Powerco 2020 AMP Update

31/03/2020

1. Introduction

Purpose

Powerco is New Zealand's second largest electricity distribution company by customer numbers, supplying around one of every six residential customers in the country. We have the largest supply territory by area and largest overall network length. Our networks stretch across the North Island from the Coromandel to the Wairarapa.

We provide an essential service to more than 340,000 homes and businesses, serving approximately 900,000 customers. The electricity distribution assets we manage have long lives and are capital-intensive to create and maintain. We consider ourselves long-term asset stewards, providing effective and efficient asset planning and investment for current and future generations.

In March 2019, we published a comprehensive Asset Management Plan, which is available on our website www.powerco.co.nz. This Asset Management Plan Update (2020 AMP Update) is limited to providing updates on material changes to the previous AMP, the latest information on our forecasts and on our long-term strategy for managing our electricity assets. The 2020 AMP Update relates to the electricity distribution services supplied by Powerco and covers the planning period from 1 April 2020 to 31 March 2030.

Information Disclosure Requirements

Clause 2.6.3 in the Electricity Distribution Information Disclosure Determination 2012 requires Powerco to complete and publicly disclose, before 1 April 2020, an AMP Update.

Clause 2.6.5 states that the AMP Update must:

- Relate to the electricity distribution services supplied by the electricity distribution business (EDB)
- Identify any material changes to the network development plans disclosed in the last AMP (or AMP Update) per clause 11 of attachment A
- Identify any material changes to the lifecycle asset management (maintenance and renewal) plans disclosed in the last AMP (or AMP Update) per clause 12 of attachment A
- Provide the reasons for any material changes to the previous disclosures in the Report on Forecast Capital Expenditure set out in Schedule 11a and Report on Forecast Operational Expenditure set out in Schedule 11b
- Identify any changes to the asset management practices of the EDB that would affect Schedule 13 Report on Asset Management Maturity disclosure

In addition, clause 2.6.6 requires each EDB to publicly disclose the following reports before the start of each disclosure year:

- The Report on Forecast Capital Expenditure in Schedule 11a
- The Report on Forecast Operational Expenditure in Schedule 11b
- The Report on Asset Condition in Schedule 12a

- The Report on Forecast Capacity in Schedule 12b
- The Report on Forecast Network Demand in Schedule 12c
- The Report on Forecast Interruptions and Duration in Schedule 12d

If an EDB has sub-networks, it must also complete the Report on Forecast Interruptions and Duration set out in Schedule 12d for each sub-network.

Structure

This AMP Update has been structured to meet disclosure requirements and is in a similar format as our previous AMP Updates. In the interests of brevity, we have not attempted to duplicate the detailed explanations of our previous, comprehensive AMP. However, we would encourage readers to revert to our previous AMP whenever a greater level of detail is required.

Section 2 provides a summary of our AMP update and provides commentary on developments in our asset management approach and highlights future challenges.

Section 3 provides an overview of aggregate forecast expenditure and outlines a small number of changes that have affected our forecasts. It also provides information on material changes to the schedules since our previous disclosure.

Section 4 includes Schedules 11a – 12d, and 14a

Section 5 includes the Directors' Certificate.

2. Our 2020 Asset Management Plan Update

Introduction

This Asset Management Plan update (AMP update) provides a refresh of key planning outputs for the next 10 years. Our asset management plans are an essential part of our long-term asset planning and investment framework. The AMP update is primarily informed by our 2019 Asset Management Plan, which we published one year ago. At the heart of this were three key commitments for the future of our electricity network:

- **Ensuring safe and resilient networks**: stabilising the underlying condition and performance of our asset fleets through asset renewal, maintenance and vegetation programmes
- **Supporting growth in our communities**: allowing for growth in electricity demand and provide sufficient redundancy by investing in new and upgraded assets
- **Enabling our customers' energy choices**: ensuring our customers can connect increasing volumes of new technology to our network (such as electric vehicles and photovoltaic cells), while we will manage the increasing complexity this could bring to operating a distribution network

These commitments are driven by our customers' expressed preferences, which sit at the heart of our decision making. Electricity is a key enabler for economic prosperity and a modern lifestyle and as such, it is essential that we continue to invest in our assets to meet the needs of our customers in the long term.

We also recognise that society is facing an unprecedented challenge regarding a warming environment. Minimising carbon emissions is a key priority for New Zealand and, by implication, for our customers. As a company, we are fully committed to helping New Zealand achieve its carbon reduction targets agreed to in terms of the Paris Accord (2015), and the Government's associated target of a 100% renewable energy supply by 2035. We are therefore committed to acting in an environmentally responsible manner in all our investment decisions and operational practices – as witnessed by our recent certification to the ISO 14001[1] standard and our high GRESB[2] score.

However, our impact on carbon reduction is insignificant compared with what we can help our customers, including generators, achieve – through our role in enabling them to create, use and save energy as efficiently as possible. The key to us supporting New Zealand's carbon reduction targets will be running our network to open-access principles, offering maximum flexibility to customers with the opportunity to innovate, connect to, and transact over our network without impediment. While future energy market arrangements are still being developed, we will ensure that the network remains safe, operates stably and provides sufficient capacity under any reasonable energy use and market scenario.

Our Customised Price-Quality Path

Since April 2018 we have been operating under a five-year customised price-quality path (CPP), following approval of an application to the Commerce Commission. We are now two years into this period. For the first three years of this AMP update therefore, the focus is on completing the delivery of our CPP commitments.

Sitting at the heart of our CPP application was analysis that indicated we had significant challenges to address in the future. These included large increases in the number of assets that were approaching end-of-life and where performance was deteriorating, ongoing demand growth in the communities we serve, and increased

[1] ISO 14001 is an internationally accepted standard that provides the framework to put an effective environmental management system in place within an organisation.
[2] GRESB is an independent environmental, social and governance benchmark for real assets, defining the global standard for sustainability performance in real assets to assess the sustainability performance of real estate and infrastructure portfolios and assets worldwide.

complexity associated with ensuring stable network operation in a changing energy environment. Therefore, it became necessary to seek permission from the Commerce Commission to raise prices to fund much needed renewals and network upgrades.

We take the delivery of our CPP very seriously. The programme is essential to fulfil our commitment to our customers to provide them a safe, secure and resilient network, and we also recognise our responsibility to our customers to optimise the value from the increased expenditure. In September 2019 we published our first annual delivery report (ADR) for year one of our CPP, called “Delivering on our promise”. We shared the ADR with customers and stakeholders through various events, leaflets, webinars and social media. Our CPP is for our customers, so we sought out feedback on our delivery so far.

You can keep track of our CPP delivery at www.powercodelivering.co.nz.

Improving our Asset Management and Delivery

Our operating costs and network performance compare well against that of leading utilities in New Zealand and Australia, but we recognise there is more to be done. To support our increased delivery activities, and in line with our corporate objective to continually improve, we have several programmes underway to lift our asset management and delivery performance. Examples include:

- We are committed to achieving certification to ISO 55001 – this is the widely accepted international standard for asset management. Several improvement activities are underway in areas such as developing competency frameworks, improving data quality and governance, expanding our asset management system and enhancing incident investigation and assurance processes. These improvements will lift us to ‘competent’ across all areas in which asset management is assessed under ISO 55001. Becoming ISO 55001 compliant is however just the beginning – we see it as a basis for continually improving our asset management capability over time.
- We are continually striving to be more efficient in our works delivery. For example, we are improving how we manage planned outages on our network by, where possible, avoiding the need for a planned outage, or maximising the amount of work undertaken during a single outage. We are also improving our procurement practices, to not only manage costs, but to improve the standardisation of materials and equipment on our network – with associated operational and maintenance efficiency gains.
- In September 2019 we went live with SAP – an Enterprise Resource Planning (ERP) system. This will allow us to improve the efficiency of our operations, including how we plan and execute work on our network, how we record and manage field data, and enhance our business processes. A new field mobility solution will provide us richer, more accurate and more timely information from the field on the condition and status of our assets. These information improvements will over time support improved investment decisions.
- We are also currently implementing Copperleaf C55 – a leading asset investment planning and management tool. It allows us to prioritise and schedule investments according to Powerco’s value framework, greatly enhancing the transparency and consistency of network investment decisions, and helping ensure maximum benefit from the investments we make.

Our Next Asset Management Plan

We are already beginning work on our next AMP, to be published prior to 1 April 2021. This will be a comprehensive plan, in which we will undertake a thorough refresh of our asset strategies and long-term forecasts. As only the first two years of the planning period of this AMP will overlap with our current CPP period, the 2021 AMP is intended to be a foundational document to look at our needs and plans beyond the CPP period.

