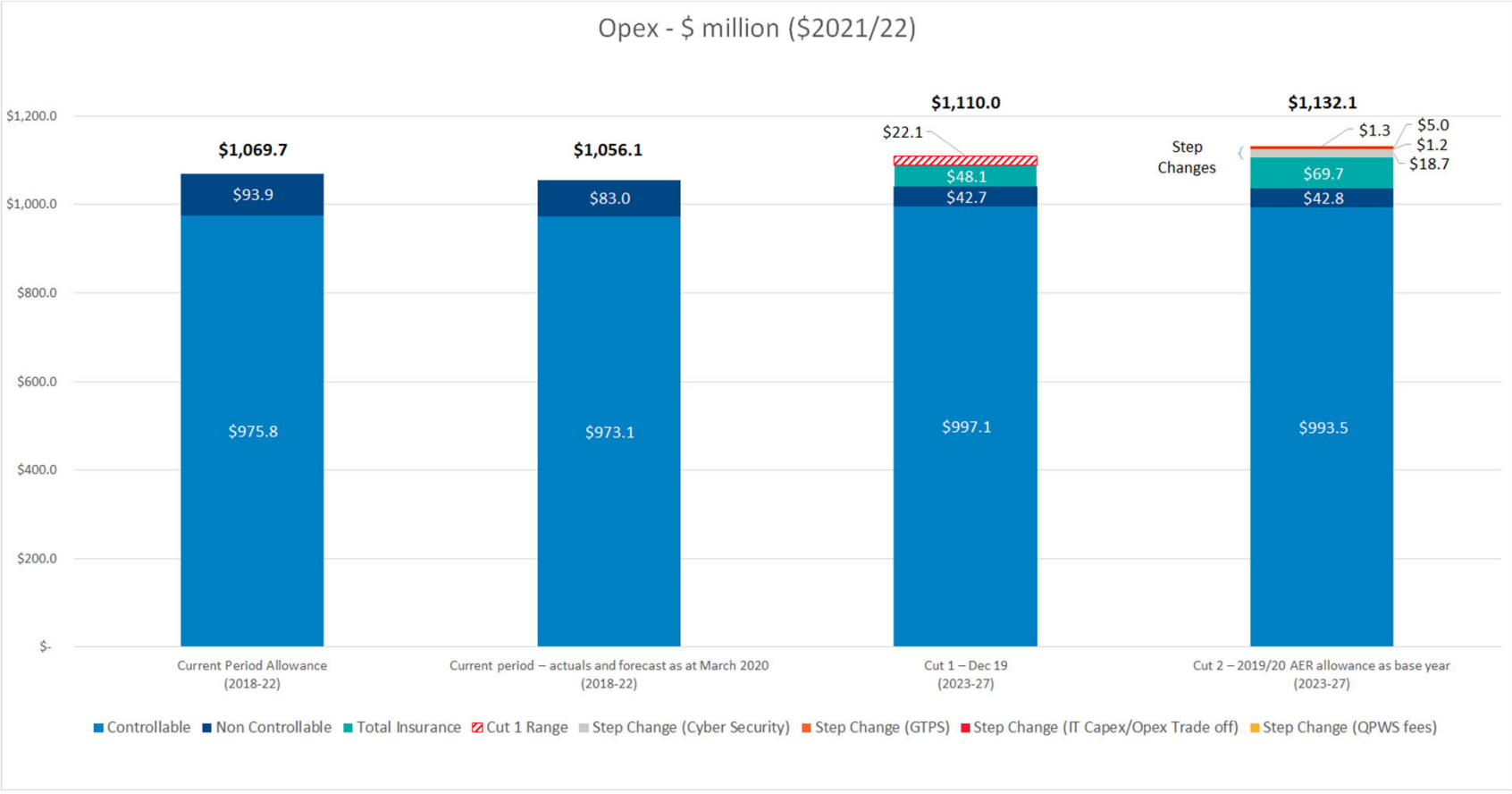
Rate of change (trend)

Trend factor	Key points	Current forecast trend
Output growth	• Factors are – energy served, ratcheted maximum demand, number of customers and circuit length. • The source of these factors is typically from Economic Benchmarking Regulatory Information Notice (RIN) data, AEMO's Electricity Statement of Opportunities (ESOO) and Integrated System Plan (ISP) along with Powerlink's internal information.	**0.73%**
Price growth	• Two factors – materials price change and labour price change. • Materials price change – Powerlink is currently using the AER's inflation calculation method to determine materials price change (2.33%). • Labour price change – Powerlink is using the Deloitte Access Economics (DAE) Wage Price Index (WPI) for this factor, which is consistent with the AER's approach.	**0.33%**
Productivity	• Powerlink has calculated productivity consistent with the AER's approach for determining productivity. It is based on November 2019 opex benchmarking data and calculates an average trend for TNSPs as an industry from 2007-2019.	**0.14%**

Average rate of change over 2023-27 regulatory period
(0.73% + 0.33% – 0.14%) = 0.92%

