2023-27
POWERLINK QUEENSLAND REVENUE PROPOSAL

Appendix 5.03 – PUBLIC

Expenditure Forecasting Methodology

Contents

List of Tables

List of Figures

Summary of changes

Powerlink submitted its Expenditure Forecasting Methodology to the Australian Energy Regulator (AER) in June 2020, consistent with the requirements under the Rules[1]. Since June 2020, we have made some adjustments and clarifications to our forecasting methodology. We have therefore updated this document to be consistent with the forecasting methodology applied for the January 2021 Revenue Proposal.

Other than the changes listed below, other elements of this document reflect information as at June 2020 and have not been updated.

Section	Topic	Summary of Change
2.1	AEMC Levy treatment	We originally flagged we were considering alternative ways to treat the AEMC Levy cost. We ultimately did not pursue alternative treatment as part of the Revenue Proposal.
2.1	Table 2.1 – Operating expenditure category definitions	Minor amendments to operational expenditure category definitions.
2.2	Forecast of insurance	We originally intended to forecast insurance on a category specific basis. We decided to adopt a base-step-trend approach and have explained our reasons for this.
2.2	Figure 2.2 – Powerlink's proposed operating expenditure forecasting methodology	We updated this figure to include the required increment to final year operating expenditure, which is a component of the base-step-trend methodology.
2.3.1	Efficient base year	We have amended this to reflect our decision to select 2018/19 as our base year.
2.3.2	Base year adjustments	Section added to explain typical base year adjustments (removals of one off / non-recurrent items).
2.3.3	Output change factors	Updated to provide further clarity about the source of information used to determine the output change factors.
2.3.4	Productivity factor	We originally proposed to adopt the benchmark industry average productivity figure. We have updated this to reflect our decision to pursue a higher than average productivity factor.
2.3.5	Table 2.3 – Other operating expenditure categories	Consistent with our change to forecasting insurance, we have removed insurance from this table.
3.1	Table 3.1 – Capital expenditure categories	Minor amendments to capital expenditure category definitions.
3.2	Planning Approach	Reference to National Transmission Network Development Plan (NTNDP) removed and replaced with the Integrated System Plan (ISP), per Rules changes[2].
3.3	Table 3.2 – Capital expenditure forecasting	Updated to clarify that SVCs are excluded from top-down forecasting and that we did not undertake a bottom-up forecast of any ISP projects as none are 'actionable' for Queensland.

[1] National Electricity Rules, clause 6A.10.1B
[2] Consistent with changes to the Rules made under the *National Electricity Amendment (Integrated System Planning) Rule 2020*.

Section	Topic	Summary of Change
3.3	Figure 3.2 – Capital expenditure forecasting phases	Updated figure to reflect approvals as at January 2021.
3.3	Capital expenditure forecasting	Further clarified how the top-down and bottom-up forecasts have been integrated and that bottom-up reflects the majority of the network capital expenditure forecast.
Appendix A	National Electricity Rules	Updated to reflect latest version of the National Electricity Rules.

Introduction

Powerlink Queensland is a Government Owned Corporation that owns, develops, operates and maintains the electricity transmission network in Queensland.

Powerlink's role in the electricity supply chain is to transport high voltage electricity, generated at power stations, through its transmission grid to the distribution networks owned by Energex and Ergon Energy (part of the Energy Queensland Group) and Essential Energy (in northern New South Wales) to ensure a safe, cost effective and reliable power supply to more than five million Queenslanders. We also transport electricity to industrial customers such as rail companies, mines and mineral processing facilities, and to New South Wales via the Queensland/NSW Interconnector (QNI) transmission line.

Powerlink will lodge its Revenue Proposal for the regulatory period commencing 1 July 2022 to 30 June 2027 to the Australian Energy Regulator (AER) in January 2021.

We have engaged with the AER and our customers early and regularly on the development of our Revenue Proposal, including in relation to elements of this forecasting methodology. We will use this methodology to drive further engagement about our approach to forecasting expenditure and expect it will also be used as a reference point when assessing our expenditure forecasts.

Customer Engagement

In developing our proposed capital and operating expenditure forecasts and associated methodologies, we have engaged with our Customer Panel, our Revenue Proposal Reference Group (RPRG – a sub-set of our Customer Panel formed to enable more regular and deep engagement on the Revenue Proposal), the AER, the AER's Consumer Challenge Panel (CCP) and shareholders.

We also provided a draft of this document to the Customer Panel, AER and AER's CCP for feedback prior to lodgement.

We have represented key elements of customer feedback in Section 1. We will continue to engage on these and other aspects of our 2023-27 Revenue Proposal prior to lodgement with the AER. More information about our engagement activities is available on the 2023-27 Regulatory Period section of our website.

Operating Expenditure

Powerlink propose to adopt the AER's preferred base-step-trend model to forecast its operating expenditure requirements over the next regulatory period. This is consistent with our forecasting approach within the 2018-22 Revenue Proposal for the period 1 July 2017 to 30 June 2022.

Capital Expenditure

Powerlink propose to adopt a mix of both top-down and bottom-up methods to forecast capital expenditure – a hybrid approach. We also utilised a hybrid approach to forecasting capital expenditure in our 2018-22 Revenue Proposal.

In the 2023-27 Revenue Proposal, we will build on the experience, input and feedback gained during our previous Revenue Determination process. We refer to this as our Hybrid+ model. The benefits and reasoning behind this methodology are explained further in Section 3.3.

National Electricity Rules Requirements

Under the National Electricity Rules (6A.10.1B), Powerlink is required to propose the methodology by which we will prepare our forecasts of operating expenditure and capital expenditure for our Revenue Proposal. In doing so, we must also forecast expenditure and provide information within our Revenue Proposal that meets the operating and capital expenditure objectives of the Rules (6A.6.6 and 6A.6.7) as well as the AER's Expenditure Forecasting Assessment (EFA) Guideline (November 2013). An extract of the Rules sections is included for reference in Appendix A.

1. Customer engagement

Powerlink's engagement approach was developed through a co-design process with our customers and stakeholders. This ensures engagement is focused on aspects our customers believe can be influenced and have the biggest impact on Maximum Allowed Revenue (MAR).

We are committed to meeting our overarching engagement goal: *To undertake engagement to deliver a Revenue Proposal that is capable of acceptance by our customers, the Australian Energy Regulator and Powerlink.*

To date, customer engagement on capital and operating expenditure and our forecasting approach has involved members of our Customer Panel, including through our RPRG, as well as representatives from the AER and the AER's CCP. Powerlink will seek to undertake wider engagement with stakeholders in the lead up to the lodgement of our Revenue Proposal in January 2021.

Members of our Customer Panel and RPRG have appreciated our commitment to transparent and open communication, willingness to understand and listen to their perspective and responsiveness to feedback.

We value the input provided by customers to date to the Revenue Proposal process and appreciated the time and effort put into this process by the members of our Customer Panel and RPRG. Their input has helped inform our thinking across a range of areas, including elements of our capital and operating expenditure forecasting. This input is summarised in Table 1.1.

We are looking forward to engaging in further detail on key areas of our Revenue Proposal prior to lodgement in January 2021. Detailed minutes of our RPRG and Customer Panel discussions, as well as a copy of our Revenue Proposal Engagement Plan, are included within the 2023-27 Regulatory Period section of our website.

Table 1.1: Customer engagement feedback

Topic	Feedback
Operating expenditure	
Benchmarking	Customers acknowledged differences in capitalisation policies whereby Powerlink might expense (operating expenditure) what other Transmission Network Service Providers (TNSP) might include as capital expenditure, which leads to different benchmarking outcomes. Powerlink was encouraged to focus on pursuing changes that provide genuine benefits to customers, and not changes that may improve benchmarking but with no direct customer benefit. This aligns with our intended approach.
Productivity	We were asked by customers to drive a higher operating expenditure productivity target than the industry trend. We will engage further with customers on this point prior to making a final decision on our productivity target.
Insurance	We have provided initial forecasts and discussed the treatment of costs associated with insurance. Customers recognise and are concerned by increases in insurance that have been observed across the energy sector. They are keen to understand the drivers of those increases and what steps we are taking to manage our risk and our insurance costs. We will commit to further and more detailed engagement on this topic in the lead up to our Revenue Proposal.
AEMC Levy	We have provided initial forecasts of the Australian Energy Market Commission (AEMC) Levy. Customers raised concerns about their ability to influence the AEMC Levy cost. We are considering more efficient and effective alternative ways to treat this cost.