There are several drivers of future investment we will continue to examine in detail over the next 12 months, in preparation for the 2021 AMP. These include:

- Improved **customer intelligence**: Our distribution network exists to serve our customers. We are working hard to improve our understanding of the service our customers expect from our network, and how this varies across the different parts of our network. Improved customer intelligence will be the basis of informed discussions around price/quality trade-off preferences, which feed into our investment decisions, drive the application of more granular network performance standards, support more accurate price signals, and ultimately impact network architecture decisions.
- Evolution into an **open access network**: We have previously signalled that we believe the best way to support our customers' future requirements for a flexible electricity distribution network and expanded service offering, is to provide an open access network. What this means is our customers would be largely unconstrained in what they can connect to our network and in how they can use the network to support energy transactions with others – selling or procuring electricity and associated services. Our network transformation programme includes technology trials and research to ensure we are ready for this evolution to an open access network – ensuring that we can continue to provide a safe, stable and efficient supply. This will likely culminate in more widespread adoption of new technologies later in the planning period.
- Supporting improved **sustainability**: We are committed to operating in an environmentally and socially sustainable way. Minimising our own carbon footprint is just one aspect of our sustainability efforts. However, even more importantly, as our own energy use and the environmental impact of our assets is relatively low, we can make a major contribution to our society's decarbonisation efforts through effectively planning and operating the electricity distribution network to allow customers to minimise their (collective) carbon footprint. This is another key driver for working to an open-access network arrangement. Such networks will encourage and enable customers to connect low carbon emitting distributed energy resources, not only for their own use but also to on-sell excess generation to others, thereby reducing carbon emissions and losses from the overall electricity system. We are also currently reviewing our procurement processes and where ever possible are looking to ensure socially ethical procurement.
- Increasing use of **network automation, communication and monitoring**: Network technology is rapidly changing, particularly in the areas of automation, communication and monitoring. Functionality that was previously cost-prohibitive (or unavailable) is now more readily affordable, such as low cost LoRaWAN[3] communication networks and many types of sensors. Applying this will allow us to dramatically increase our visibility and control of our network, including on the low voltage side where this is broadly lacking at present. Automation improvements will enable us to make reliability improvements where appropriate, or better stabilise reliability in parts of the network where asset condition is degrading, without incurring the high costs associated with conventional network renewal. With increased use of this technology however comes increased exposure to cyber security risks, which our dedicated cyber security team is working to manage.
- Evolving our **network operation technology**: We are looking to evolve our existing SCADA and OMS systems to an advanced distribution management system (ADMS), as an enabler to an open access network and to improve the efficiency and effectiveness of our operations. An ADMS provides improved capabilities to manage and control a distribution network, when combined with network automation, communication and monitoring technology (discussed above) and an improved model of our network from our asset information. As an example, it will allow increased control automation of our network switches and control relays, improve our fault location, isolation and service restoration capability, and support managing an increasing amount of distributed energy resources connected to our network. These technologies will enable improved reliability, safety and capacity outcomes from our network.
- Investment in **resilience**: Electricity is an essential resource for our communities. Although unexpected power cuts do occur, we can generally restore power within minutes to a few hours and the impact to our customers is relatively low. However, in the event of a severe storm, large natural disaster, or the failure of critical assets on our network, power could be out for several days or even longer. With the impacts of climate change becoming more pronounced, increasing both the frequency and severity of weather events, coupled with our customers' ever-increasing reliance on electricity, this issue is likely to escalate in importance in the future. We have already undertaken investments to improve resilience against storms and other major events, such as the seismic strengthening of our zone substation buildings or increasing the designed strength of our assets in areas exposed to major weather patterns. However, it is an

[3] LoRaWAN is a low-power wide area network technology, that enables low-bandwidth communication to and from low-cost sensors.

area that needs more development and we are examining further programmes to improve our network's resilience. This includes reviewing our holdings of strategic spares, looking at increased storm hardening of our overhead line network, redesigning parts of our network with high criticality or vulnerable assets, or looking at local generation and energy storage to avoid outages when normal supply is compromised. Resilience to cyber threats is also a growing concern, and our Cyber Security programmes are increasing our corporate and network resilience.

3. Material Changes

Schedules 11a-12d are included in section 4. This section provides an overview of the rationale for changes since last year to our forecasts and the information provided in these schedules, as well as material changes to network development plans, asset lifecycle plans and asset management practices. However, in general, our previously disclosed views related to expenditure forecasts, asset condition, forecast capacity, forecast demand, and forecast interruptions remains consistent with that included in our 2019 AMP Update, subject only to minor refinement. We believe these forecasts continue to provide a realistic view of Powerco's future investment requirements and network performance.

Network development plans

There are no material changes to our network development plans, relative to our 2019 AMP, other than some changes to our Major and Minor projects which are discussed below.

Major Projects

- Whangamata – We have successfully commissioned the large scale battery energy storage system and supporting generator and the solution is delivering the desired results. We will continue to monitor performance and the effectiveness of the solution for our customers, but have reduced the overall project forecast expenditure to exclude the construction of the second circuit, which will potentially no longer be needed.
- Omokoroa – With the proposed Tauranga Northern Link (TNL) motorway project now on hold, the work at Omokoroa substation, including construction of the 33kV switchroom and switchboard is unable to proceed, as it is located within the TNL designation. Work will continue on the installation of the third sub-transmission circuit to the region, using an identified cable route that avoids the TNL corridor, and to make temporary connections to existing lines, but the portion of budget allocated for the 33kV switchboard works at Omokoroa has been deferred until later in the planning period.
- Kopu -Tairua – Engineering estimates have been prepared based on site specific designs. The estimates indicate a substantial escalation from the original budget. A reassessment of alternative options (including non-network options) is currently under way. Whilst the forecast budget remains unchanged for this AMP update, the project timeline has been deferred to enable these alternatives to be thoroughly evaluated.
- Kopu-Kaueranga – We have deferred the line construction component of the project further, due to continued uncertainty regarding access to a portion of Crown land along the route, that is subject to Office of Treaty Settlement claims. The work involving the upgrade of the alternative circuit is currently underway, which de-risks the delays in constructing the new circuit.
- Kerepehi Paeroa line – The use of the historic 50kV line route is no longer considered viable as legal opinions indicate we would need to seek new easements over the entire route. The project budget has been deferred to later in the planning period as we consider alternative solutions.
- Feilding-Sanson-Bulls – This project has been brought forward and increased in scope to meet newly notified customer requirements at Ohakea. In addition to these requirements, recent engineering estimates indicate a significant increase in cost over original estimates, and we have accordingly increased the budget forecast to reflect these changes.

Minor Projects

- Transformer upgrades - We have undertaken a reassessment of our transformer upgrade projects where the class capacity shortfall is the primary driver. The latest assessment reflects our move to a more probabilistic approach to risk assessment with more emphasis on the potential load at risk and the value of this lost load, rather than a traditional deterministic security assessment. As a result, we have chosen to defer some of these upgrade projects, opting for increased monitoring and improved interconnection where practical. The projects affected are Kairanga, Sanson, Kelvin Grove and Feilding substations.
- Morrinsville Second Circuit. The budget has been reduced to exclude the transformer upgrade and 33kV switchboard works which will be covered by a Major project in 2024-2028.
- Whangamata to Tairua 11kV link – To provide additional support to Whangamata and the BESS/generator facility, a new Minor project has been added to improve 11kV backfeed capability by linking Tairua substation with Whangamata substation at 11kV.

Lifecycle asset management plans

There are no material changes to our lifecycle asset management plans, relative to our 2019 AMP. We are undertaking a trial of wooden pole staking in FY20, and if successful we will incorporate the technology into our overhead structures fleet management plan.

Asset management practices

There have been no material changes to the asset management practices and ongoing improvement plans that underpinned our previous AMP.

We are progressing towards achieving ISO 55001 compliance and are planning for a certification audit before the end of 2020. We have also begun implementing Copperleaf C55 in 2020, an asset investment planning and management tool. Asset management improvements and investment efficiencies arising from these programmes will be reflected in future versions of our AMP.

Schedules 11a and 11b: Forecast operating and capital expenditure

Capex

In aggregate, total capital expenditure is similar to that in our 2019 AMP.

Changes to the Capex expenditure profile is largely attributed to changes to the timing and costs of major and minor projects as discussed in the section on material changes to Powerco's Network Development Plans. Any changes to major and minor projects during the CPP period have been largely managed within the System Growth envelope by offsetting expenditure changes in the smaller routine projects portfolio.

Other changes arise from:

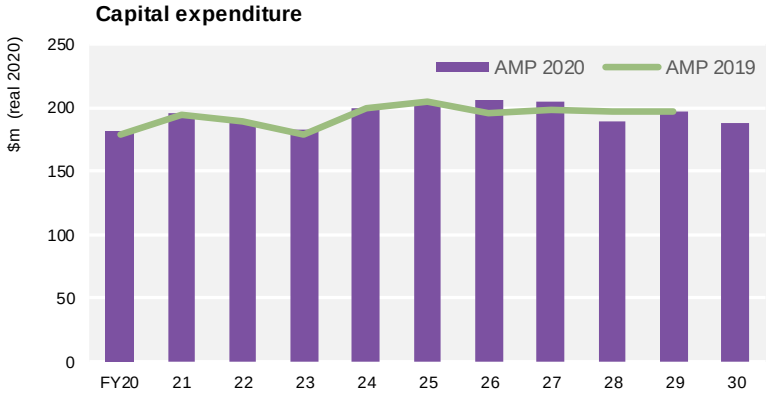
- Changes to Legislative and Regulatory expenditure due to a shift in the timing of forecasted expenditure requirements resulting from the Extended Reserve project for an automatic under-frequency load shedding (AUFLS) scheme in the North Island.
- Increase in Asset Relocations forecast due to a change in the base year used for the base-step trend forecasting methodology.
- Facilities Capex in Non-Network Capex has increased in FY22 and 23, reflecting the progression of office upgrade plans.