Operating expenditure forecast 5-year comparison

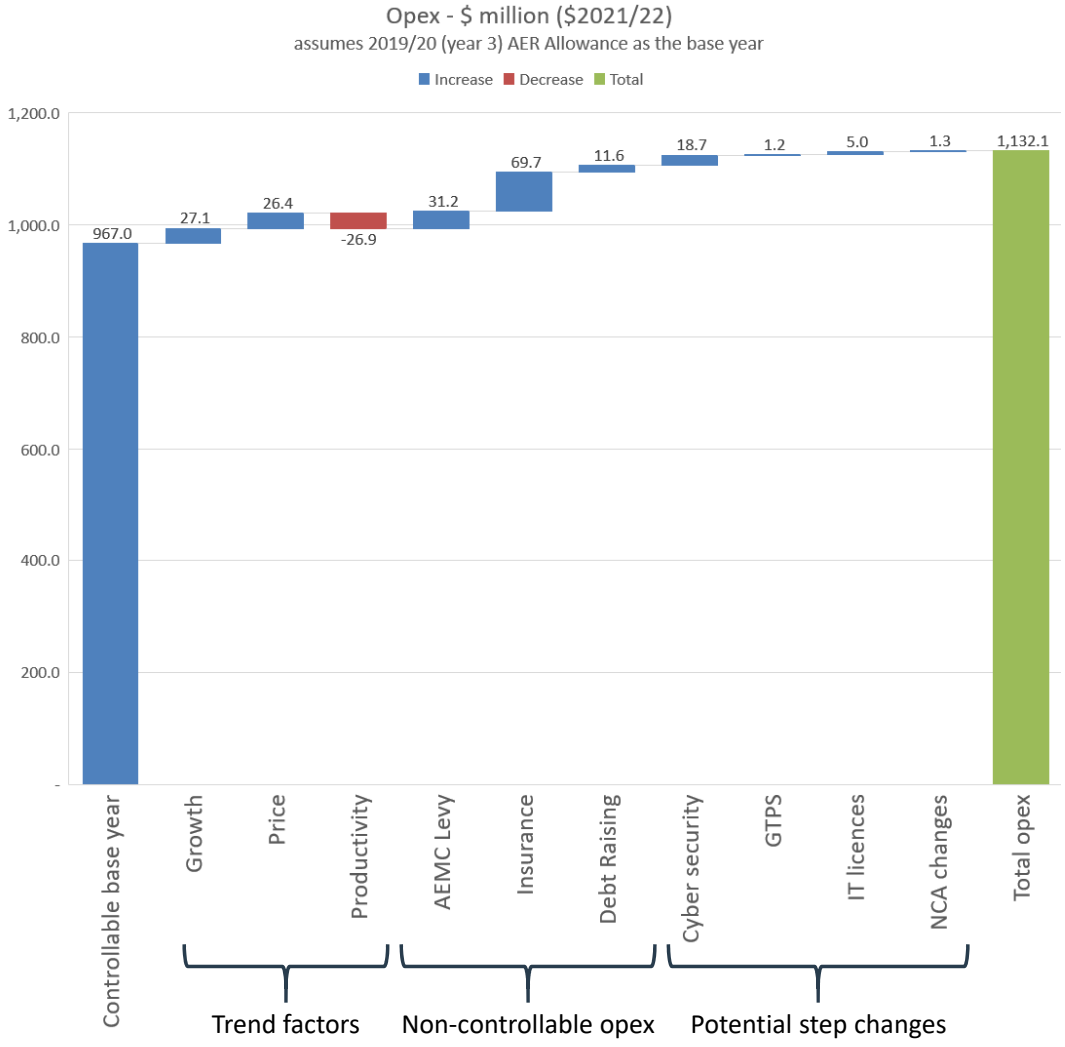
All figures are preliminary



Notes:

- *Current period allowance figures have changed from Cut 1 due to updated inflation forecast.*
- *No assumption has been made yet of the impact of COVID-19 on opex.*
- *The full 'range' applied to Cut 1 is shown. No step changes were assumed in Cut 1.*
- *Total insurance is separated out for Cut 1 and Cut 2 to demonstrate the increase in this opex item.*
- *Debt raising is included in all figures.*

Key items – opex



All figures are preliminary

- Powerlink has used the AER's Base-Step-Trend model to forecast opex.
- **Controllable base year** – reflects controllable opex. Currently based on the AER allowance for 2019/20.
- **Trend** – 0.92% rate of change reflecting output, price (labour and materials) and productivity growth. Contributes $26.6m increase in opex.
- **Non-controllable opex** – items not included by Powerlink in the controllable base year and estimated 'bottom up'. The trend is not applied to these items. Significant increase in insurance (~53%) compared to the current period.
- **Step changes** – increases or decreases in opex not captured in base opex or the rate of change that may be required (e.g. new legislative obligations). Contributes $26.2m increase in opex.