Table 1.1: Customer engagement feedback

Topic	Feedback
COVID-19	There is significant uncertainty caused by COVID-19. Customers are interested in understanding: • potential impacts on business performance including current period operating and capital expenditure; • trade-offs between operating and capital expenditure; and • how COVID-19 may impact our choice of an appropriate base year.
Step changes	Customers were directly involved in early discussions on potential step changes. Early engagement on this topic is important in shaping our Revenue Proposal. In particular, customers were interested in understanding: • how we identified potential step changes; • legislative/regulatory drivers behind step changes and how we can proactively engage with regulators and government to reduce cost impacts; and • which potential step changes we would not be pursuing.
Capital expenditure	
Hybrid+ methodology	Customers have recognised the challenges faced in doing a full bottom-up capital expenditure forecast, including the complexity and resource intensity of bottom-up forecasts and the reasons why we are pursuing our Hybrid+ approach. We have received support for the concept of the Hybrid+ approach and striking a reasonable balance between bottom-up and top-down forecasts. The Hybrid+ approach is explained further in Section 3.3.
Contingent reinvestment projects	We have received support from customers for our concept of contingent reinvestment projects, for those reinvestments that may have significant uncertainty around their need and timing in the next regulatory period. We will continue to progress discussions with the AER on this point. This is discussed further in Section 3.3.4.
Integrated System Plan (ISP) projects	There is also interest from some customers on the treatment of ISP projects within our Revenue Proposal, in particular the QNI Medium project, and associated cost estimates. We will continue to provide information to customers about the treatment of these projects, particularly after the release of the Australian Energy Market Operator's (AEMO) Final ISP.
Business IT	Customers had direct input on the development of a new IT Benefits Realisation and Management Framework, including assessment criteria to ensure prudent investment in Business IT projects. The framework will help guide appropriate investment decision making and also help us make informed decisions as investment progresses (e.g. stopping projects where it is determined that benefits can no longer be realised). The IT Benefits Realisation Framework will be used as part of our Business IT capital expenditure forecast for our upcoming Revenue Proposal.

2. Operating expenditure

Powerlink's operating expenditure enables the operation and maintenance of our network and other assets, as well as the business activities required to support those areas of work.

This chapter sets out our intended approach to forecasting operating expenditure in a manner that meets the requirements of the National Electricity Rules.

2.1 Operating expenditure categories

Consistent with the requirements of the Rules, our forecast operating expenditure will be presented with reference to well accepted categories of types of operating expenditure, as well as the categories of transmission services to which the forecast operating expenditure relates.

To assist the AER and stakeholders in understanding the nature of the forecast operating expenditure and how it relates to operating expenditure incurred in the current regulatory period, Powerlink will retain the same categories of operating expenditure as applied in the current regulatory period.

Figure 2.1 shows how our operating expenditure categories fit within the total operating expenditure framework. Definitions of each category are presented in Table 2.1.

Figure 2.1: Powerlink's operating expenditure categories

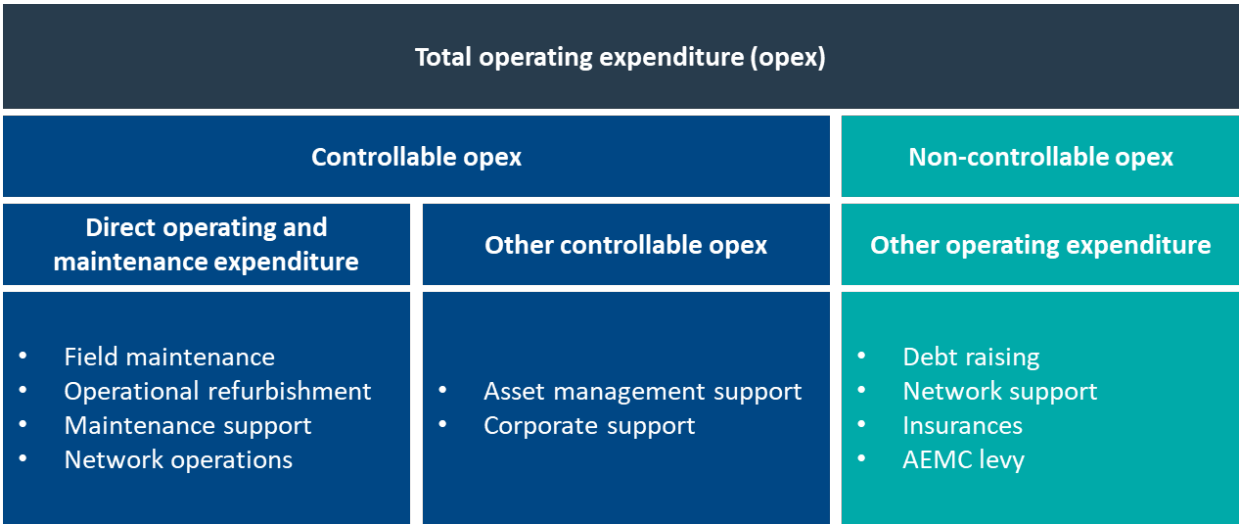


Table 2.1: Operating expenditure category definitions

Operating expenditure category		Definition
Controllable operating expenditure		
Direct operating and maintenance	Field maintenance	Includes all field activities to ensure plant can perform its required functions. There are four types of field maintenance; routine, condition-based, emergency and deferred emergency maintenance. Field maintenance costs include all labour and materials needed to perform the required maintenance tasks. Each field maintenance type is further separated into five major asset type categories; substations, transmission lines, secondary systems, communications and land.
	Operational refurbishment	Involves activities that return an asset to its pre-existing condition or function, or activities undertaken on specific parts of an asset to return these parts to their pre-existing condition or function. These refurbishment activities do not involve increasing the capacity or capability of the plant, or extending its life beyond original design.
	Maintenance support	Includes activities where maintenance service providers represent asset support functions in the field. It also includes non-field functions supporting maintenance activities for the operate/maintain phase of the asset life cycle such as maintenance strategy development, performance management and maintenance auditing. This category also includes local government rates charges, water charges, electricity charges and charges for permits for Powerlink.
	Network operations	Includes control centre functions as well as those additional activities required to ensure the safe, secure, reliable and efficient operational management of the Queensland transmission network. Network operations also includes other control room activity not related to Powerlink assets such as switching to allow access to customer assets, new connections and AEMO requirements.
Other controllable expenditure	Asset management support	Activities required to support the strategic development and ongoing asset management of the network. There are four major sub-elements: network planning, business development, regulatory management and operations.
	Corporate support	Corporate support encompasses the support activities required by Powerlink to ensure adequate and effective corporate governance. This includes corporate and direct corporate support charges and also revenue reset costs.
Non-Controllable Operating Expenditure		
Other operating expenditure	Insurances	This covers both the cost of premiums to maintain commercial insurance coverage and also self-insurance costs to provide cover for minor losses that cannot be insured.
	Network support	Refers to costs associated with non-network solutions used by Powerlink as a cost effective alternative to network investment.
	AEMC Levy	Since 2014/15, the *Electricity Act 1994* has required electricity transmission networks in Queensland to pay a share of the State's cost to fund the AEMC.
	Debt raising	Relate to costs incurred by an entity over and above the debt margin.

2.2 Operating expenditure forecasting methodology

This section describes the methodology Powerlink will apply to develop a forecast of operating expenditure.

We will largely follow the approach set out in the AER's Expenditure Forecast Assessment Guideline (the EFA Guideline)[3]. The AER's base-step-trend methodology will be applied for the majority of operating expenditure categories, with category-specific (or bottom-up) forecasts to be developed for the AEMC Levy, network support costs and debt raising costs, described further in Section 2.3.5.

This approach is also identical to our Expenditure Forecasting Methodology submitted to the AER in June 2020, other than a change in how we forecast insurance. Due to current uncertainty in the insurance market, we have used the base-step-trend model to forecast insurance and view this as more appropriate than a bottom-up approach. This includes insurance premiums and self-insurance.