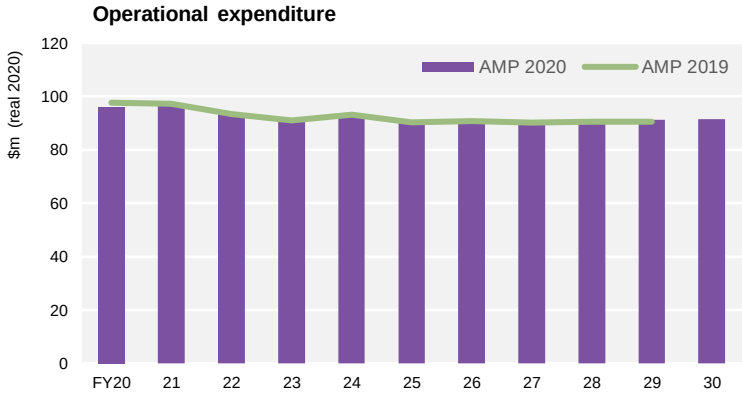
- Cost of financing and commissioned asset forecasts have changed as they are impacted by the material changes to Powerco's Network Development Plans.

Opex

There has been some movement of forecast expenditure between maintenance categories, and between SONS and Business Support. These changes are not considered material, and overall the total operational expenditure forecast remains consistent with that in our 2019 AMP.

Figure 1: AMP20 Capital and Operational Expenditure Forecast





Schedule 12a: Asset condition

There have been no material changes to the approach for completing Schedule 12a since AMP19. Updated asset information and condition data has been used to update the asset health scores.

Schedule 12b: Forecast capacity

There have been no material changes to the approach for completing Schedule 12b since AMP19. Zone substation capacities have been updated to reflect completed network projects of the last 12 months.

Schedule 12c: Forecast network demand

There have been no material changes to the approach for completing Schedule 12c since AMP19, other than a revised approach to forecasting distributed generation connections.

Schedule 12d: Forecast interruptions and duration

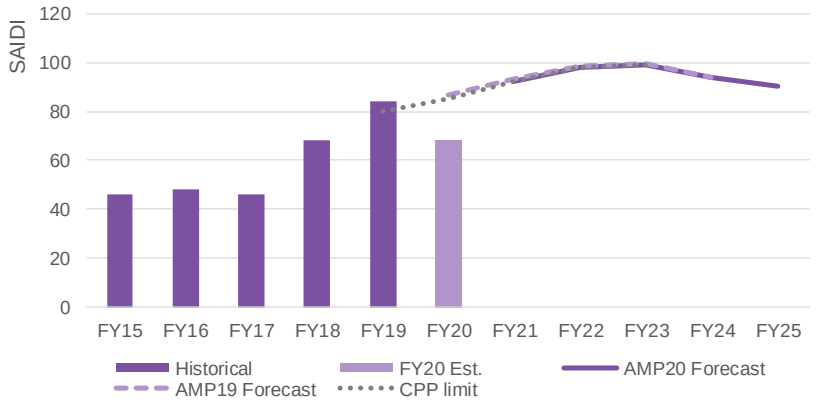
We have adjusted our approach to forecasting planned SAIDI and SAIFI in this AMP update. In our 2019 AMP, we updated our planned SAIDI and SAIFI forecasts to reflect the increased reliability impact of works activities based on more recent actual projects completed, compared to earlier forecasts in our CPP proposal. This suggested that we would exceed our planned quality limits under our CPP determination.

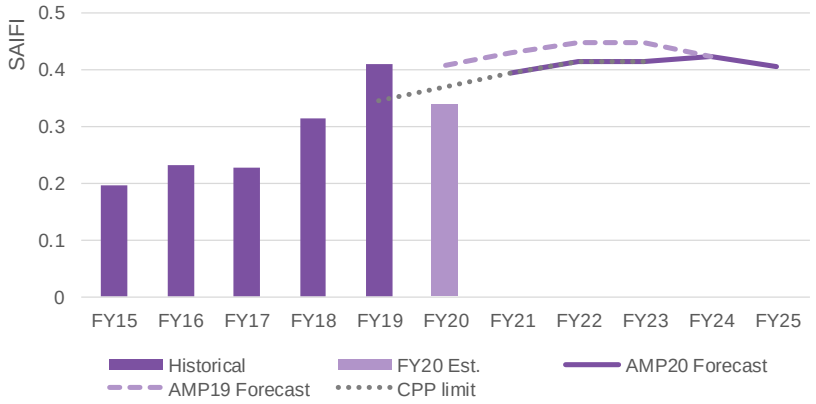
After exceeding our planned quality limits in 2019, we however resolved to avoid a recurrence in future years, even if this means we cannot fully deliver our intended works programme. (This decision can materially impact our ability to deliver the full CPP programme and reflects our assessment of the relative implication of breaching quality regulations or delivering the intended works programme. This has been communicated to the Commerce Commission and discussions are continuing.)

For the 2020 AMP update we have therefore updated our forecasts of planned SAIDI and SAIFI to match the CPP quality limits within the CPP period, and are also closely managing our construction and maintenance programmes to ensure that we don't exceed the SAIDI and SAIFI allowances. Beyond the CPP period, our forecasts of planned SAIDI and SAIFI remain consistent with those published in the 2019 AMP, reflecting the impact of the full construction programme. These changes only have a small impact on the planned SAIDI forecast, but have a larger impact on the planned SAIFI forecast.

The graphs below show the comparisons between our CPP and 2019 AMP forecasts of planned SAIDI and SAIFI, compared to our CPP quality path limit.

Figure 2: Planned SAIDI and SAIFI comparisons from CPP and AMP 2019





There have been no material changes to how we forecast unplanned SAIDI and SAIFI for this AMP update. Our forecasts remain consistent with what we presented as part of our CPP proposal in 2017.

4. Schedules

Schedule 11A

											Company Name	Powerco
											AMP Planning Period	1 April 2020 – 31 March 2030

SCHEDULE 11a: REPORT ON FORECAST CAPITAL EXPENDITURE

This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (i.e., the value of RAB additions)

EDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

sch ref			Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
		for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27	31 Mar 28	31 Mar 29	31 Mar 30
	11a(i): Expenditure on Assets Forecast		**$000 (in nominal dollars)**										
	Consumer connection		46,953	47,661	43,393	43,466	36,960	45,106	49,497	54,067	41,900	55,847	53,337
	System growth		54,295	65,393	68,932	69,746	91,329	102,440	108,685	111,245	102,930	112,360	108,384
	Asset replacement and renewal		89,406	93,202	95,506	91,701	97,344	95,398	98,132	100,880	104,035	106,896	103,586
	Asset relocations		5,079	3,166	3,201	3,243	3,306	3,373	3,452	3,534	3,651	3,717	3,829
	Reliability, safety and environment:												
	Quality of supply		4,730	3,859	3,777	3,694	3,769	3,851	3,944	4,040	4,173	4,252	4,360
	Legislative and regulatory		-	-	-	1,673	1,740	1,782	-	-	-	-	-
	Other reliability, safety and environment		2,366	3,353	3,731	3,414	1,130	1,347	1,238	713	-	-	-
	Total reliability, safety and environment		7,096	7,212	7,508	8,781	6,639	6,980	5,182	4,753	4,173	4,252	4,360
	Expenditure on network assets		202,829	216,634	218,540	216,937	235,578	253,297	264,948	274,479	256,689	283,072	273,496
	Expenditure on non-network assets		13,482	16,736	11,625	11,326	11,920	10,978	11,300	11,333	9,603	9,338	11,738
	Expenditure on assets		216,311	233,370	230,165	228,263	247,498	264,275	276,248	285,812	266,292	292,410	285,234
plus	Cost of financing		2,078	998	2,502	3,938	527	1,581	1,273	1,540	1,612	1,291	1,496
less	Value of capital contributions		35,489	33,030	30,628	30,866	26,581	32,175	35,156	38,156	29,631	39,033	37,044
plus	Value of vested assets		-	-	-	-	-	-	-	-	-	-	-
	Capital expenditure forecast		182,900	201,338	202,039	201,335	221,444	233,681	242,365	249,196	238,273	254,668	249,686
	Assets commissioned		201,825	197,660	176,178	261,825	199,725	239,290	235,742	246,693	244,640	248,788	251,827

			Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
		for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27	31 Mar 28	31 Mar 29	31 Mar 30
			$000 (in constant prices)										
	Consumer connection		46,953	46,749	41,647	40,838	33,961	40,520	43,470	46,333	35,019	45,554	42,427
	System growth		54,295	63,761	65,410	64,613	82,449	89,925	92,727	91,810	82,195	86,870	81,193
	Asset replacement and renewal		89,406	90,940	90,846	85,190	87,949	83,804	83,841	83,627	83,617	83,428	78,602
	Asset relocations		5,079	3,100	3,064	3,033	3,016	3,002	2,996	2,992	3,014	2,994	3,008
	Reliability, safety and environment:												
	Quality of supply		4,730	3,773	3,607	3,446	3,426	3,411	3,404	3,399	3,424	3,402	3,402
	Legislative and regulatory		-	-	-	1,556	1,573	1,566	-	-	-	-	-
	Other reliability, safety and environment		2,366	3,272	3,542	3,172	1,023	1,190	1,065	591	-	-	-
	Total reliability, safety and environment		7,096	7,045	7,149	8,174	6,022	6,167	4,469	3,990	3,424	3,402	3,402
	Expenditure on network assets		202,829	211,595	208,116	201,848	213,397	223,418	227,503	228,752	207,269	222,248	208,632
	Expenditure on non-network assets		13,482	16,425	11,142	10,600	10,895	9,799	9,850	9,658	8,002	7,608	9,350
	Expenditure on assets		216,311	228,020	219,258	212,448	224,292	233,217	237,353	238,410	215,271	229,856	217,982

Subcomponents of expenditure on assets (where known)

Energy efficiency and demand side management, reduction of energy losses											
Overhead to underground conversion											
Research and development											

	Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27	31 Mar 28	31 Mar 29	31 Mar 30
Difference between nominal and constant price forecasts	$000										
Consumer connection	-	912	1,746	2,628	2,999	4,586	6,027	7,734	6,881	10,293	10,910
System growth	-	1,632	3,522	5,133	8,880	12,515	15,958	19,435	20,735	25,490	27,191
Asset replacement and renewal	-	2,262	4,660	6,511	9,395	11,594	14,291	17,253	20,418	23,468	24,984
Asset relocations	-	66	137	210	290	371	456	542	637	723	821
Reliability, safety and environment:											
Quality of supply	-	86	170	248	343	440	540	641	749	850	958
Legislative and regulatory	-	-	-	117	167	216	-	-	-	-	-
Other reliability, safety and environment	-	81	189	242	107	157	173	122	-	-	-
Total reliability, safety and environment	-	167	359	607	617	813	713	763	749	850	958
Expenditure on network assets	-	5,039	10,424	15,089	22,181	29,879	37,445	45,727	49,420	60,824	64,864
Expenditure on non-network assets	-	311	483	726	1,025	1,179	1,450	1,675	1,601	1,730	2,388
Expenditure on assets	-	5,350	10,907	15,815	23,206	31,058	38,895	47,402	51,021	62,554	67,252

	Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
11a(ii): Consumer Connection						
*Consumer types defined by EDB**	$000 (in constant prices)					
All Consumers	46,953	46,749	41,647	40,838	33,961	40,520
[EDB consumer type]						
[EDB consumer type]						
[EDB consumer type]						
[EDB consumer type]						
*include additional rows if needed						
Consumer connection expenditure	46,953	46,749	41,647	40,838	33,961	40,520
less Capital contributions funding consumer connection	32,032	30,985	28,074	27,739	23,202	27,809
Consumer connection less capital contributions	14,921	15,764	13,573	13,099	10,759	12,711
11a(iii): System Growth						
Subtransmission	17,512	25,314	36,938	32,817	16,548	18,042
Zone substations	14,122	16,020	21,816	20,855	24,225	26,277
Distribution and LV lines	4,560	4,958	494	1,928	3,671	4,881
Distribution and LV cables	4,110	4,470	445	1,804	4,089	4,989
Distribution substations and transformers	2,688	2,837	797	370	1,672	1,780
Distribution switchgear	4,570	4,970	495	1,933	7,937	8,560
Other network assets	6,733	5,192	4,425	4,906	24,307	25,396
System growth expenditure	54,295	63,761	65,410	64,613	82,449	89,925
less Capital contributions funding system growth	-	-	-	-	-	-
System growth less capital contributions	54,295	63,761	65,410	64,613	82,449	89,925

	Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
11a(iv): Asset Replacement and Renewal	$000 (in constant prices)					
Subtransmission	7,066	5,235	4,268	2,916	2,293	2,080
Zone substations	16,188	15,923	14,172	13,425	10,260	10,225
Distribution and LV lines	40,969	45,928	50,506	51,951	51,578	48,680
Distribution and LV cables	6,975	6,266	5,848	4,458	6,137	5,626
Distribution substations and transformers	7,464	7,769	6,495	5,347	7,454	7,549
Distribution switchgear	9,124	7,881	7,611	6,101	8,399	8,653
Other network assets	1,620	1,938	1,946	992	1,828	991
Asset replacement and renewal expenditure	89,406	90,940	90,846	85,190	87,949	83,804
less Capital contributions funding asset replacement and renewal	-	-	-	-	-	-
Asset replacement and renewal less capital contributions	89,406	90,940	90,846	85,190	87,949	83,804

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
11a(v): Asset Relocations							
*Project or programme**		$000 (in constant prices)					
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
*include additional rows if needed							
All other project or programmes - asset relocations		5,079	3,100	3,064	3,033	3,016	3,002
Asset relocations expenditure		5,079	3,100	3,064	3,033	3,016	3,002
less Capital contributions funding asset relocations		3,458	1,516	1,497	1,478	1,478	1,478
Asset relocations less capital contributions		1,621	1,584	1,567	1,555	1,538	1,524

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
11a(vi): Quality of Supply							
*Project or programme**		$000 (in constant prices)					
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
*include additional rows if needed							
All other projects or programmes - quality of supply		4,730	3,773	3,607	3,446	3,426	3,411
Quality of supply expenditure		4,730	3,773	3,607	3,446	3,426	3,411
less Capital contributions funding quality of supply		-	-	-	-	-	-
Quality of supply less capital contributions		4,730	3,773	3,607	3,446	3,426	3,411

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
11a(vii): Legislative and Regulatory							
*Project or programme**		$000 (in constant prices)					
Secondary systems (relay replacement for extended reserves)		-	-	-	1,556	1,573	1,566
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
*include additional rows if needed							
All other projects or programmes - legislative and regulatory							
Legislative and regulatory expenditure		-	-	-	1,556	1,573	1,566
less Capital contributions funding legislative and regulatory							
Legislative and regulatory less capital contributions		-	-	-	1,556	1,573	1,566

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
11a(viii): Other Reliability, Safety and Environment							
*Project or programme**	**$000 (in constant prices)**						
Zone substations		665	1,605	2,097	1,997	1,023	1,190
Distribution transformers		1,123	1,148	946	769	-	-
Distribution switchgear		578	519	499	406	-	-
[Description of material project or programme]							
[Description of material project or programme]							
*include additional rows if needed							
All other projects or programmes - other reliability, safety and environment							
Other reliability, safety and environment expenditure		2,366	3,272	3,542	3,172	1,023	1,190
less Capital contributions funding other reliability, safety and environment							
Other reliability, safety and environment less capital contributions		2,366	3,272	3,542	3,172	1,023	1,190

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
11a(ix): Non-Network Assets							
Routine expenditure							
*Project or programme**	**$000 (in constant prices)**						
ICT capex		10,594	13,265	7,287	7,039	8,572	7,462
Facilities capex		1,290	1,347	1,355	1,363	1,371	1,379
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
*include additional rows if needed							
All other projects or programmes - routine expenditure							
Routine expenditure		11,884	14,612	8,642	8,402	9,943	8,841
Atypical expenditure							
*Project or programme**							
Facilities capex		1,598	1,813	2,500	2,198	952	958
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
*include additional rows if needed							
All other projects or programmes - atypical expenditure							
Atypical expenditure		1,598	1,813	2,500	2,198	952	958
Expenditure on non-network assets		13,482	16,425	11,142	10,600	10,895	9,799

Schedule 11B

Company Name	**Powerco**
AMP Planning Period	**1 April 2020 – 31 March 2030**

SCHEDULE 11b: REPORT ON FORECAST OPERATIONAL EXPENDITURE

This schedule requires a breakdown of forecast operational expenditure for the disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms.
EDBs must provide explanatory comment on the difference between constant price and nominal dollar operational expenditure forecasts in Schedule 14a (Mandatory Explanatory Notes).
This information is not part of audited disclosure information.