Potential opex increases – updated

All figures are preliminary

Candidate	Opex p.a. ($21/22, real) 2023-27 regulatory period		Explanation of update
	February 2020 forecast	April 2020 forecast	
Nature Conservation Act fees	Up to ~$1m	~$1m in 2023/24 ~$70k p.a. thereafter	Powerlink may be obligated to pay a retrospective fee of ~$1m for certain assets in National Parks, and an ongoing fee of ~$70k thereafter.
Transmission Ring Fencing	Unknown	Unknown	No change at this stage.
National Transmission Planning fee	Up to $5m	$0	AEMO expected to charge for this through the inter-regional TUOS provisions, known as the Modified Load Export Charge (MLEC). Customers will still pay for this cost, however it will be outside of the Revenue Determination process and opex forecast.
Cyber security	~$3.7m-$5.6m	~$3.7m	Low case for cyber security costs has been assumed in Cut 2. We are working to refine this amount further. It will increase if Powerlink is mandated to meet a higher level of maturity.
Generator Technical Performance Standards	~$0.25m	~$0.25m	No change at this stage.
IT licences movement to cloud	~$2.5m capex/opex trade-off	~$1m capex/opex trade-off	After further analysis, there are fewer IT licences required to move to the cloud that also need to be treated as opex in the future. This figure is likely to decrease further.

Opex - insurance premiums

All figures are preliminary

- Insurance costs are forecast to increase significantly for the remainder of this current period and next, due to:
    - the insurance industry is in a 'hard' phase of the cycle;
    - insurers concerns about climate change, including challenges surrounding bushfire liability;
    - impacts of claims arising from the banking royal commission.
- Impacts of COVID-19 have not been assessed at this stage. This may further harden the insurance market.
- Powerlink is exploring options to potentially reduce insurance costs, while still ensuring a prudent and efficient level of coverage. However, there are many factors outside of Powerlink's control.
- The current volatility of the insurance market will necessitate updates to the insurance forecast on a regular basis between now and the Revenue Proposal lodgement, and potentially for the Revised Revenue Proposal.

2018-22 premiums actuals and forecast ($21/22 real, average p.a.)	Cut 2 2023-27 premiums forecast ($21/22 real, average p.a.)	Difference
$8.48m	**$12.93m**	**$4.45m / 53%**

RoR, MAR and RAB

Summary of key observations – financial elements

Topic	Key observations
RAB	• The Regulated Asset Base (RAB) is forecast to continue to decline in real terms within the current period and into the next period. • RAB will increase marginally in the forecast period in nominal terms, due to inflation.
RoR	• The Rate of Return (RoR) is forecast to be lower over the next regulatory period (4.51% in Year 1 to 4.05% in Year 5 for the base case). • This is primarily driven by a low risk free (Government bond) rate and assumes the Powerlink's 2020/21 prevailing interest rate remains unchanged for the 23-27 regulatory period. • There is significant volatility in the risk free rate right now, driven by COVID-19 impacts to the economy.
MAR	• Maximum Allowed Revenue (MAR) is forecast to be ~$3.45 billion over the 23-27 regulatory period. This is a reduction of ~ $600M (15%) from the current period. • This is primarily driven by a reduction in the return on capital, which is lower by ~34% than the current period due to the declining RoR. • The return of capital has reduced from Cut 1 due to the adoption of the AER methodology for forecasting inflation. This increases the inflation estimate from 2% in Cut 1 to 2.33% in Cut 2.
Contribution to MAR	• Return on capital, return of capital (depreciation), tax and incentive schemes contribute approx. 70% to MAR.

Cut 2 inflation assumption

- Actual inflation has been well below the bottom of the RBA's 2.0–3.0% target band for several years now and market estimates of expected inflation also remain below this band.
- For Cut 1, we chose a forecast inflation of 2.0%, being the mid-point of the AER's current approach and market-based forecasts. Our view is that this is more reflective of the inflationary environment.
- For Cut 2, we have adopted the AER's methodology and estimated an inflation forecast of 2.33% for the 23-27 regulatory period.
- The higher inflation assumption results in approximately $130 million decrease in revenue compared to Cut 1. *Refer to the background slides for an explanation of this.*
- The AER is undertaking a review of the inflation approach and expects to release a final position paper in December 2020. Powerlink will re-assess the inflation forecast for the Revenue Proposal taking this review into consideration.