We will first identify an efficient base year that reflects the expenditure a prudent operator would require, taking into account a realistic expectation of the demand forecast and cost inputs to achieve the operating expenditure objectives[4].

Any one-off or non-recurrent expenditure items will be removed so that the base year represents ongoing recurrent expenditure.

Once an efficient base year operating expenditure is established, we estimate final year operating expenditure[5] for the current regulatory period and trend forward by the application of the real rate of change in operating expenditure, consistent with the EFA Guideline[6].

We will add or subtract any other costs not captured in the base operating expenditure or rate of change that are required for the forecast. These costs include other operating expenditure and any step changes, to meet the operating expenditure objectives.

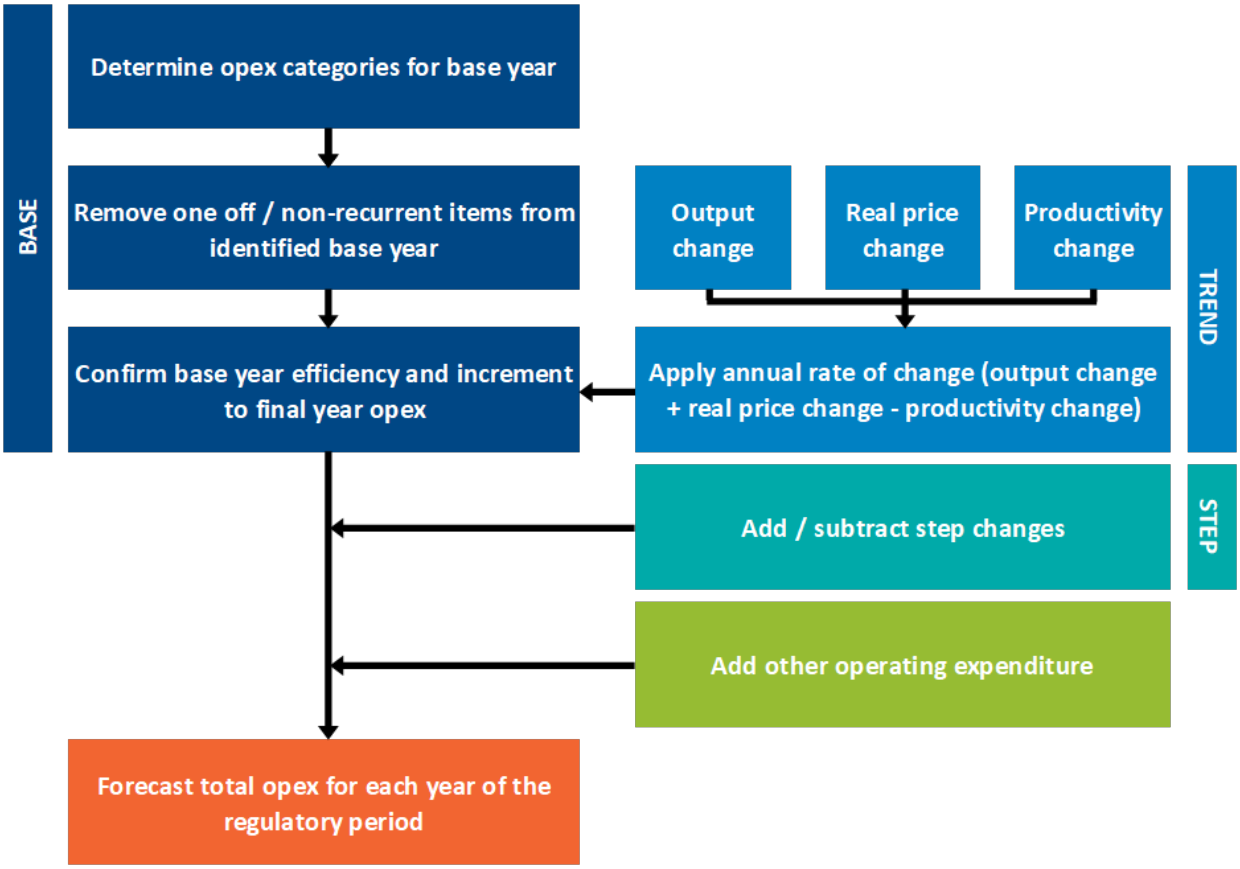
Our operating expenditure forecast will include only operating expenditure for prescribed transmission services and will not include any amounts relating to a project that is included as a contingent project[7]. Operating expenditure associated with contingent projects will be sought at the time a contingent project application is lodged.

Where appropriate and consistent with the components of the AER's base-step-trend model, we may seek adjustments to its forecast operating expenditure to reflect, for example, any adjustments to accounting practices. We do not anticipate any such adjustments at this stage.

The overall forecasting methodology is illustrated in Figure 2.2.

[3] Better Regulation, Expenditure Forecast Assessment Guideline for Electricity Transmission, November 2013
[4] National Electricity Rules, Rule 6A.6.6(c)
[5] Better Regulation, Expenditure Forecast Assessment Guideline for Electricity Transmission, November 2013, page 22
[6] *Ibid*, page 23.
[7] National Electricity Rules, Rule 6A.8.1(b)

Figure 2.2: Powerlink's proposed operating expenditure forecasting methodology



2.3 Key variables and assumptions

The Rules require that Powerlink's Revenue Proposal include the key assumptions and forecasts of the key variables used to derive the operating expenditure forecast. This section discusses some of those key inputs and assumptions.

2.3.1 Efficient base year

We will apply 2018/19 as the base year for our base-step-trend model. This base year has been selected as it is reflective of a typical year of operations (i.e. without the potential uncertainties and inconsistencies in expenditure associated with COVID-19 in 2019/20 and 2020/21). It also reflects a 'revealed cost' approach as is the AER's preference.

We provide further detail about our efficient base year and its selection in Chapter 6 Forecast Operating Expenditure of our Revenue Proposal.

2.3.2 Remove one off / non-recurrent items from identified base year

We remove items from our base year that are one off / non-recurrent. Typically, this includes items such as movements in provisions[8], Network Support costs[9] and Network Capability Incentive Parameter Action Plan (NCIPAP) costs[10].

[8] Consistent with the Expenditure Forecast Assessment Guideline for Electricity Transmission, Australian Energy Regulator, November 2013, page 22.
[9] Network Support costs are non-recurrent and managed through the cost-pass through mechanism for network support under the Rules.
[10] NCIPAP projects occur under the Service Target Performance Incentive Scheme (STPIS) and are removed from base year operating expenditure consistent with clause 5.2(r)(1) of version 5 of the STPIS.

2.3.3 Rate of change forecasts

The overall real rate of change is a function of the forecast change in network output, real input costs (labour and materials) and productivity, shown in Figure 2.3.

Figure 2.3: Forecast rate of change

Output change

There are four factors that contribute to output change, outlined in Table 2.2. Output measures are derived as per the approach outlined below, then weighted by their assessed shares of gross revenue. This is calculated and published by the AER in its annual Economic Benchmarking Report for Transmission. Energy supplied is also included as negative output with a weighting based on Value of Customer Reliability (VCR) published by AEMO.

Table 2.2: Output change factors

Output measure	Approach
Energy throughput	Forecast growth of delivered energy within Queensland, plus energy delivered through interconnectors to New South Wales measures in GWh, identified in the central scenario of AEMO's 2020 Electricity Statement of Opportunities (ESOO) and AEMO's 2020 Integrated System Plan (ISP).
Ratcheted Maximum Demand	Ratcheted Maximum Demand is the ratcheted non-coincident maximum demand. Non-coincident maximum demand is the maximum demand of each individual connection point in a year measured in MVA. This information will be sourced from the central scenario of AEMO's 2020 ESOO and Powerlink's 2020 Transmission Annual Planning Report.
Number of customers	Number of customers is the aggregate of number of customers for the Distribution Network Service Providers (DNSP), Ergon Energy and Energex, identified in the AER's 2020-25 Final Decision models and Powerlink's directly-connected customers. For 2026/27, Ergon Energy and Energex's customer numbers were trended based on a simple linear regression.
Circuit length	Circuit length is the total transmission line circuit length measured in kilometres sourced from Powerlink's Enterprise Resource Planning database (SAP) Plant Maintenance Module.