sch ref												
7		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
8	for year ended	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**	**31 Mar 28**	**31 Mar 29**	**31 Mar 30**
9	**Operational Expenditure Forecast**	**$000 (in nominal dollars)**										
10	Service interruptions and emergencies	6,134	7,742	8,036	8,236	8,334	8,550	8,772	8,999	9,232	9,472	9,717
11	Vegetation management	9,999	9,726	10,269	9,898	9,839	8,904	9,082	9,264	9,241	9,426	9,614
12	Routine and corrective maintenance and inspection	16,262	16,788	17,395	17,602	17,465	17,067	18,166	17,921	18,506	18,935	19,373
13	Asset replacement and renewal	11,832	12,115	9,665	9,256	9,107	8,161	8,368	8,581	8,799	9,021	9,250
14	**Network Opex**	44,227	46,371	45,365	44,992	44,745	42,682	44,388	44,765	45,778	46,854	47,954
15	System operations and network support	17,791	18,633	18,322	18,593	19,858	19,832	20,033	20,289	20,694	21,108	21,531
16	Business support	34,104	34,656	34,758	34,547	38,067	38,924	39,914	40,966	41,980	42,844	43,726
17	**Non-network opex**	51,895	53,289	53,080	53,140	57,925	58,756	59,947	61,255	62,674	63,952	65,257
18	**Operational expenditure**	96,122	99,660	98,445	98,132	102,670	101,438	104,335	106,020	108,452	110,806	113,211

19		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
20	for year ended	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**	**31 Mar 28**	**31 Mar 29**	**31 Mar 30**
21		**$000 (in constant prices)**										
22	Service interruptions and emergencies	6,134	7,553	7,652	7,648	7,587	7,631	7,676	7,720	7,765	7,810	7,855
23	Vegetation management	9,999	9,488	9,779	9,191	8,957	7,947	7,947	7,947	7,772	7,772	7,772
24	Routine and corrective maintenance and inspection	16,262	16,363	16,545	16,325	15,881	15,215	15,877	15,356	15,547	15,594	15,642
25	Asset replacement and renewal	11,832	11,808	9,193	8,585	8,281	7,276	7,314	7,353	7,391	7,430	7,469
26	**Network Opex**	44,227	45,212	43,169	41,749	40,706	38,069	38,814	38,376	38,475	38,606	38,738
27	System operations and network support	17,791	18,209	17,489	17,306	18,121	17,743	17,571	17,446	17,446	17,446	17,446
28	Business support	34,104	33,779	33,061	32,042	34,615	34,700	34,885	35,102	35,266	35,286	35,306
29	**Non-network opex**	51,895	51,988	50,550	49,348	52,736	52,443	52,456	52,548	52,712	52,732	52,752
30	**Operational expenditure**	96,122	97,200	93,719	91,097	93,442	90,512	91,270	90,924	91,187	91,338	91,490
31	**Subcomponents of operational expenditure (where known)**											
32	Energy efficiency and demand side management, reduction of											
33	energy losses											
34	Direct billing*											
35	Research and Development											
36	Insurance											
37	** Direct billing expenditure by suppliers that direct bill the majority of their consumers*											
38												

39		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
40	for year ended	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**	**31 Mar 28**	**31 Mar 29**	**31 Mar 30**
41	**Difference between nominal and real forecasts**	**$000**										
42	Service interruptions and emergencies	-	189	384	588	747	919	1,096	1,279	1,467	1,662	1,862
43	Vegetation management	-	238	490	707	882	957	1,135	1,317	1,469	1,654	1,842
44	Routine and corrective maintenance and inspection	-	425	850	1,277	1,584	1,852	2,289	2,565	2,959	3,341	3,731
45	Asset replacement and renewal	-	307	472	671	826	885	1,054	1,228	1,408	1,591	1,781
46	**Network Opex**	-	1,159	2,196	3,243	4,039	4,613	5,574	6,389	7,303	8,248	9,216
47	System operations and network support	-	424	833	1,287	1,737	2,089	2,462	2,843	3,248	3,662	4,085
48	Business support	-	877	1,697	2,505	3,452	4,224	5,029	5,864	6,714	7,558	8,420
49	**Non-network opex**	-	1,301	2,530	3,792	5,189	6,313	7,491	8,707	9,962	11,220	12,505
50	**Operational expenditure**	-	2,460	4,726	7,035	9,228	10,926	13,065	15,096	17,265	19,468	21,721

Schedule 12A

Company Name	**Powerco**
AMP Planning Period	**1 April 2020 – 31 March 2030**

SCHEDULE 12a: REPORT ON ASSET CONDITION

This schedule requires a breakdown of asset condition by asset class as at the start of the forecast year. The data accuracy assessment relates to the percentage values disclosed in the asset condition columns. Also required is a forecast of the percentage of units to be replaced in the next 5 years. All information should be consistent with the information provided in the AMP and the expenditure on assets forecast in Schedule 11a. All units relating to cable and line assets, that are expressed in km, refer to circuit lengths.

sch ref					Asset condition at start of planning period (percentage of units by grade)							
	Voltage	Asset category	Asset class	Units	H1	H2	H3	H4	H5	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
10	All	Overhead Line	Concrete poles / steel structure	No.	0.84%	1.46%	3.35%	5.56%	88.79%	-	4	2.53%
11	All	Overhead Line	Wood poles	No.	7.91%	12.50%	21.61%	22.52%	35.45%	-	4	18.86%
12	All	Overhead Line	Other pole types	No.	-	-	-	-	15.20%	84.80%	1	-
13	HV	Subtransmission Line	Subtransmission OH up to 66kV conductor	km	2.74%	1.01%	5.37%	11.03%	79.86%	-	4	5.48%
14	HV	Subtransmission Line	Subtransmission OH 110kV+ conductor	km	-	-	-	-	-	-	N/A	-
15	HV	Subtransmission Cable	Subtransmission UG up to 66kV (XLPE)	km	-	-	5.55%	4.70%	89.75%	-	4	-
16	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Oil pressurised)	km	-	-	-	17.26%	82.74%	-	4	-
17	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Gas pressurised)	km	-	-	-	-	-	-	N/A	-
18	HV	Subtransmission Cable	Subtransmission UG up to 66kV (PILC)	km	-	-	-	5.35%	94.65%	-	4	-
19	HV	Subtransmission Cable	Subtransmission UG 110kV+ (XLPE)	km	-	-	-	-	-	-	N/A	-
20	HV	Subtransmission Cable	Subtransmission UG 110kV+ (Oil pressurised)	km	-	-	-	-	-	-	N/A	-
21	HV	Subtransmission Cable	Subtransmission UG 110kV+ (Gas Pressurised)	km	-	-	-	-	-	-	N/A	-
22	HV	Subtransmission Cable	Subtransmission UG 110kV+ (PILC)	km	-	-	-	-	-	-	N/A	-
23	HV	Subtransmission Cable	Subtransmission submarine cable	km	-	-	-	-	-	-	N/A	-
24	HV	Zone substation Buildings	Zone substations up to 66kV	No.	7.64%	30.56%	15.97%	34.72%	8.33%	2.78%	3	19.44%
25	HV	Zone substation Buildings	Zone substations 110kV+	No.	-	-	-	-	-	-	N/A	-
26	HV	Zone substation switchgear	22/33kV CB (Indoor)	No.	-	-	-	8.20%	91.80%	-	4	-
27	HV	Zone substation switchgear	22/33kV CB (Outdoor)	No.	-	5.56%	30.25%	11.11%	53.09%	-	4	18.52%
28	HV	Zone substation switchgear	33kV Switch (Ground Mounted)	No.	-	-	-	-	91.30%	8.70%	2	-
29	HV	Zone substation switchgear	33kV Switch (Pole Mounted)	No.	16.96%	2.39%	13.70%	27.61%	39.35%	-	4	16.48%
30	HV	Zone substation switchgear	33kV RMU	No.	-	-	-	100.00%	-	-	4	-
31	HV	Zone substation switchgear	50/66/110kV CB (Indoor)	No.	-	-	-	-	-	-	N/A	-
32	HV	Zone substation switchgear	50/66/110kV CB (Outdoor)	No.	-	-	27.78%	11.11%	61.11%	-	4	-
33	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (ground mounted)	No.	0.12%	2.38%	30.04%	15.38%	52.09%	-	4	18.83%
34	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (pole mounted)	No.	-	-	-	50.00%	50.00%	-	4	-

