Interim Asset Management Schedules 2018-2028

31 March 2018

1 Explanatory notes

Aurora Energy is publishing interim asset management schedules for the period 2018-2028, prior to publication of its 2018 Asset Management Plan (AMP) later this year.

In February this year, we requested that the Commerce Commission grant an extension to the deadline for the publication of our 2018 AMP (a requirement of the Electricity Distribution Information Disclosure Determination 2012).

On 14 March 2018 the Commission granted us an exemption under the condition that we publish a subset of the disclosure schedules with this accompanying notice by 31 March 2018. We will publish our full 2018 AMP, including updated schedules, by 31 August 2018.

1.1 Rationale for exemption

The extension provides additional time to prepare an AMP that more accurately reflects our asset management strategy, and allows us to incorporate findings from the independent review discussed below. The extension will allow us to further develop our expenditure plans in light of these findings.

Recent structural and asset management changes, major works programmes and external reviews have all impacted the timing and preparation of our asset management planning.

In July 2017, Aurora Energy was restructured to operate as a standalone asset owner, separate from Delta Utility Services. That decision has involved a significant level of change, and we are continuing with our improvement and transformation programmes to focus on our role as asset owner.

We recently appointed a new General Manager Asset Management and Planning, and the extension also provides him with the opportunity to influence and guide the preparation of the AMP.

1.2 Next steps

On 6 March 2018, we initiated an independent review to determine the current state of the network.[1] The assessment will be shared with our stakeholders, and will be a key input to our investment strategy. We will incorporate the findings from this review into a revised suite of certified schedules, in our full AMP, to be published by Friday 31 August 2018.

1.3 Interim schedules

Our interim schedules are a limited refinement of our 2017 AMP and represent some emerging views. For this reason, we caution interested persons against placing any specific reliance on the information contained in these interim schedules.

- As we have not yet closed out a full financial year as a separate entity (this ends 30 June 2018) we have elected to not significantly revise the forecasts for non-network operating costs in this provisional disclosure. Instead, the forecast is based largely on the 2017 AMP forecast.
- Asset condition data and replacement forecasts reflect some additional asset inspection work and replacement modelling undertaken during the 2018 disclosure year; however, further work is required and the capital expenditure forecast is not fully reflective of forecast replacement quantities in all asset categories.
- Service delivery performance remains challenging. Our investment plans, targeted at ensuring a safe, reliable and resilient network in the long term, mean that our planned

[1] Aurora Energy to commission independent review of its electricity network. http://www.auroraenergy.co.nz/news/2018/aurora-energy-to-commission-independent-review-of-its-electricity-network

outage allocation, inherent in the default price-quality path (DPP) reliability limits, is insufficient for the work that we need to undertake. At this time, our view is that planned outage duration and frequency, in the next few years, will be broadly similar to the 2018 year when considered net of potential mitigations. Similarly, the frequency and duration of unplanned outages has, in recent years, exceeded the DPP unplanned allowance. Investments in safety, currently being undertaken, will have a positive impact on service performance, but we do not yet have a clear view of how much improvement will be gained, or how soon. With this in mind, we have set the forecast for unplanned outages at the three-year historic average, with a small improvement (reduction) year-on-year from 2019.

In August 2018, we will be publicly disclosing a bottom-up, total expenditure forecast that will be informed by then having a full year of audited financial expenditures, operating separately as Aurora Energy. Revised technical forecasts, including reliability, will also be disclosed and will reflect additional analysis and modelling. Finally, our asset management maturity schedules will also be disclosed. All disclosures will be certified by members of our Board of Directors.