Price change

Price change is the forecast real change in input costs, measured by labour and materials. Our current view is to determine labour costs based on an average of two State-level utility industry Wage Price Index (WPI) forecasts. This is consistent with the AER's recent approach in a range of June 2020 Final Decisions for SA Power Networks, Ergon Energy, Energex and Jemena Gas Networks. Our proposed approach to materials cost escalation is provided in Section 3.4.

Productivity change

Productivity change measures the forecast expected productivity improvements a network business can make in providing their services. The AER currently applies an industry average to calculate productivity, based on operating expenditure partial factor productivity across all TNSPs published within the most recent AER annual Economic Benchmarking Report for Transmission.

We have decided to apply a productivity factor of 0.5% per annum, which is above the benchmark industry average of 0.3%. Our reasons and approach to productivity are explained in detail in Chapter 6 Forecast Operating Expenditure of our Revenue Proposal.

2.3.4 Step changes

Step changes account for any material changes in operating expenditure (up or down) compared to the base year (e.g. new regulatory obligations). Step changes are either added to or subtracted from the base year + trend.

Input cost components of step changes in operating expenditure may escalate at rates different to the Consumer Price Index (CPI). Where this is the case, we will apply appropriate labour and materials real cost escalators. Further information is provided in Section 3.4.

2.3.5 Other operating expenditure

We have forecast three categories of other operating expenditure outside the base-step-trend model as category specific forecasts. These are detailed in Table 2.3.

In the normal course of business, we classify our insurance costs (premiums and self-insurance) as non-controllable, other operating expenditure. However, since we published our Expenditure Forecasting Methodology in June 2020 we have decided, for the purposes of our Revenue Proposal, to include insurance costs in our base year, rather than as a category-specific forecast. Our reasons for this are explained in Chapter 5 Forecast Operating Expenditure of our Revenue Proposal.

Table 2.3: Other operating expenditure categories

Category	Proposed approach
Debt raising	Debt raising costs are transaction costs incurred each time a business raises or refinances debt. The AER's preferred approach is to forecast debt raising costs using a benchmarking approach rather than a business' actual costs in a single year. We will adopt this approach.
Network support	Network support costs are considered as a cost pass through[11], therefore included as a category specific forecast to facilitate a pass through occurring. This is the AER's approach, which we will adopt.
AEMC Levy	The AEMC Levy is applied to all jurisdictions across the National Electricity Market (NEM) to cover the operations of the AEMC. In Queensland, the majority of the AEMC Levy cost is currently passed through to Powerlink and we incur this cost within our operating expenditure.

[11] National Electricity Rules, Rule 6A.7.2.

3. Capital expenditure

Powerlink's capital expenditure consists of expenditure for new assets that increase capacity on, or capability of, the network, reinvestment in existing assets that are reaching the end of their service life, and other supporting assets such as business IT and vehicles.

This chapter sets out our intended approach to forecasting capital expenditure.

3.1 Capital expenditure categories

To assist the AER and stakeholders to understand the nature of the forecast capital expenditure, and how it relates to capital expenditure undertaken in the current regulatory period, we will retain the same categories of capital expenditure applied in the current regulatory period.

There are three high-level categories of capital investment:

- Load-driven (network) – to comply with mandated reliability obligations as electricity demand grows and/or delivery of net market benefits;
- Non load-driven (network) – primarily associated with reinvestment in assets to maintain the required capacity or capability of the network or investment to meet the need for system services such as system strength; and
- Non-network – comprising, in large part, business information technology and support the business assets required in the normal day-to-day course of business.

Figure 3.1 shows how our capital expenditure categories fit within the total capital expenditure framework. Definitions of each category are presented in Table 3.1.

Figure 3.1: Powerlink's capital expenditure categories

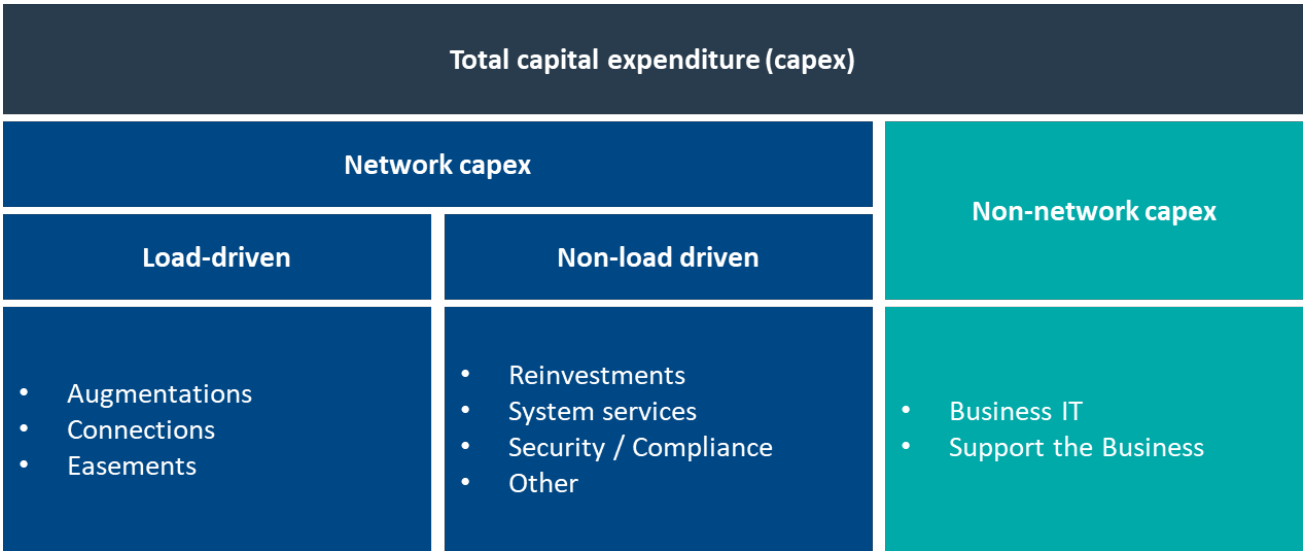


Table 3.1: Capital expenditure category definitions

Capital expenditure category	Definition
Network – Load driven	
Augmentations	Relates to augmentations defined under the Rules. Typically these include projects such as the construction of new lines, substation establishments and reinforcements or extensions of the existing network.
Connections	Works to facilitate additional connection point capability between Powerlink and DNSPs or other TNSPs. Associated works are identified through joint planning with the relevant Network Service Provider (NSP).
Easements	The acquisition of transmission line easements to facilitate the projected expansion and reinforcement of the transmission network. This includes land acquisitions associated with the construction of substations or communication sites.
Network – Non-load driven	
Reinvestments	Relates to reinvestment to meet the expected demand for prescribed transmission services. Expenditure is primarily undertaken due to end of asset life, asset obsolescence, asset reliability or safety requirements. A range of options is considered as asset reinvestments, including removal without replacement, non-network alternatives, life extension to extend technical life or replacing assets with assets of a different type, configuration or capacity. Each option is considered in the context of the future capacity needs accounting for forecast demand and the changing mix and location of generation.
System services*	Investments to meet overall power system performance standards and support the secure operation of the power system. This includes the provision of system strength services and inertia services.
Security / Compliance	Expenditure undertaken to ensure compliance with amendments to various technical, safety or environmental legislation. In addition, expenditure is required to ensure the physical security (as opposed to network security) of Powerlink's assets, which are regarded as critical infrastructure.
Other	All other expenditure associated with the network which provides prescribed transmission services, such as communications system enhancements, improvements to network switching functionality and insurance spares.
Non-network	
Business IT	Expenditure to maintain IT capability and replace or improve business system functionality where appropriate.
Support the Business	Expenditure to replace or improve business requirements including the areas of commercial buildings, motor vehicles and other tools and equipment.

* *System services is a new category which did not exist in Powerlink's 2018-22 Revenue Proposal. Powerlink has done this to clearly distinguish capital expenditure for system services from other types of capital expenditure.*

3.2 Planning approach

Powerlink is responsible for planning the shared transmission network within Queensland. The planning process requires consultation with AEMO, Registered Participants and interested parties, including customers, generators and DNSPs.