	Voltage	Asset category	Asset class	Units	Asset condition at start of planning period (percentage of units by grade) H1	H2	H3	H4	H5	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
39	HV	Zone Substation Transformer	Zone Substation Transformers	No.	1.55%	6.74%	24.87%	7.25%	59.59%	-	4	8.38%
40	HV	Distribution Line	Distribution OH Open Wire Conductor	km	15.89%	0.99%	6.61%	14.21%	62.30%	-	3	10.20%
41	HV	Distribution Line	Distribution OH Aerial Cable Conductor	km	-	-	-	-	-	-	N/A	-
42	HV	Distribution Line	SWER conductor	km	-	0.36%	0.79%	28.69%	70.16%	-	3	5.10%
43	HV	Distribution Cable	Distribution UG XLPE or PVC	km	0.32%	0.05%	1.44%	13.33%	84.86%	-	3	2.45%
44	HV	Distribution Cable	Distribution UG PILC	km	1.00%	0.00%	0.73%	7.04%	91.23%	-	3	0.10%
45	HV	Distribution Cable	Distribution Submarine Cable	km	-	-	-	-	100.00%	-	3	-
46	HV	Distribution switchgear	3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers	No.	0.19%	-	0.19%	1.74%	97.87%	-	4	0.19%
47	HV	Distribution switchgear	3.3/6.6/11/22kV CB (Indoor)	No.	-	48.59%	2.15%	1.61%	47.65%	-	4	67.24%
48	HV	Distribution switchgear	3.3/6.6/11/22kV Switches and fuses (pole mounted)	No.	1.54%	2.61%	10.55%	17.73%	67.57%	-	3	6.95%
49	HV	Distribution switchgear	3.3/6.6/11/22kV Switch (ground mounted) - except RMU	No.	11.35%	4.68%	14.44%	21.66%	47.88%	-	4	12.23%
50	HV	Distribution switchgear	3.3/6.6/11/22kV RMU	No.	0.37%	0.86%	10.98%	28.33%	59.46%	-	4	9.65%
51	HV	Distribution Transformer	Pole Mounted Transformer	No.	2.22%	2.04%	7.68%	12.13%	75.93%	-	3	4.96%
52	HV	Distribution Transformer	Ground Mounted Transformer	No.	0.22%	1.14%	6.43%	22.93%	69.29%	-	4	3.12%
53	HV	Distribution Transformer	Voltage regulators	No.	3.17%	0.79%	6.35%	2.38%	87.30%	-	4	1.55%
54	HV	Distribution Substations	Ground Mounted Substation Housing	No.	0.51%	1.31%	5.23%	9.00%	83.94%	-	3	3.92%
55	LV	LV Line	LV OH Conductor	km	1.15%	1.76%	8.86%	20.33%	67.88%	-	2	4.43%
56	LV	LV Cable	LV UG Cable	km	0.17%	0.12%	2.91%	26.31%	70.50%	-	2	1.13%
57	LV	LV Streetlighting	LV OH/UG Streetlight circuit	km	1.17%	1.52%	8.37%	26.67%	62.28%	-	2	-
58	LV	Connections	OH/UG consumer service connections	No.	-	1.90%	11.50%	-	39.00%	47.60%	1	-
59	All	Protection	Protection relays (electromechanical, solid state and numeric)	No.	-	37.93%	1.98%	16.40%	43.69%	-	3	35.49%
60	All	SCADA and communications	SCADA and communications equipment operating as a single system	Lot	-	24.69%	-	15.43%	59.88%	-	3	13.01%
61	All	Capacitor Banks	Capacitors including controls	No.	-	-	10.81%	67.57%	21.62%	-	4	2.08%
62	All	Load Control	Centralised plant	Lot	-	27.78%	-	13.89%	58.33%	-	4	16.67%
63	All	Load Control	Relays	No.	8.52%	31.65%	1.30%	2.03%	56.50%	-	1	8.47%
64	All	Civils	Cable Tunnels	km	-	-	-	-	-	-	N/A	-

Schedule 12B

Company Name	**Powerco**
AMP Planning Period	**1 April 2020 – 31 March 2030**

SCHEDULE 12b: REPORT ON FORECAST CAPACITY

This schedule requires a breakdown of current and forecast capacity and utilisation for each zone substation and current distribution transformer capacity. The data provided should be consistent with the information provided in the AMP. Information provided in this table should relate to the operation of the network in its normal steady state configuration.

sch ref

12b(i): System Growth - Zone Substations

Existing Zone Substations	Current Peak Load (MVA)	Installed Firm Capacity (MVA)	Security of Supply Classification (type)	Transfer Capacity (MVA)	Utilisation of Installed Firm Capacity %	Installed Firm Capacity +5 years (MVA)	Utilisation of Installed Firm Capacity + 5yrs %	Installed Firm Capacity Constraint +5 years (cause)	Explanation
Coromandel	5	1	N-1	1	935%	1	978%	Subtransmission circuit	Single 66kV circuit. Proposed generation support post 2026.
Kerepehi	10	-	N	2	-	7	164%	Transformer	Proposed alternate 33kV supply ~ 2022. Also Tx constraint
Matatoki	5	-	N	2	-	-	-	Transformer	Single Tx. 2nd transformer proposed 2027
Tairua	9	8	N	-	123%	8	126%	Transformer	Planned 66kV upgrades. Also a Tx firm capacity constraint.
Thames T1 & T2	12	-	N-1	2	-	19	64%	No constraint within +5 years	66kV upgrade removes binding constraint
Thames T3	2	7	N-1 SW	7	26%	7	26%	No constraint within +5 years	
Whitianga	18	-	N	-	-	16	117%	Transformer	66kV upgrades pre 2024. Post 2024 - new subs offload
Paeroa	9	6	N	2	153%	10	91%	No constraint within +5 years	Transf upgrades planned
Waihi	18	16	N-1	-	111%	16	115%	No constraint within +5 years	Customer agreed security.
Waihi Beach	6	3	N	3	180%	3	192%	Subtransmission Circuit	Single 33kV cct. Plans post 2024 for local support.
Whangamata	10	5	N	1	196%	5	200%	Subtransmission circuit	Battery / Generator recently commissioned.
Aongatete	9	7	N-1 SW	1	123%	12	82%	No constraint within +5 years	Upgrades to 33kV system planned in post 5 year period
Bethlehem	10	8	N	8	130%	8	155%	Transformer	New single transf Sub - 2nd Tx planned late 2020s
Hamilton St	16	22	N-1	12	72%	22	76%	No constraint within +5 years	New Customer Sub will offload this Sub soon.
Katikati	9	5	N	5	195%	11	88%	No constraint within +5 years	2nd circuit & 2nd Tx planned in next 5 years
Kauri Pt	3	2	N	2	210%	2	216%	Subtransmission Circuit	Single Tx and 33kV circuit limit security.
Matua	9	7	N-1	8	123%	7	125%	Subtransmission circuit	Circuit & Tx upgrades planned beyond 5 year period
Omokoroa	11	13	N-1	1	80%	13	85%	No constraint within +5 years	33kV upgrades & new substation planned in next 5 years
Otumoetai	16	14	N	-	116%	14	127%	Transformer	Minor constraint - managed operationally.
Pyes Pa	9	12	N-1	8	77%	24	43%	No constraint within +5 years	New substation in high growth subdivision.
Waihi Rd	22	24	N-1	10	92%	24	94%	No constraint within +5 years	
Welcome Bay	24	21	N	4	113%	21	124%	Subtransmission circuit	Managed operationally. Upgrades and switchboard planned.
Matapihi	15	24	N-1	14	61%	24	64%	No constraint within +5 years	
Omanu	17	24	N-1	12	69%	24	71%	No constraint within +5 years	
Papamoa	16	21	N-1	10	77%	21	96%	No constraint within +5 years	Offload to new Subs maintains security at Papamoa.
Te Maunga	10	10	N	8	98%	10	105%	No constraint within +5 years	New single Tx Sub. Risk managed operationally via 11kV.
Triton	21	21	N-1	10	101%	23	97%	No constraint within +5 years	Transformers to be upgraded 2025.
Wairakei	7	6	N-1 SW	6	115%	24	37%	No constraint within +5 years	New Sub. 2nd transformer in ~ 5 years.
Atuaroa Ave	9	-	N	7	-	-	-	Subtransmission Circuit	33kV upgrades and 2nd transformer planned ~2026
Paengaroa	6	4	N	4	161%	4	162%	Subtransmission Circuit	New N security Sub with limited 11kV backfeed.
Pongakawa	5	1	N-1	1	402%	1	412%	Subtransmission Circuit	Single 33kV circuit. 11kV upgrades planned in longer term
Te Puke	20	23	N-1	11	89%	23	92%	No constraint within +5 years	Switchboard security upgrade planned