Cut 2 forecast - RoR

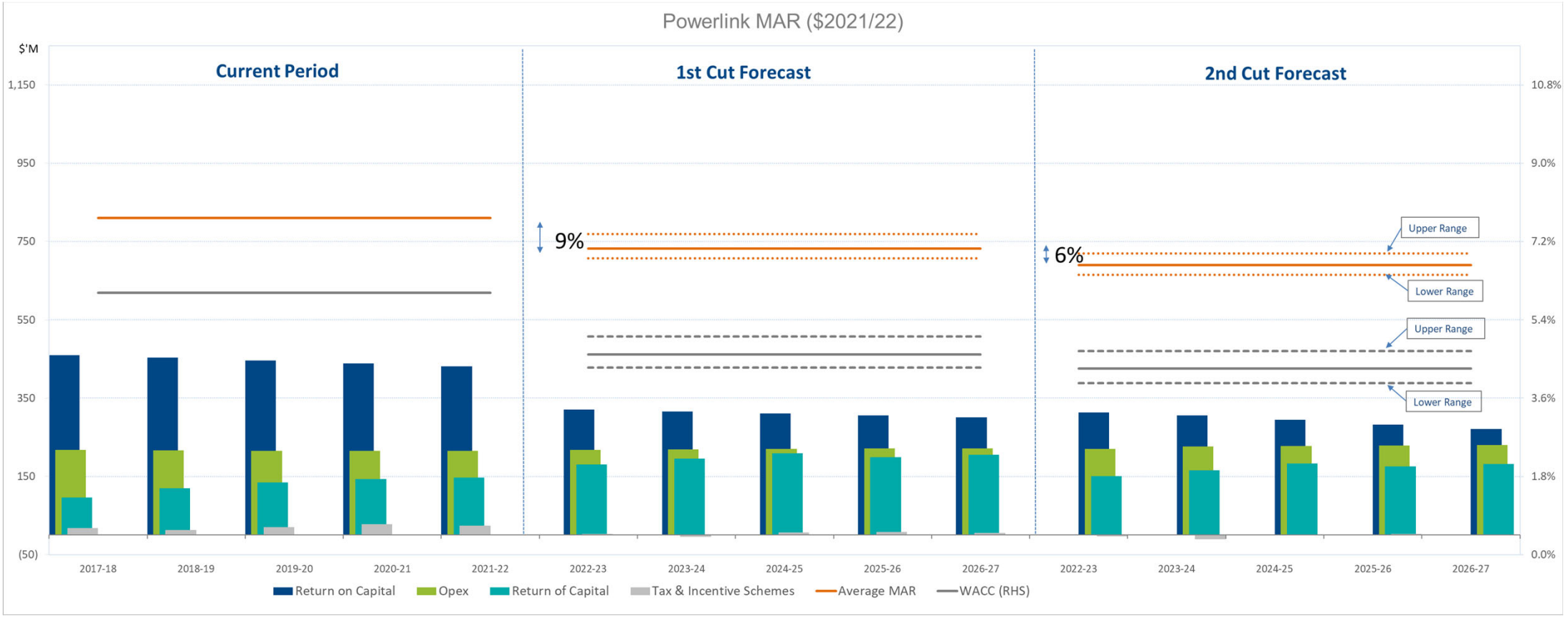
All figures are preliminary

Parameter	Base	Low	High	Assumptions
Risk Free Rate (Rf) *(Change from Cut 1)*	1.00% *(0.10%)*	0.60% *(0.20%)*	1.56% *(0.14%)*	Rf based on recent 60 day averages. Low case reflects recent low rates. High range is based on the average Rf over the past 12 months.
Market Risk Premium (MRP)	6.10%	6.10%	6.10%	As per the AER's 2018 Binding Rate of Return Instrument
Equity Beta	0.6	0.6	0.6	As per the AER's 2018 Binding Rate of Return Instrument
Return on Equity *(Change from Cut 1)*	**4.66%** *(0.10%)*	**4.26%** *(0.20%)*	**5.22%** *(0.14%)*	
Return on Debt *(Change from Cut 1)*	**4.42%** *(0.08%)*	**4.27%** *0.07%*	**4.57%** *(0.23%)*	Cost of debt assumes Powerlink's prevailing rate for 2020/21 remains unchanged for 23-37 regulatory period. Low and high ranges assume +/- 75bp around this prevailing rate.
WACC *(Change from Cut 1)*	**4.51%** *(0.09%)*	**4.26%** *(0.04%)*	**4.83%** *(0.19%)*	
Gamma	0.585	0.585	0.585	As per AER's 2018 Binding Rate of Return Instrument