Significant inputs to the network planning process are the:

- forecast of customer electricity demand (including demand side management) and its location;
- location, capacity and arrangement of new and existing generation (including embedded generation);
- condition and performance of assets and an assessment of the risks associated in allowing assets to remain in-service; and
- assessment of future network capacity to meet the required planning criteria.

The 10-year forecasts of electrical demand and energy across Queensland are used, together with forecast generation patterns, to determine potential flows on transmission network elements. The location and capacity of existing and committed generation in Queensland is sourced from AEMO, unless modified following specific advice from relevant participants. Information about existing and committed embedded generation and demand management within distribution networks is provided by DNSPs.

Our approach is to examine the capability of the existing network and the future capability following any changes resulting from committed augmentations. This involves consultation with the relevant DNSP in situations where the performance of the transmission network may be affected by the distribution network, for example where the two networks operate in parallel.

If the capability violation exceeds the required reliability standard, joint planning investigations are carried out with DNSPs (or other TNSPs, if relevant). The objective of this joint planning is to identify the most cost effective solution, regardless of asset boundaries, including potential non-network solutions.

In addition to meeting the forecast demand, we must maintain the current network so that the risks associated with the condition and performance of existing assets are appropriately managed. We undertake a program of asset condition assessments to identify emerging asset condition related risks.

Therefore, planning of the network optimises the network topology as assets reach the end of their technical life so that the network is configured to meet current and future capacity needs. Individual asset investment decisions are not determined in isolation. Our integrated asset planning process takes account of both future changes in demand and the condition based risks of related assets in the network. The integration of condition and demand based limitations delivers cost effective solutions that manage both reliability of supply obligations and the risks associated in allowing assets to remain in-service.

In response to these risks, a range of options are considered as asset reinvestments including removing assets without replacement, non-network alternatives, refurbishment to extend technical life or replacing assets with assets of a different type, configuration or capacity. Each of these options is considered in the context of the future capacity needs accounting for forecast demand.

Information regarding proposed transmission investments within a 10-year outlook period is published in our Transmission Annual Planning Report (TAPR) and related material. This provides information to the NEM, including AEMO, Registered Participants and interested parties (including non-network providers) on our planning processes, anticipated public consultations, and decision making relating to potential future investments.

As the jurisdictional planner for Queensland, we also support and contribute to the development of AEMO's ISP. This includes provision of data on future network plans as well as the timing of future network reinvestment trigger and options for reinvestment. We also contribute to AEMO's input assumptions relating to the transmission network, including network project cost estimates.

3.3 Capital expenditure forecasting methodology

Building on the experience, input and feedback gained during its previous Revenue Proposal process, Powerlink again proposes to adopt a hybrid approach, which integrates a mix of both top-down and bottom-up methods to forecast capital expenditure.

This approach provides a number of advantages:

- significantly reduces the cost to Powerlink (and ultimately customers) of preparing our Revenue Proposal compared to a fully bottom-up approach;
- assists the AER and stakeholders in terms of the time, effort and cost to review and assess a Revenue Proposal; and
- balances the desire of stakeholders to understand the technical and economic justification for forecast significant investments with the uncertainty of forecasting capital expenditure needs many years in advance, all while the technical demands on the transmission network are rapidly changing through the energy transition.

For our 2018-22 Revenue Proposal, we considered the top-down forecasts for the relevant asset types to be the primary expenditure forecast, with the bottom-up information for those same asset types being illustrative of projects that could be accommodated within the top-down forecast. For our 2023-27 Revenue Proposal, we are targeting to have project specific supporting justification for at least 60% of the total forecast capital expenditure. Depending on the specifics of the projects this may include asset condition assessment reports, specific asset strategies, project scopes and estimates, network planning assessments and risk/cost quantification. This bottom-up information will then provide the primary expenditure forecast for those assets with the top-down forecast for the remaining assets being complementary to this. Powerlink refers to this further development of the hybrid forecasting approach as the Hybrid+ approach.

Regardless of the methodologies used for forecasting capital expenditure for the purposes of the Revenue Proposal, it remains the case that detailed bottom-up analysis is required and prepared to support final investment approval in the normal course of business.

Table 3.2 outlines how Powerlink will apply its Hybrid+ approach. Further definition of what we consider to be top-down and bottom-up forecasting methods is contained in Appendix B.

Table 3.2: Capital expenditure forecasting approach application

Approach	Application of approach	Method
Bottom-up	• Approved projects • Load-driven capital expenditure • Power transformer and Static VAr Compensator (SVC) reinvestment • Any major one-off expenditure needs • System services such as system strength and inertia • Significant network projects (indicative threshold of > $10 million project cost) • Contingent projects (note: not part of the ex-ante capital expenditure forecast)	• Analysis of need, preparation of project scope, estimate, planning statement and risk/cost assessment
Top-down	• Network asset reinvestments including transmission lines, substations (excluding transformers and SVCs which are bottom-up) and secondary systems and telecommunications	• Use of the AER's Replacement Expenditure (Repex) Model. Section 3.3.2 and Appendix C provides further detail
Trend analysis	• Security / compliance • Other network capital expenditure	• Use of a forecasting methodology similar to the base-step-trend approach proposed by the AER for forecasting operating expenditure

Relationship between capital expenditure forecasting and investment development phases

Our forecasting approach has also been tailored to the following phases of capital expenditure development:

1. Assets under construction – projects that have already received full financial approval consistent with our corporate governance framework;
2. Confirmed investment needs – projects that are not yet approved but the need for investment has been confirmed and options are being assessed in preparation for seeking project approval. In many cases a Regulatory Investment Test for Transmission (RIT-T) consultation is underway; and
3. Future investment needs – based on normal business practices there is an expected future investment need but specific project details are not yet settled or ready to seek project approval.

These phases are illustrated in Figure 3.2 below. Our next regulatory period starts 1 July 2022.

Figure 3.2: Capital expenditure forecasting phases

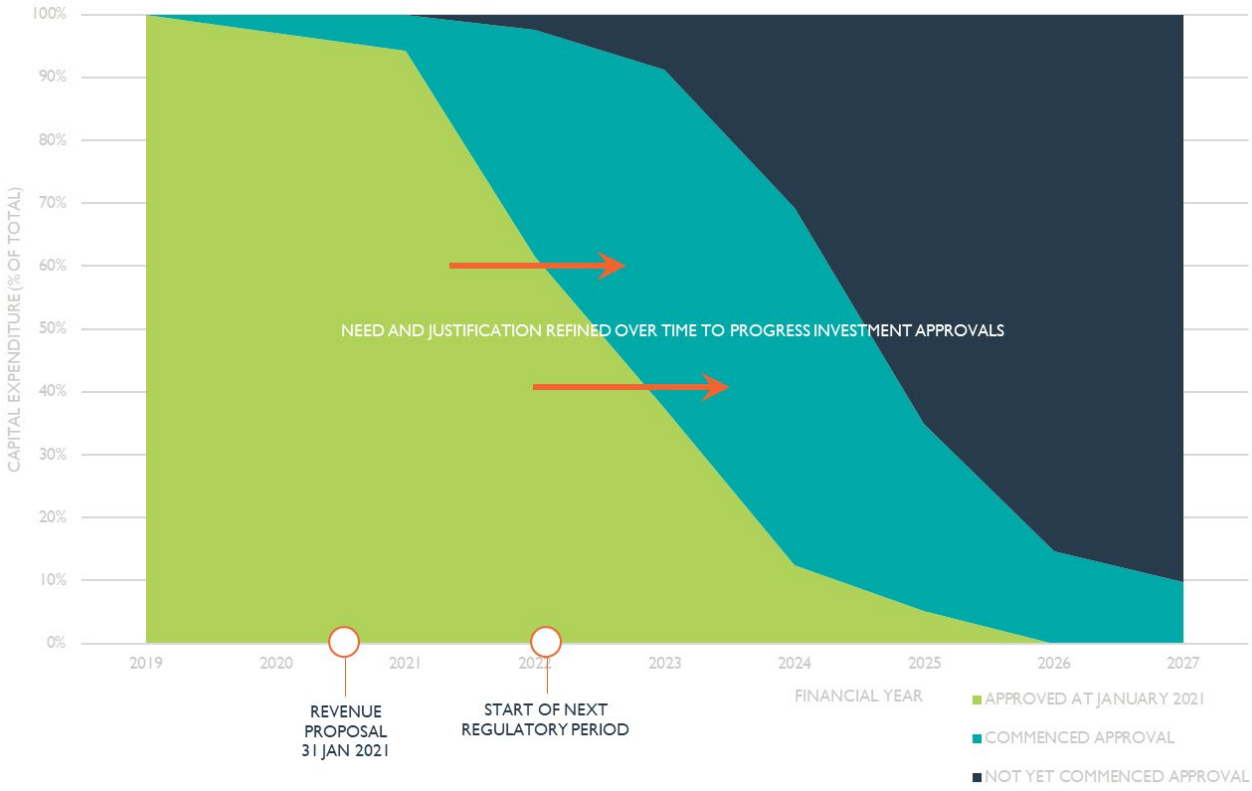


Figure 3.2 illustrates the progression and timing of investment approvals under normal business practice. The Figure demonstrates the progress of capital expenditure approvals as part of the normal course of business, up to September 2019 (light green) and then up to May 2020 (dark green). It indicates some of the forecast capital expenditure for the next regulatory period will already be fully approved or have commenced the approval process when we submit our Revenue Proposal and that further approvals will occur and be reflected in any updated capital expenditure forecasts as part of the Revised Revenue Proposal.