41		Farmer Rd	7	-	N-1	1	-	-	-	Subtransmission circuit	Switched backfeed. Constraint managed operationally.
42		Inghams	4	-	N	-	-	-	-	No constraint within +5 years	Customer agreed security
43		Mikkelsen Rd	15	19	N-1	4	76%	19	77%	No constraint within +5 years	
44		Morrinsville	11	-	N	2	-	7	162%	Transformer	2nd 33kV circuit ~2023. Future Sub upgrade post 2023.
45		Piako	15	15	N-1	7	98%	15	103%	Transformer	Minor constraint - managed operationally.
46		Tahuna	6	1	N-1	1	852%	1	865%	Subtransmission Circuit	Single 33kV circuit. Risk mitigated operationally (via 11kV)
47		Tatua	5	-	N	-	-	-	-	No constraint within +5 years	Customer agreed security
48		Waitoa	12	19	N-1	-	66%	19	66%	No constraint within +5 years	
49		Walton	6	-	N	2	-	-	-	Transformer	Single Transformer. Risk managed operationally
50		Browne St	10	11	N-1	6	95%	11	101%	Transformer	Very minor, low risk. Managed operationally
51		Lake Rd	7	2	N	2	392%	14	49%	No constraint within +5 years	2nd transformer planned in ~ 2021
52		Tirau	10	-	N	-	-	-	-	Transformer	Single transformer. 2nd Tx planned post 2023
53		Putaruru	12	-	N	1	-	17	70%	No constraint within +5 years	New GXP, Subtrans. & transf. upgrades planned ~2022.
54		Tower Rd	9	-	N	5	-	17	56%	No constraint within +5 years	GXP and Subtrans upgraded, & 2nd Tx added ~ 2021
55		Waharoa T1	4	-	N-1 SW	-	-	9	40%	Subtransmission Circuit	Split sub restored to single sub again after 33kV & Tx upgrades
56		Waharoa T2	5	-	N-1 SW	-	-	-	-	No constraint within +5 years	Split sub restored to single sub again after 33kV & Tx upgrades
57		Baird Rd	11	-	N-1	7	-	11	98%	No constraint within +5 years	Switched 33kV ring. Switch timing nominally limits security
58		Midway / Lakeside	5	-	N	-	-	-	-	No constraint within +5 years	Customer agreed security at both substations
59		Maraetai Rd	9	-	N-1	7	-	15	58%	No constraint within +5 years	Switched 33kV ring. Switch timing nominally limits security
60		Bell Block	19	25	N-1	9	78%	25	86%	Transformer	Load transfer planned post 2024
61		Brooklands	18	24	N-1	7	76%	24	80%	No constraint within +5 years	
62		Cardiff	2	6	N-1 SW	6	31%	6	32%	No constraint within +5 years	
63		City	19	20	N-1	12	94%	20	97%	Transformer	Capacity upgrade planned post 2027
64		Cloton Rd	11	13	N-1	1	87%	13	89%	No constraint within +5 years	
65		Douglas	2	2	N-1 SW	2	100%	2	100%	Subtransmission circuit	Single circuit. Very low risk. Most load can be backfed.
66		Eltham	10	11	N-1	3	92%	15	68%	No constraint within +5 years	Transformer upgrade ~2021
67		Inglewood	6	6	N-1	3	90%	6	94%	Transformer	Load transfer planned post 2025
68		Kaponga	4	3	N-1 SW	2	118%	3	119%	Transformer	Low risk of failure. Operationally managed.
69		Katere	16	21	N-1	11	76%	21	85%	No constraint within +5 years	
70		McKee	1	-	N-1 SW	-	-	-	-	No constraint within +5 years	
71		Motukawa	1	1	N	1	93%	1	95%	Transformer	Single transformer. Most load can be backfed.
72		Moturoa	22	24	N-1	7	90%	30	76%	No constraint within +5 years	New 33kV circuits and transformers 2019/20
73		Oakura	4	4	N-1 SW	4	93%	4	106%	Subtransmission circuit	Single cct & Tx. 11kV backfed adequate till 2nd cct ~2025
74		Pohokura	5	9	N-1	-	59%	9	59%	No constraint within +5 years	
75		Waihapa	1	2	N-1	2	82%	2	82%	No constraint within +5 years	
76		Waitara East	6	10	N-1	4	56%	10	59%	No constraint within +5 years	
77		Waitara West	7	6	N-1 SW	8	109%	6	111%	Transformer	Risk of failure is low. Managed operationally.
78		Cambria	16	17	N-1	5	97%	17	99%	No constraint within +5 years	Transformer & Subtrans upgrade planned ~2026
79		Kapuni	8	7	N-1	4	107%	7	106%	No constraint within +5 years	
80		Livingstone	3	3	N	1	106%	5	64%	No constraint within +5 years	Transformers scheduled for replacement (higher cap)
81		Manaia	8	5	N	5	155%	5	155%	Transformer	33kV Tee resolved ~2022. Single Tx bank (after renewal)
82		Ngariki	4	4	N-1 SW	4	98%	4	99%	No constraint within +5 years	
83		Pungarehu	5	5	N-1 SW	2	101%	5	102%	Transformer	Low risk - operationally managed (e.g. backfeeds)
84		Tasman	7	6	N-1 SW	3	110%	6	110%	Transformer	Low risk - operationally managed (e.g. backfeeds)
85		Mokoia	4	3	N-1 SW	3	143%	3	-	Transformer	New Sub. Replaces Whareroa.
86		Beach Rd	11	16	N-1	3	69%	16	70%	No constraint within +5 years	Subtrans upgrades complete pre 2022.
87		Blink Bonnie	4	3	N	3	149%	3	151%	Transformer	Low risk of failure. Security upgrades planned post 2026
88		Castlecliff	12	9	N-1	5	134%	13	97%	Transformer	Post 2024 plan to upgrade transformers
89		Hatricks Wharf	11	-	N	6	-	10	111%	Transformer	Single transf, but 11kV bus tie (Taupo Quay) mitigates risk
90		Kai Iwi	2	1	N	1	239%	1	245%	Subtransmission Circuit	Single 33kV cct & single Tx. Also N security GXP.

91		Peat St	18	-	N-1	6	-	-	-	Transpower	2nd 33kV circuit ~2021, but N secure GXP limits security
92		Roberts Ave	8	6	N	6	138%	6	140%	Transpower	2nd 33kV circuit ~2021, but N secure GXP limits security
93		Taupo Quay	11	-	N	8	-	10	112%	Transformer	2nd 33kV circuit built. Single Tx with bus tie limits security.
94		Wanganui East	8	3	N	3	243%	3	245%	Subtransmission Circuit	Single 33kV cct and Tx. Post 2025 plan for 2nd cct and Tx.
95		Taihape	5	1	N	1	626%	1	663%	Transformer	Single transformer. 2nd Transformer post 2026
96		Waiouru	3	1	N	1	594%	1	587%	Subtransmission circuit	N secure GXP, 33kV & Tx. Post 2026 11kV upgrade.
97		Arahina	9	3	N	3	285%	3	289%	Subtransmission Circuit	N secure GXP, 33kV & Tx. Post 2026 2nd cct & Tx.
98		Bulls	6	2	N	2	282%	2	290%	Transformer	Post 2022 2nd 33kV. Post 2025 2nd transformer.
99		Pukepapa	5	2	N	2	240%	2	243%	Transformer	Single transformer. Limited backfeed. Post 2026 - 2nd Tx
100		Rata	3	1	N	1	402%	1	401%	Subtransmission circuit	Single 33kV cct and Tx. Post 2028 plan for 11kV Upgrade.
101		Feilding	23	24	N-1	2	96%	24	100%	No constraint within +5 years	Transformer upgrade 2021 and post 2023 33kV upgrade
102		Ferguson St	12	-	N	15	-	24	54%	No constraint within +5 years	New Sub: 2019. 2021: 2nd Tx added & full N-1 33kV capacity.
103		Kairanga	19	19	N-1 SW	8	101%	24	84%	Subtransmission circuit	Transformer upgrade planned ~2023
104		Keith St	19	22	N-1	-	88%	22	90%	No constraint within +5 years	Upgrades offload 33kV circuits feeding Main and Keith St
105		Kelvin Grove	20	17	N-1 SW	5	117%	24	93%	No constraint within +5 years	Transformers upgraded in ~2021.
106		Kimbolton	3	1	N	1	208%	1	210%	Subtransmission Circuit	Single 33kV circuit & single transformer. Remote Sub.
107		Main St	20	17	N-1	13	117%	25	83%	No constraint within +5 years	New Sub & 33kV cables address ex. high risk constraints.
108		Milson	19	18	N-1	5	104%	19	105%	Transformer	Posible TX and subtransmission upgrade post 2023
109		Pascal St	18	17	N-1	12	104%	25	73%	No constraint within +5 years	New Sub & 33kV cables address ex. high risk constraints.
110		Sanson	9	-	N-1	4	-	11	85%	No constraint within +5 years	33kV backfeed secures load. Tx upgrades post 2022
111		Turitea	16	-	N-1	5	-	-	-	Subtransmission Circuit	Switched 33kV security - Second 33kV circuit post 2023
112		Alfredton	0	1	N	0	33%	1	33%	No constraint within +5 years	Single Transf. but adequate backfeed.
113		Mangamutu	13	13	N-1	1	98%	13	99%	No constraint within +5 years	Major customer largely determines security requirements.
114		Parkville	2	-	N	-	-	-	-	Transformer	Single transformer
115		Pongaroa	1	3	N	1	27%	3	27%	No constraint within +5 years	Single transformer, but adequate backfeed
116		Akura	14	9	N-1 SW	7	151%	15	93%	No constraint within +5 years	Txs replaced & section of 33kV circuit upgraded, pre 2022
117		Awatoitoi	1	3	N	1	46%	3	47%	No constraint within +5 years	
118		Chapel	15	14	N-1	5	111%	23	69%	No constraint within +5 years	Upgrade short section of 33kV cable pre 2022.
119		Clareville	12	9	N	1	127%	9	135%	Transformer	Transformer and 33kV upgrade post 2024
120		Featherston	5	0	N	0	4,829%	0	5,020%	Transformer	Single transformer. 2nd bank proposed in longer term
121		Gladstone	1	1	N	0	72%	1	75%	No constraint within +5 years	
122		Hau Nui	2	-	N	-	-	-	-	No constraint within +5 years	Generation site. Not economic to provide higher security
123		Kempton	6	0	N	0	1,380%	0	1,455%	Subtransmission Circuit	Post 2024:- 2nd 33kV supply & upgraded 2nd transformer
124		Martinborough	5	0	N	0	5,210%	0	5,523%	Transformer	Single transformer. 2nd Tx planned post 2024
125		Norfolk	7	11	N-1 SW	3	70%	11	75%	Transformer	Risk is very low. Post 2024 upgrade planned.
126		Te Ore Ore	7	7	N	7	107%	7	110%	Transformer	Single transformer
127		Tinui	1	1	N	1	84%	1	86%	No constraint within +5 years	
128		Tuhitarata	3	-	N	-	-	1	340%	Subtransmission circuit	Single 33kV circuit & single transformer