Cut 2 forecast – MAR

All figures are preliminary

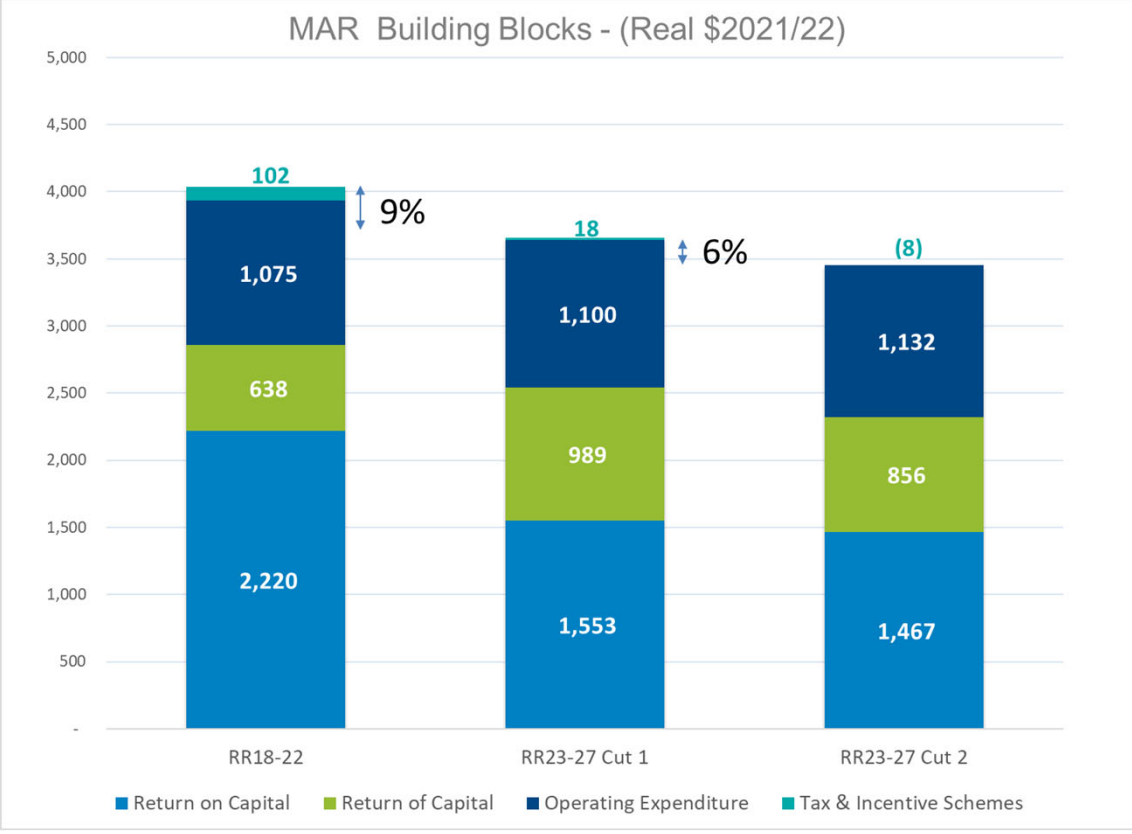
- Upper and lower average MAR forecasts based on ranges of RoR for Cut 2.

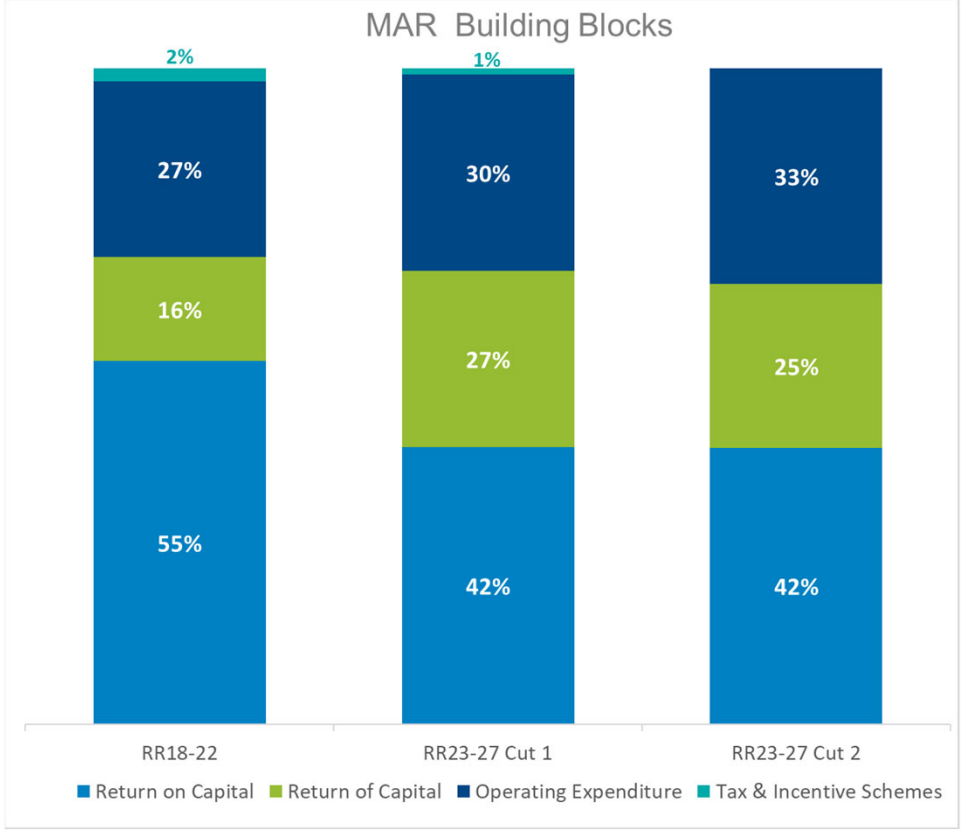


Cut 2 forecasts – MAR

All figures are preliminary

Below figures show the 'central' forecast range only.