For these investments, the capital expenditure forecast will be developed bottom-up and will be based on specific project estimates and identification of a preferred option, including risk/cost analysis where appropriate, analysis of project progress and expected outturn costs.

This will apply for all categories of capital expenditure and is similar to the approach we have adopted in previous Revenue Proposals.

For investments that have not yet commenced the approval process, we will adopt a variety of forecasting methodologies determined by the nature of the future investment need, as outlined in Sections 3.3.1 to 3.3.4. These different types of future investment need to align with the high-level categories of capital expenditure outlined in Section 3.1.

Integration of top-down and bottom-up forecasts

In contrast to our earlier hybrid forecasting methodology, where top-down forecasts contributed the majority of the forecast capital expenditure, our Hybrid+ forecasting methodology targets at least 60% of the forecast capital expenditure to be based on bottom-up forecasts. We consider the top-down forecasting models, whether Repex Modelling or trend based models, are complementary and additive to the bottom-up forecasts.

Most of our forecast capital expenditure for the balance of the current regulatory period is made up of projects that are already fully approved and are now being implemented, or projects that are already progressing towards investment approval, such as undergoing a RIT-T consultation. Given this profile of approved versus unapproved capital expenditure we will apply the top-down forecast capital expenditure to be in addition to any bottom-up forecast capital expenditure from 1 July 2022.

3.3.1 Load-driven network capital expenditure

Load-driven network projects include augmentations (including preparatory capital expenditure works for Actionable ISP projects), connections to other prescribed networks, and easements and land acquisitions. As triggers for load-driven capital expenditure are based on specific local demand growth forecasts and the amount of existing headroom in network capability in those areas, the forecast expenditure profile tends to be quite lumpy.

We consider that bottom-up analysis remains the most practical means for developing forecasts for load-driven capital expenditure.

Forecast capital expenditure for these future investment needs will be developed from cost estimates for individual projects.

To derive the forecast capital expenditure in these categories, we will consider only the most likely scenario of forecast demand growth (Central Scenario), taken from AEMO's 2020 Electricity Statement Of Opportunities (ESOO).

The use of a single scenario of forecast demand growth reflects the same approach that was taken in our previous Revenue Proposal for the 2018-22 regulatory period. AEMO's 2020 ESOO identified negligible levels of Unserved Energy (USE) across the outlook period for all scenarios and no significant generator decommissioning identified within our next regulatory period. Accordingly, detailed analysis of emerging network limitations and the forecast capital expenditure requirements attributable to demand growth will be conducted for only the Central Scenario demand forecast.

Where there are plausible variations in electricity market development away from this central outlook that trigger significant network investment needs, we will manage this through the contingent projects regime. This is discussed further in Section 3.3.4.

3.3.2 Non load-driven network capital expenditure

Non load-driven network projects include reinvestment in network assets, meeting regulatory obligations to provide system services, physical security of network assets, compliance with mandated asset standards, and other minor network assets. As overall expenditure in these categories is not directly linked to demand growth it typically exhibits a smoother profile of expenditure over time than load-driven capital expenditure. Notwithstanding this, there can be longer term trends of reinvestment expenditure up or down, reflecting the end of life of assets associated with periods of significant expansion of the transmission network during the 1970s and 1980s, and later during the 2000s. Expenditure in the system services category is driven by changes in technology being deployed across the power system and is more 'lumpy' in nature.

Where our normal asset management planning identifies expected significant reinvestment needs for specific substations or transmission lines, we will provide project specific bottom-up supporting information, including relevant plans and strategies, condition assessment reports and risk/cost analysis to demonstrate the prudency and efficiency of this expenditure within the forecast.

To complement the bottom-up forecast of capital expenditure requirements for these categories we will adopt top-down modelling techniques. For the most significant of these expenditure categories, network reinvestment, Powerlink will utilise predictive modelling techniques, exemplified by the AER's own Replacement Expenditure (Repex) Model.

Predictive modelling uses statistical techniques and information from our asset management systems to forecast the level of reinvestment required. This information will reflect the data already provided to the AER through the annual Economic Benchmarking and Category Analysis Regulatory Information Notice (RIN) returns. The level of reinvestment will reflect any opportunities that we have identified where like-for-like replacement is not warranted. Standardised unit replacement costs for each of these network asset types will then be applied to these forecast quantities to arrive at the forecast network reinvestment capital expenditure.

We recognise the importance in statistical modelling, such as the Repex Model, of having sufficient sample size and homogeneity of assets. Where there is an insufficient sample size for predictive modelling to be a reliable forecasting method, we will provide estimates of individual investment needs. This is most likely to be relevant for power transformers and Static VAr Compensators where there is a relatively small number of high cost units.

The Revenue Proposal will detail the methodology used for calibrating the predictive model so that the forecast reinvestment quantities reflect the expected demand for prescribed transmission services over the regulatory period. Where asset specific information warrants it, this will be used to adjust the forecast of reinvestment capital expenditure.

The new category of system services will be forecast using specific cost estimates for individual projects.

The remaining categories of non-load-driven capital expenditure, namely security / compliance and other, will be forecast using trend analysis techniques. We intend to use a forecasting methodology similar to the base-step-trend approach proposed by the AER for forecasting operating expenditure. The key difference will be that, instead of identifying a single efficient base year as for operating expenditure, the capital expenditure forecast will identify an efficient base trend from historical expenditures.

Similar to network reinvestment expenditure, where there are identified significant specific investment needs in these categories, we will base the forecast on bottom-up information.

3.3.3 Non-network capital expenditure

Non-network projects include business information technology (IT) and expenditure to support the business (that is, buildings, motor vehicles and mobile plant and tools). Similar to non-load-driven capital expenditure, expenditure in these categories is not directly linked to demand growth.

We will apply our IT Benefits Realisation and Management Framework, which was developed in late 2019/early 2020 with input from our Customer Panel, to relevant IT components of our Revenue Proposal submission. Forecasts of capital expenditure in IT investments will be developed using a combination of methodologies appropriate to each type of investment:

- IT infrastructure investment costs will be estimated based on a forecast of IT fleet assets due for renewal each financial year.
- Significant IT application investments planned for the coming regulatory period will be supported by investment cases.
- Other recurrent investments (e.g. minor updates, upgrades or compliance changes) will be estimated consistent with historic trends.

Forecast capital expenditure for buildings, motor vehicles and other support the business needs will be largely based on historic trends. Where specific future needs can be identified these will be incorporated into the forecast.

3.3.4 Contingent projects

The contingent projects regime in the Rules[12] mitigates the risk of uncertainty of specific capital project investments for both consumers and network businesses. It does this by providing TNSPs with a mechanism to trigger additional capital expenditure if necessary, but this expenditure is not included in the ex-ante revenue allowance unless and until the investment trigger is confirmed by the AER.

As noted in Section 3.4, our forecast of load-driven capital expenditure will be based on a single scenario of demand growth. To manage the risk that a significant network investment need may be triggered as a result of material changes in demand or generation mix away from this Central Scenario, we will analyse and propose relevant contingent projects.