[1] *Extend forecast capacity table as necessary to disclose all capacity by each zone substation*

Schedule 12C

Company Name	**Powerco**
AMP Planning Period	**1 April 2020 – 31 March 2030**

SCHEDULE 12C: REPORT ON FORECAST NETWORK DEMAND

This schedule requires a forecast of new connections (by consumer type), peak demand and energy volumes for the disclosure year and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumptions used in developing the expenditure forecasts in Schedule 11a and Schedule 11b and the capacity and utilisation forecasts in Schedule 12b.

sch ref

12c(i): Consumer Connections

Number of ICPs connected in year by consumer type

Number of connections

	Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
for year ended	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**
*Consumer types defined by EDB**						
Small	4,411	4,411	4,411	4,411	4,411	4,411
Commercial	62	62	62	62	62	62
Industrial	20	20	20	20	20	20
Connections total	4,493	4,493	4,493	4,493	4,493	4,493

**include additional rows if needed*

Distributed generation

Number of connections	723	723	723	723	723	723
Capacity of distributed generation installed in year (MVA)	3	3	3	3	3	3

12c(ii) System Demand

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**
Maximum coincident system demand (MW)							
GXP demand		768	775	782	789	796	803
plus	Distributed generation output at HV and above	155	156	158	159	161	162
Maximum coincident system demand		923	931	940	948	957	965
less	Net transfers to (from) other EDBs at HV and above						
Demand on system for supply to consumers' connection points		923	931	940	948	957	965
Electricity volumes carried (GWh)							
Electricity supplied from GXPs		4,440	4,476	4,513	4,549	4,586	4,622
less	Electricity exports to GXPs	155	157	158	159	160	162
plus	Electricity supplied from distributed generation	857	864	871	878	886	893
less	Net electricity supplied to (from) other EDBs	-	-	-	-	-	-
Electricity entering system for supply to ICPs		5,142	5,184	5,226	5,269	5,311	5,353
less	Total energy delivered to ICPs	4,885	4,925	4,965	5,005	5,045	5,086
Losses		257	259	261	263	266	268
Load factor		64%	64%	63%	63%	63%	63%
Loss ratio		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

Schedule 12D

Company Name	**Powerco**
AMP Planning Period	**1 April 2020 – 31 March 2030**
Network / Sub-network Name	**Powerco - combined**

SCHEDULE 12d: REPORT FORECAST INTERRUPTIONS AND DURATION

This schedule requires a forecast of SAIFI and SAIDI for disclosure and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumed impact of planned and unplanned SAIFI and SAIDI on the expenditures forecast provided in Schedule 11a and Schedule 11b.

sch ref		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
8							
9	for year ended	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**
10	**SAIDI**						
11	Class B (planned interruptions on the network)	68.1	92.3	98.2	99.3	94.1	90.2
12	Class C (unplanned interruptions on the network)	188.4	201.1	199.8	197.4	195.0	195.4
13	**SAIFI**						
14	Class B (planned interruptions on the network)	0.34	0.39	0.41	0.41	0.42	0.41
15	Class C (unplanned interruptions on the network)	2.06	2.28	2.28	2.27	2.25	2.26

Company Name	**Powerco**
AMP Planning Period	**1 April 2020 – 31 March 2030**
Network / Sub-network Name	**Powerco - Eastern Region**

SCHEDULE 12d: REPORT FORECAST INTERRUPTIONS AND DURATION

This schedule requires a forecast of SAIFI and SAIDI for disclosure and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumed impact of planned and unplanned SAIFI and SAIDI on the expenditures forecast provided in Schedule 11a and Schedule 11b.

sch ref		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
8							
9	for year ended	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**
10	**SAIDI**						
11	Class B (planned interruptions on the network)	68.1	92.3	98.2	99.3	94.1	90.2
12	Class C (unplanned interruptions on the network)	188.4	201.1	199.8	197.4	195.0	195.4
13	**SAIFI**						
14	Class B (planned interruptions on the network)	0.34	0.39	0.41	0.41	0.42	0.41
15	Class C (unplanned interruptions on the network)	2.06	2.28	2.28	2.27	2.25	2.26

Company Name	**Powerco**
AMP Planning Period	**1 April 2020 – 31 March 2030**
Network / Sub-network Name	**Powerco - Western Region**

SCHEDULE 12d: REPORT FORECAST INTERRUPTIONS AND DURATION

This schedule requires a forecast of SAIFI and SAIDI for disclosure and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumed impact of planned and unplanned SAIFI and SAIDI on the expenditures forecast provided in Schedule 11a and Schedule 11b.

sch ref		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
8							
9	for year ended	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**
10	**SAIDI**						
11	Class B (planned interruptions on the network)	68.1	92.3	98.2	99.3	94.1	90.2
12	Class C (unplanned interruptions on the network)	188.4	201.1	199.8	197.4	195.0	195.4
13	**SAIFI**						
14	Class B (planned interruptions on the network)	0.34	0.39	0.41	0.41	0.42	0.41
15	Class C (unplanned interruptions on the network)	2.06	2.28	2.28	2.27	2.25	2.26

Schedule 14A

Company Name	**Powerco**
For Year Ended	**31 March 2020**

Schedule 14a **Mandatory Explanatory Notes on Forecast Information**

1. This Schedule requires EDBs to provide explanatory notes to reports prepared in accordance with clause 2.6.6.

2. This Schedule is mandatory—EDBs must provide the explanatory comment specified below, in accordance with clause 2.7.2. This information is not part of the audited disclosure information, and so is not subject to the assurance requirements specified in section 2.8.

Commentary on difference between nominal and constant price capital expenditure forecasts (Schedule 11a)

3. In the box below, comment on the difference between nominal and constant price capital expenditure for the current disclosure year and 10 year planning period, as disclosed in Schedule 11a.

Box 1: Commentary on difference between nominal and constant price capital expenditure forecasts

Our approach involves applying different cost escalators to our real price expenditure forecasts. Our escalators have been developed using:

- Independent forecasts of input price indices that reflect the various costs that we face, including material and labour components.
- CPI forecasts consistent with the Commission's input methodologies.
- Weighting factors for asset types, such as transformers, that are made up of a range of inputs.

We have used the above inputs to develop tailored cost escalators for our cost categories. These are then applied to our real capital expenditure forecasts to produce the forecasts in nominal dollars for Information Disclosure schedule 11a.

Commentary on difference between nominal and constant price operational expenditure forecasts (Schedule 11b)

4. In the box below, comment on the difference between nominal and constant price operational expenditure for the current disclosure year and 10 year planning period, as disclosed in Schedule 11b.

Box 2: Commentary on difference between nominal and constant price operational expenditure forecasts

Our approach involves applying different cost escalators to our real price expenditure forecasts. Our escalators have been developed using:

- Independent forecasts of Producers Price Index (PPI) and Labour Cost Index (LCI).
- Weighting factors for opex cost categories.

We have used the above inputs to develop tailored cost escalators for our cost categories. These are then applied to our real operating expenditure forecasts to produce the forecasts in nominal dollars for Information Disclosure schedule 11b.

5. Compliance Certificate

CERTIFICATE FOR YEAR-BEGINNING DISCLOSURES
Clause 2.9.1

We, John Loughlin and Michael Cummings, being directors of Powerco Limited certify that, having made all reasonable enquiry, to the best of our knowledge:

a) The following attached information of Powerco Limited prepared for the purposes of clause 2.4.1, 2.6.1, 2.6.3, 2.6.6 and 2.7.2 of the Electricity Information Disclosure Determination 2012 in all material respects complies with that determination.

b) The prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.

c) The forecasts in Schedules 11a, 11b, 12a, 12b, 12c and 12d are based on objective and reasonable assumptions which with align with Powerco's corporate vision and strategy and are documented in retained records.

Director | Director

25 March 2020 | 25 March 2020

Date | Date