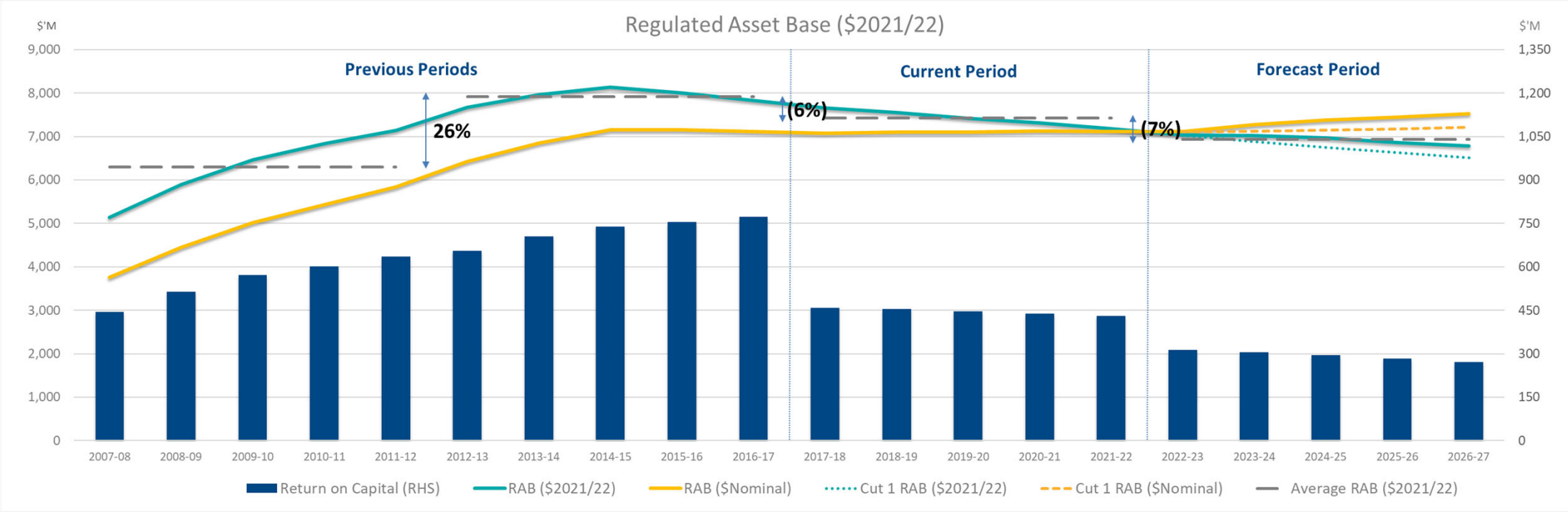


Notes:

- *The (8) result for tax and incentive schemes is primarily driven by EBSS and CESS. STPIS is not forecast as part of MAR.*
- *Tax and incentive schemes as part of the right-hand side MAR Building Blocks graph is lower than 1% and is not shown.*

Cut 2 forecast – RAB

All figures are preliminary



Notes:

- *Key drivers in the difference between Cut 1 and Cut 2 RAB ($Nominal) is the increased capital expenditure and higher inflation forecast.*
- *Key drivers in the difference between Cut 1 and Cut 2 RAB ($2021/22 real) is the increased capital expenditure forecast.*

Forecast impact on prices

All figures are preliminary

- Powerlink's contribution to the average electricity bill is ~8% for households and small businesses[1].
- This equates to ~$114 per annum for households[2] and ~$189 for small businesses[3].
- Based on Cut 2 forecast MAR ranges, the indicative impact to electricity prices in the first year of the next regulatory period (2022/23) would be:
  - Residential – reduction of ~$13 (11%).
  - Business – reduction of ~$21 (11%).
- Price increases for average residential households and small businesses will remain within CPI for the remainder of the regulatory period.

[1] *based on the 2019 Australian Energy Market Commission (AEMC) Electricity Price Trends Report, published December each year.*
[2] *based on the Queensland Competition Authority's (QCA) annual Tariff 11 (residential) median energy usage of 4,061kWh p.a.*
[3] *based on the QCA's annual Tariff 20 (small business) median energy usage of 6,831kWh p.a.*