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**

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*
8		for year ended	**31 Mar 18**	**31 Mar 19**	**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**
9	**11a(i): Expenditure on Assets Forecast**		**$000 (in nominal dollars)**										
10		Consumer connection	8,683	5,790	5,909	5,963	6,081	6,205	6,328	6,457	6,586	6,715	6,850
11		System growth	5,687	11,871	12,116	13,621	9,578	5,880	8,859	7,117	3,787	4,151	4,234
12		Asset replacement and renewal	57,849	41,163	42,010	39,034	41,868	39,020	39,239	35,639	35,564	40,837	41,656
13		Asset relocations	889	471	481	87	88	90	92	94	96	98	100
14		Reliability, safety and environment:											
15		Quality of supply	413	3,785	3,862	848	962	657	541	1,080	3,706	1,856	1,893
16		Legislative and regulatory											
17		Other reliability, safety and environment	1,199	2,492	2,543	2,831	3,090	3,116	3,141	3,205	3,269	3,690	3,764
18		**Total reliability, safety and environment**	1,612	6,276	6,405	3,680	4,052	3,774	3,682	4,285	6,975	5,546	5,657
19		**Expenditure on network assets**	74,721	65,572	66,921	62,385	61,668	54,969	58,200	53,593	53,009	57,348	58,497
20		Expenditure on non-network assets	1,000	2,083	2,126	542	553	-	-	-	-	-	-
21		**Expenditure on assets**	75,721	67,655	69,046	62,927	62,220	54,969	58,200	53,593	53,009	57,348	58,497
22													
23	*plus*	Cost of financing											
24	*less*	Value of capital contributions	3,427	3,780	3,858	3,719	3,792	3,869	3,946	4,027	4,107	4,188	4,272
25	*plus*	Value of vested assets											
26													
27		**Capital expenditure forecast**	71,933	68,826	70,242	60,235	67,202	47,919	52,268	46,062	58,744	49,473	62,416
28													
29		Assets commissioned	71,933	68,826	70,242	55,235	87,202	67,919	59,768	66,062	65,244	81,973	83,616

			Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
31		for year ended	**31 Mar 18**	**31 Mar 19**	**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**
32			**$000 (in constant prices)**										
33		Consumer connection	8,683	5,671	5,671	5,610	5,610	5,610	5,610	5,610	5,610	5,610	5,610
34		System growth	5,687	11,627	11,627	12,814	8,836	5,317	7,854	6,184	3,226	3,468	3,468
35		Asset replacement and renewal	57,849	40,316	40,316	36,721	38,623	35,281	34,786	30,964	30,293	34,116	34,116
36		Asset relocations	889	462	462	82	82	82	82	82	82	82	82
37		Reliability, safety and environment:											
38		Quality of supply	1,199	3,707	3,707	798	887	594	479	938	3,157	1,550	1,550
39		Legislative and regulatory	-	-	-	-	-	-					
40		Other reliability, safety and environment	413	2,440	2,440	2,663	2,851	2,818	2,785	2,785	2,785	3,083	3,083
41		**Total reliability, safety and environment**	1,612	6,147	6,147	3,462	3,738	3,412	3,264	3,723	5,942	4,633	4,633
42		**Expenditure on network assets**	74,720	64,223	64,223	58,688	56,889	49,701	51,596	46,562	45,152	47,909	47,909
43		Expenditure on non-network assets	1,000	2,040	2,040	510	510	-	-	-	-	-	-
44		**Expenditure on assets**	75,720	66,263	66,263	59,198	57,399	49,701	51,596	46,562	45,152	47,909	47,909
45													
46		**Subcomponents of expenditure on assets (where known)**											
47		Energy efficiency and demand side management, reduction of energy losses											
48		Overhead to underground conversion											
49		Research and development											

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**

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 18**	**31 Mar 19**	**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**
	Difference between nominal and constant price forecasts	**$000**										
	Consumer connection	-	119	238	353	471	595	718	847	976	1,105	1,240
	System growth	-	244	488	807	742	564	1,005	934	561	683	766
	Asset replacement and renewal	-	847	1,693	2,313	3,244	3,740	4,453	4,676	5,271	6,721	7,540
	Asset relocations	0	10	19	5	7	9	10	12	14	16	18
	Reliability, safety and environment:											
	Quality of supply	(786)	78	156	50	75	63	61	142	549	305	343
	Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
	Other reliability, safety and environment	786	51	102	168	239	299	356	420	485	607	681
	Total reliability, safety and environment	-	129	258	218	314	362	418	562	1,034	913	1,024
	Expenditure on network assets	0	1,349	2,697	3,697	4,779	5,268	6,604	7,031	7,856	9,438	10,588
	Expenditure on non-network assets	-	43	86	32	43	-	-	-	-	-	-
	Expenditure on assets	0	1,392	2,783	3,729	4,822	5,268	6,604	7,031	7,856	9,438	10,588