As part of the Hybrid+ forecasting methodology, and as noted in Section 3.3.2, we will incorporate bottom-up forecasting for significant asset reinvestment needs. For some long transmission lines, where the reinvestment trigger is still some years away, it maybe uncertain whether the trigger will occur in a timeframe that requires capital expenditure for the 2023-27 regulatory period. Given the significant changes currently underway in the energy transition, the scope, and hence the cost, of some reinvestment projects may also change significantly between now and the time for investment.

For these reasons, we are considering including some network reinvestment projects as contingent projects. We have engaged with our Revenue Proposal Reference Group and Customer Panel on this proposal and they are supportive of pursuing this initiative and see it as being in the interests of customers. We have also engaged with the AER on this matter.

We will continue to explore whether the existing Rules provisions regarding specifying trigger events can support contingent reinvestment, or whether alternative arrangements are needed.

[12] *National Electricity Rules*, Clause 6A.8.1

3.4 Key variables and assumptions

Table 3.3 outlines key variables and assumptions that underpin our capital expenditure forecast.

Table 3.3: Key variables and assumptions

Variable/assumption	Description
Forecast demand and generation	• The electricity demand forecast adopted for our Revenue Proposal is the Central Scenario outlook in AEMO's 2020 ESOO.
Transmission reliability of supply standard	• Powerlink holds Transmission Authority Number T01/98 issued by the Queensland Energy Regulator under the Queensland *Electricity Act 1994*. Clause 6.2 of the Transmission Authority obligates us to plan and develop the transmission network such that power quality and reliability of supply standards will be met. • In particular, we are required to plan and develop the transmission network to be able to supply the forecast maximum demand, with no more than 50MW or 600MWh of customer supply curtailed, even with the most critical network element out of service. • Powerlink's mandated quality and reliability of supply obligations within its current Transmission Authority will be the applicable standards during the next regulatory period.
Asset information	• The use of the AER's Repex Model for forecasting network reinvestment capital expenditure requires substantial information on the current fleet of assets and equipment installed on the Powerlink network. The required information will be sourced from our Enterprise Resource Planning (ERP) database.
Cost escalators and risk	• The main input cost components of our capital expenditure forecasts are labour costs (internal and external), various metals commodities (aluminium, copper and steel), and general plant and equipment. • Costs will be assumed to escalate at CPI, unless we can demonstrate a material difference between CPI, movements in underlying commodities and materials prices, and the end cost to Powerlink of purchasing the resulting manufactured goods.

3.5 Conformance to AER Expenditure Forecasting Assessment (EFA) Guideline

The AER's EFA Guideline (November 2013) sets out the approaches the AER may adopt to assess our forecast capital expenditure as well as the AER's likely information requirements to support this assessment.

We have reviewed the likely information requirements contained in the EFA Guideline and consider that our proposed capital expenditure forecasting methodology will facilitate the provision of sufficient supporting information for the AER to apply its preferred assessment approach.

Appendix A

National Electricity Rules Version 156 requirements

6A.6.6 – Forecast Operating Expenditure

The Rules require Powerlink's Revenue Proposal to include a forecast of operating expenditure which Powerlink considers is required to achieve the operating expenditure objectives.

The operating expenditure objectives are to:

(1) meet or manage the expected demand for prescribed transmission services over that period;

(2) comply with all applicable regulatory obligations or requirements associated with the provision of prescribed transmission services;

(3) to the extent that there is no applicable regulatory obligation or requirement in relation to:
  (i) the quality, reliability or security of supply of prescribed transmission services; or
  (ii) the reliability or security of the transmission system through the supply of prescribed transmission services, to the relevant extent:
  (iii) maintain the quality, reliability and security of supply of prescribed transmission services; and
  (iv) maintain the reliability and security of the transmission system through the supply of prescribed transmission services; and

(4) maintain the safety of the transmission system through the supply of prescribed transmission services[13].

The Rules also prescribe the minimum informational requirements for the Revenue Proposal relating to operating expenditure. These minimum requirements are:

(1) a forecast of the required operating expenditure that complies with the requirements of clause 6A.6.6 and identifies the forecast operating expenditure by reference to well accepted categories such as:
  (i) particular programs; or
  (ii) types of operating expenditure (for example, maintenance, payroll and materials etc), and identifies in respect of each such category:
  (iii) to what extent that forecast expenditure is on costs that are fixed and to what extent it is on costs that are variable; and
  (iv) the categories of transmission services to which that forecast expenditure relates;

(2) the methodology used for developing the operating expenditure forecast;

(3) the forecasts of key variables relied upon to derive the operating expenditure forecast and the methodology used for developing those forecasts of key variables;

(4) the methodology used for determining the cost associated with planned maintenance programs designed to improve the performance of the relevant *transmission system* for the purposes of any *service target performance incentive scheme* that is to apply to the *Transmission Network Service Provider* in respect of the relevant *regulatory control period*;

(5) the key assumptions that underlie the operating expenditure forecast;

(6) a certification of the reasonableness of the key assumptions by the directors of the *Transmission Network Service Provider*;

(7) operating expenditure for each of the first three *regulatory years* of the current *regulatory control period*, and the expected operating expenditure for each of the last two *regulatory years* of that *regulatory control period*, categorised in the same way as for the operating expenditure forecast;

[13] National Electricity Rules, Clause 6A.6.6(a)

(8) an explanation of any significant variations in the forecast operating expenditure from historical operating expenditure; and

(9) any non-network options considered by the *Transmission Network Service Provider*[14].

6A.6.7 – Forecast Capital Expenditure

The Rules require Powerlink's Revenue Proposal to include a forecast of capital expenditure which Powerlink considers is required to achieve the capital expenditure objectives.

The capital expenditure objectives are to:

(1) meet or manage the expected demand for prescribed transmission services over that period;

(2) comply with all applicable regulatory obligations or requirements associated with the provision of prescribed transmission services;

(3) to the extent that there is no applicable regulatory obligation or requirement in relation to:

  (i) the quality, reliability or security of supply of prescribed transmission services; or

  (ii) the reliability or security of the transmission system through the supply of prescribed transmission services,

  to the relevant extent:

  (iii) maintain the quality, reliability and security of supply of prescribed transmission services; and

  (iv) maintain the reliability and security of the transmission system through the supply of prescribed transmission services; and

(4) maintain the safety of the transmission system through the supply of prescribed transmission services[15].

The Rules also prescribe the minimum informational requirements for the Revenue Proposal relating to capital expenditure. These minimum requirements are:

(1) a forecast of the required capital expenditure that complies with the requirements of clause 6A.6.7 and identifies the forecast capital expenditure by reference to well accepted categories such as:

  (i) asset class (eg. transmission lines, substations etc); or

  (ii) category driver (eg. regulatory obligations or requirements, replacement, reliability, net market benefit, business support etc),

  and identifies, in respect of proposed material assets:

  (iii) the location of the proposed asset;

  (iv) the anticipated or known cost of the proposed asset; and

  (v) the categories of transmission services which are to be provided by the proposed asset;

(2) the methodology used for developing the capital expenditure forecast;

(3) the forecasts of load growth relied upon to derive the capital expenditure forecasts and the methodology used for developing those forecasts of load growth;

(4) the key assumptions that underlie the capital expenditure forecast;

[14] National Electricity Rules, Schedule S6A.1.2
[15] National Electricity Rules, Clause 6A.6.7(a)

(5) a certification of the reasonableness of the key assumptions by the directors of the Transmission Network Service Provider;

(6) capital expenditure for each of the past regulatory years of the previous and current regulatory control period, and the expected capital expenditure for each of the last two regulatory years of the current regulatory control period, categorised in the same way as for the capital expenditure forecast and separately identifying for each such regulatory year:

  (i) margins paid or expected to be paid by the Transmission Network Service Provider in circumstances where those margins are referable to arrangements that do not reflect arm's length terms; and

  (ii) expenditure that should have been treated as operating expenditure in accordance with the policy submitted under paragraph (9) for that regulatory year;

(7) an explanation of any significant variations in the forecast capital expenditure from historical capital expenditure;

(8) any non-network options considered by the Transmission Network Service Provider; and

(9) the policy that the Transmission Network Service Provider applies in capitalising operating expenditure[16].