Incentive schemes

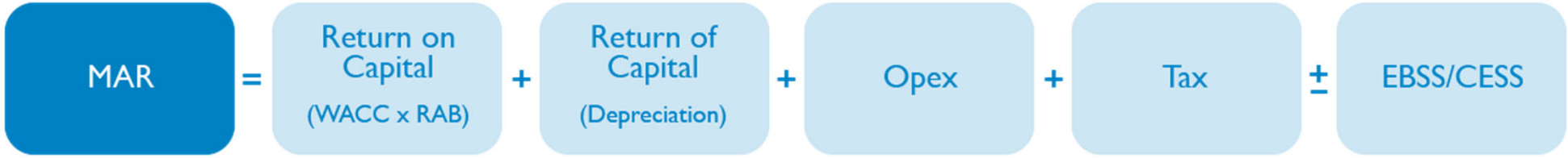
Incentive schemes – EBSS, CESS, DMIAM

Incentive scheme	Description	Forecast for 2023-27 period
Efficiency Benefit Sharing Scheme (EBSS)	• The EBSS is a scheme applied to operating expenditure to incentivise a business to pursue efficiency improvements. The scheme allows for efficiencies (cost savings) to be shared between consumers and the business in the ratio of about 70:30 in favour of consumers.	-$23m revenue adjustment
Capital Expenditure Sharing Scheme (CESS)	• The CESS is an incentive scheme applied to capital expenditure. Under the scheme underspends relative to the AER's capex allowance are treated as an efficiency gain and overspends are treated as an efficiency loss. Like the EBSS, capex efficiencies are to be shared between consumers and the business in the ratio of 70:30.	-$2m revenue adjustment
Demand Management Innovation Allowance Mechanism (DMIAM)	• The objective of the DMIAM is to provide funding for research and development in demand management projects that have the potential to reduce long term network costs.	No methodology has been established at this time. Powerlink is also yet to undertake a review of potential DMIAM projects. *(Distribution DMIAM = $200,000 + 0.075% x MAR ~ $750,000 per annum for Powerlink)*

Questions and discussion

Background information

Background reference - revenue building blocks



Return on Capital = a measure of return on investments (capex)
Return of Capital = annual regulatory depreciation allowance
Opex = annual operating and maintenance cost allowance
Tax = calculated effective company tax payable
EBSS = carryover amounts for the Efficiency Benefit Sharing Scheme from the previous regulatory period
CESS = carryover amounts for the Capital Expenditure Sharing Scheme from the previous regulatory period

WACC - Powerlink must apply the AER's new Rate of Return Guidelines

RAB - adjusts each year for new assets (capex), disposals, depreciation and CPI

Capex – key input elements

Item	Key points
QNI Medium	• While the Draft 2020 ISP identifies this as an actionable project there is considerable uncertainty around project cost estimates and potential changes to the sources of benefits. Propose to leave all non-preparatory expenditure, ~$300 million, as a contingent project pending Final 2020 ISP recommendation in June 2020.
Contingent Repex	• Propose that Wurdong Tee – Gin Gin rebuild, ~$80 million, be treated as a contingent project.
Voltage Control and Fault Levels	• Two emerging factors – declining system strength and declining minimum demands. • Assume the immediate issues are dealt with in the current period.. • Allow for 3 x 120 MVAr reactors in SEQ, ~$15 - $30 million ($ nominal) in total, in ex-ante forecast for next period. • Propose to include contingent project triggers based on further fault level shortfalls and further declines in minimum demands.
Asset Mean Replacement Lives	• AER Final Decision for the 18-22 period accepted all of Powerlink's Repex Modelling lives except for transmission line refits where AER increased lives between 0.8 years (severe corrosion zones) and ~7 years (mild corrosion zones). • Propose to adopt the AER Final Decision lives as representing the basis for a forecast of the prudent and efficient capital expenditure required to meet the capital expenditure objectives