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
	11a(ii): Consumer Connection						
	*Consumer types defined by EDB**	**$000 (in constant prices)**					
	Standard Domestic 8kVA	96	61	61	61	61	61
	Standard Domestic 15kVA	689	449	449	449	449	449
	Load group 0 (1 kVA un-metered)		-	-	-	-	-
	Load group 0A (2 kVA un-metered)		-	-	-	-	-
	Load group 1A (8 kVA, plus standard domestic 8 kVA)		-	-	-	-	-
	Load group 1 (15 kVA, plus standard domestic 15 kVA)	937	612	612	612	612	612
	Load group 2 (16 - 149 kVA)	2,894	1,897	1,897	1,867	1,867	1,867
	Load group 3 (150 - 249 kVA)	1,530	1,000	1,000	989	989	989
	Load group 3A (250 - 499 kVA)	2,233	1,459	1,459	1,438	1,438	1,438
	Load group 4 (500 - 2,499 kVA)	303	194	194	194	194	194
	Load group 5 (2,500+ kVA)		-	-	-	-	-
	**include additional rows if needed*						
	Consumer connection expenditure	8,683	5,671	5,671	5,610	5,610	5,610
	less Capital contributions funding consumer connection	3,231	3,550	3,550	3,499	3,499	3,499
	Consumer connection less capital contributions	5,452	2,122	2,122	2,111	2,111	2,111
	11a(iii): System Growth						
	Subtransmission	242	2,289	2,289	1,862	2,104	1,266
	Zone substations	4,663	8,546	8,546	10,289	5,687	3,422
	Distribution and LV lines	66	561	561	459	459	276
	Distribution and LV cables	365	-	-	-	383	230
	Distribution substations and transformers	149	204	204	204	204	123
	Distribution switchgear	203	28	28	-	-	-
	Other network assets	-	-	-	-	-	-
	System growth expenditure	5,687	11,627	11,627	12,814	8,836	5,317
	less Capital contributions funding system growth						
	System growth less capital contributions	5,687	11,627	11,627	12,814	8,836	5,317

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sch ref

11a(iv): Asset Replacement and Renewal

			Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
		for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
			$000 (in constant prices)					
	Subtransmission		4,327	7,590	7,590	9,563	8,696	7,943
	Zone substations		5,997	6,606	6,606	1,688	6,775	6,189
	Distribution and LV lines		36,913	17,818	17,818	17,993	16,268	14,860
	Distribution and LV cables		1,264	654	654	649	649	593
	Distribution substations and transformers		4,480	3,766	3,766	4,942	5,039	4,603
	Distribution switchgear		1,574	1,315	1,315	1,428	1,044	954
	Other network assets		3,293	2,566	2,566	459	153	140
	Asset replacement and renewal expenditure		57,849	40,316	40,316	36,721	38,623	35,281
less	Capital contributions funding asset replacement and renewal							
	Asset replacement and renewal less capital contributions		57,849	40,316	40,316	36,721	38,623	35,281

11a(v):Asset Relocations

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
	*Project or programme**	**$000 (in constant prices)**					
	include additional rows if needed						
	All other project or programmes - asset relocations	889	462	462	82	82	82
	Asset relocations expenditure	889	462	462	82	82	82
less	Capital contributions funding asset relocations	196	153	153	-	-	-
	Asset relocations less capital contributions	693	309	309	82	82	82

11a(vi):Quality of Supply

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
	*Project or programme**	**$000 (in constant prices)**					
	include additional rows if needed						
	All other projects or programmes - quality of supply	1,199	3,707	3,707	798	887	594
	Quality of supply expenditure	1,199	3,707	3,707	798	887	594
less	Capital contributions funding quality of supply						
	Quality of supply less capital contributions	1,199	3,707	3,707	798	887	594

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**

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)

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sch ref

11a(vii): Legislative and Regulatory

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
	*Project or programme**	**$000 (in constant prices)**					
		-	-	-	-	-	-
		-	-	-	-	-	-
		-	-	-	-	-	-
		-	-	-	-	-	-
		-	-	-	-	-	-
	**include additional rows if needed*						
	All other projects or programmes - legislative and regulatory	-	-	-	-	-	-
	Legislative and regulatory expenditure	-	-	-	-	-	-
less	Capital contributions funding legislative and regulatory	-	-	-	-	-	-
	Legislative and regulatory less capital contributions	-	-	-	-	-	-