[16] National Electricity Rules, Schedule S6A.1.1

Appendix B

What is "bottom-up" forecasting?

A bottom-up approach includes detailed analysis and project plans that are costed to give the total capital expenditure requirement.

Powerlink proposes that load-driven capital expenditure, which relates to network augmentations and connections to meet growing demand, continue to be forecast using a bottom-up methodology.

Based on AEMO's most recent demand forecast, which is updated annually in August, we anticipate the Revenue Proposal will include a relatively small number of these projects. We also consider that the bottom-up load-driven capital expenditure forecast will be efficiently developed using a single scenario, with possible variations to that forecast being managed through the contingent projects regime.

The contingent projects regime assists in managing large and uncertain projects. It allows certain trigger events to be identified by Powerlink and agreed in advance by the AER as part of the Revenue Determination. Through this mechanism the project is not included in the capital expenditure allowance, but if the trigger event occurs it allows us to apply to the AER to support additional capital expenditure that is required to meet a specified trigger event.

We also propose that a bottom-up approach be applied to non-load-driven and non-network expenditure projects that have already been identified. This includes projects:

- that are already underway or committed;
- for which specific investment triggers have been confirmed and which are progressing towards approval; or
- that are significant unapproved investment needs and that are justified on a bottom-up basis.

What is "top-down" forecasting?

To complement the bottom-up approach, we propose to use top-down forecasting for the non-load-driven and non-network capital expenditure project needs that have not already been identified.

These methodologies will include predictive modelling and base-step-trend analysis.

Appendix C

Repex Model approach

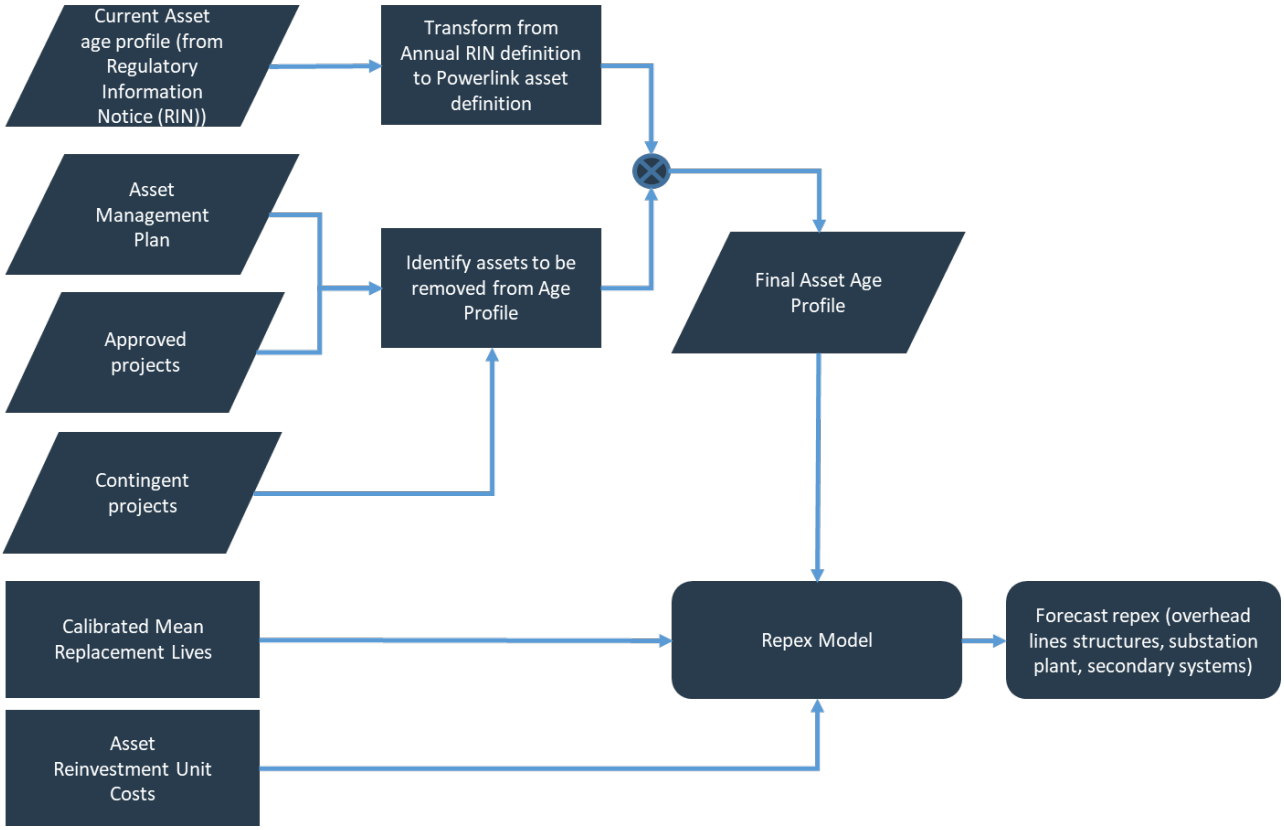
Powerlink will use the AER's Replacement Expenditure (Repex) Model as part of its Hybrid+ approach. The diagram below outlines how the Repex Model is calibrated and used to derive a forecast.

Drivers of capital investment that are more repeatable and reflect a recurring investment or reinvestment need will be forecast top-down as part of the Repex Model.

The Repex Model was used to develop our previous Revenue Proposal capital expenditure forecast. We devoted considerable time and effort to ensure the input parameters properly reflected our condition drivers and asset management practices.

We also undertook an independent review the top-down forecasting approach for the last Revenue Proposal. The review found our overall approach to calibrating the model to be suitable for forecasting, and in some instances superior to the normal application of the Repex Model.

The AER's Final Decision also used the Repex Model, with adjustment to only the transmission line mean replacement life input parameter, to arrive at a capital expenditure forecast which the AER considered would meet the capital expenditure objectives.



Glossary

AEMC	the Australian Energy Market Commission which reviews and makes the National Electricity Rules
AEMO	the Australian Energy Market Operator which operates the National Electricity Market to enable the physical trading of electricity
AM	Asset Management
AER	the Australian Energy Regulator which is responsible for the economic regulation of electricity network service providers' revenues and for enforcing compliance with the National Electricity Rules
Capex	Capital Expenditure, which is expenditure to construct, acquire or upgrade physical assets such as property, buildings or equipment
CP	Powerlink's Customer Panel
CCP	The AER's Consumer Challenge Panel
CPI	Consumer Price Index
DNSP	Distribution Network Service Provider (for example, in Queensland Energex and Ergon Energy)
EBSS	Efficiency Benefit Sharing Scheme provided under clause 6A.6.5 of the National Electricity Rules
EFA	The AER's November 2013 Expenditure Forecasting Assessment Guidelines
ESOO	Electricity Statement of Opportunities published by AEMO as required by clause 3.13.3(q) of the National Electricity Rules
GWh	Gigawatt hours
ISP	AEMO's Integrated System Plan
IT	Information Technology
kV	Kilovolt
MAR	Maximum Allowed Revenue
MW	Megawatt
NEM	National Electricity Market
NER	National Electricity Rules (the Rules) which provide, among other things, for the AER's economic regulation of the revenues of electricity network service providers
NSP	Network Service Provider
NTNDP	AEMO's National Transmission Network Development Plan
Opex	Operating expenditure is the expenditure that a business incurs as a result of performing its normal business operations
QNI	Queensland/New South Wales Interconnector
Repex	Replacement expenditure
RIN	Regulatory Information Notice is an instrument by which the AER can require network service providers to provide specified information
RIT-T	Regulatory Investment Test for Transmission, the AER's cost/benefit analysis test and public consultation process made under clause 5.6.5B of the National Electricity Rules

RPRG	Powerlink's Revenue Proposal Reference Group, a sub-set of our Customer Panel
STPIS	Service Target Performance Incentive Scheme made under clause 6A.7.4 of the National Electricity Rules
TAPR	Transmission Annual Planning Report is a report made under clause 5.12.2 of the National Electricity Rules
TNSP	Transmission Network Service Provider means a business such as Powerlink which engages in the activity of owning, controlling, developing and/or operating a transmission system
TUOS	Transmission Use of System is a service for conveying (high voltage) electricity
VCR	Value of Customer Reliability
WPI	Wage Price Index