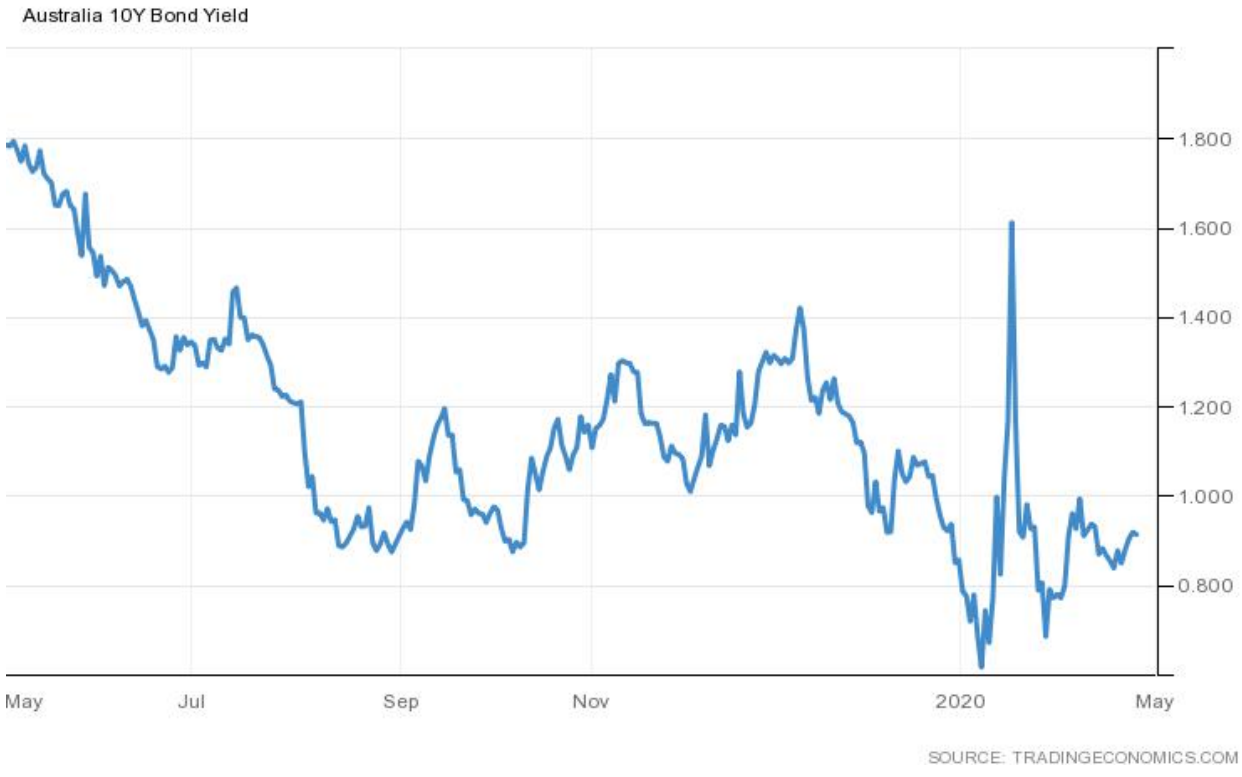
Potential opex increases - descriptions

Potential increase	Description
Nature Conservation Act fees	Proposed amendments to the application of Section 35 of the Nature Conservation Act could potentially result in Powerlink being charged fees by the Queensland Parks and Wildlife Service (QPWS) for co-location of assets within national parks. Powerlink has approximately 184km of transmission lines, 9 telecommunication sites and one substation impacted, for a total of 735 hectares, which may be impacted by this change.
Transmission Ring Fencing	The AER review of the TNSP ring-fencing guideline may result in additional opex costs. The quantum of these costs will depend on the extent of the changes proposed and will be assessed further following workshops with the AER and publication of the draft Guideline in May 2020.
National Transmission Planning fee	The Draft Integrated System Plan (ISP) Rules considers a proposed amendment to the Rules to enable the allocation of the costs for National Transmission Planner (NTP) services provided by AEMO to TNSPs. Powerlink's estimate is based on AEMO's 19/20 budget and forecast and calculated on a $/MWh basis, which is how current AEMO fees are calculated. Discussions are occurring for AEMO to charge through the inter-regional TUOS provisions, known as the Modified Load Export Charge (MLEC), and therefore this cost would not be applied via Powerlink's Revenue Determination process.

Potential opex increases – descriptions

Potential increase	Description
Cyber security	The risk of cyber security attack on critical infrastructure providers is an area of significant focus across the energy supply chain and within government. This step change recognises a significant increase required in operating expenditure to maintain different levels of cyber security readiness under the Australian Energy Sector Cyber Security Framework (AESCSF). Costs associated with this activity include additional labour, licences and support activities including assurance activities.
Generator Technical Performance Standards	Powerlink has experienced a sustained increase in support required to provide operational advice on system-related matters, as a result of the National Electricity Amendment (Managing Power System Fault Levels) Rule 2017 No. 10. This Rule change placed an obligation on TNSPs to maintain minimum levels of system strength and significantly increased associated system modelling and planning activities.
IT licences movement to cloud	This capex/opex trade off relates to the changing environment of IT services with a greater number of applications being hosted off site increasing licencing and support costs, however reducing the requirement to procure hardware and support. Key platforms to shift include Microsoft, SAP, VMWare and GIS.

Volatility of the risk free (bond) rate



- The Australian 10 year bond yield is used as the risk free rate.
- A lower risk free rate results in a lower RoR, lower MAR – and vice-versa.
- Powerlink's current Determination (April 2017) was based on a risk free rate at the time of 2.85%.
- The prior Determination (April 2012) was based on a risk free rate of 4.17%
- Our Cut 2 forecast is based on a risk free rate of between 0.6%-1.56%.
- **There is substantial volatility in the risk free rate at the moment.**

Inflation background

Expected inflation

- The revenue setting methodology requires a forecast of 'expected inflation'. Divergence between 'expected inflation' and actual inflation over the regulatory period result in revenue gains or losses.
- The AER's current methodology for establishing 'expected inflation' utilises the RBA's 10 year averaging methodology. Current AER expected inflation is 2.33%.
- Long-term differences between the forecast inflation and actual inflation is a significant value risk.

Impact on revenue

- Inflation impacts Return of Capital (RofC), which is calculated as:
    - RofC = Straight Line Depreciation *minus* Revaluation of Asset Base (RAB*CPI)
- High inflation estimate = lower RofC in the near term due to the higher revaluation calculation.
- Due to this relationship, a higher inflation assumption results in lower revenues.