11a(viii): Other Reliability, Safety and Environment

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
	*Project or programme**	**$000 (in constant prices)**					
	**include additional rows if needed*						
	All other projects or programmes - other reliability, safety and environment	413	2,440	2,440	2,663	2,851	2,818
	Other reliability, safety and environment expenditure	413	2,440	2,440	2,663	2,851	2,818
less	Capital contributions funding other reliability, safety and environment						
	Other reliability, safety and environment less capital contributions	413	2,440	2,440	2,663	2,851	2,818

11a(ix): Non-Network Assets

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
	Routine expenditure						
	*Project or programme**	**$000 (in constant prices)**					
	**include additional rows if needed*						
	All other projects or programmes - routine expenditure	1,000	2,040	2,040	510	510	-
	Routine expenditure	1,000	2,040	2,040	510	510	-
	Atypical expenditure						
	*Project or programme**						
	**include additional rows if needed*						
	All other projects or programmes - atypical expenditure						
	Atypical expenditure	-	-	-	-	-	-
	Expenditure on non-network assets	1,000	2,040	2,040	510	510	-

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**

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).
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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*
8	for year ended	**31 Mar 18**	**31 Mar 19**	**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**
9	**Operational Expenditure Forecast**	**$000 (in nominal dollars)**										
10	Service interruptions and emergencies	5,433	3,331	3,400	3,312	3,477	3,598	3,670	3,745	3,818	3,893	3,971
11	Vegetation management	4,818	6,664	6,801	6,938	7,075	5,338	4,805	4,903	5,001	5,099	5,202
12	Routine and corrective maintenance and inspection	5,157	10,798	11,020	11,264	11,316	11,971	11,760	11,916	12,426	12,487	12,737
13	Asset replacement and renewal	687	548	559	498	480	518	499	539	520	560	572
14	**Network Opex**	16,095	21,341	21,780	22,012	22,348	21,426	20,735	21,103	21,766	22,040	22,481
15	System operations and network support	12,467	5,109	5,214	5,270	5,350	5,129	4,964	5,052	5,211	5,276	5,382
16	Business support	6,997	4,258	4,345	4,391	4,458	4,274	4,137	4,210	4,342	4,397	4,485
17	**Non-network opex**	19,465	9,367	9,559	9,661	9,809	9,404	9,101	9,262	9,553	9,673	9,867
18	**Operational expenditure**	35,560	30,707	31,339	31,673	32,157	30,829	29,835	30,364	31,319	31,713	32,349

		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 18**	**31 Mar 19**	**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**
21		**$000 (in constant prices)**										
22	Service interruptions and emergencies	5,433	3,263	3,263	3,116	3,207	3,253	3,253	3,253	3,252	3,252	3,252
23	Vegetation management	4,818	6,527	6,527	6,527	6,527	4,827	4,260	4,260	4,260	4,260	4,260
24	Routine and corrective maintenance and inspection	5,157	10,576	10,576	10,597	10,439	10,824	10,426	10,352	10,585	10,432	10,432
25	Asset replacement and renewal	687	536	536	468	443	468	443	468	443	468	468
26	**Network Opex**	16,095	20,902	20,902	20,708	20,616	19,372	18,382	18,334	18,540	18,412	18,412
27	System operations and network support	12,467	5,004	5,004	4,957	4,936	4,638	4,401	4,389	4,438	4,408	4,408
28	Business support	6,997	4,170	4,170	4,131	4,113	3,865	3,667	3,658	3,699	3,673	3,673
29	**Non-network opex**	19,465	9,174	9,174	9,089	9,049	8,502	8,068	8,047	8,137	8,081	8,081
30	**Operational expenditure**	35,560	30,076	30,076	29,796	29,665	27,875	26,450	26,381	26,677	26,494	26,494
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												

		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 18**	**31 Mar 19**	**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**
41	**Difference between nominal and real forecasts**	**$000**										
42	Service interruptions and emergencies	-	69	137	196	269	345	416	491	566	641	719
43	Vegetation management	-	137	274	411	548	512	545	643	741	839	941
44	Routine and corrective maintenance and inspection	-	222	444	668	877	1,147	1,335	1,563	1,842	2,055	2,305
45	Asset replacement and renewal	-	11	23	29	37	50	57	71	77	92	103
46	**Network Opex**	-	439	878	1,305	1,732	2,053	2,353	2,768	3,226	3,627	4,069
47	System operations and network support	-	105	210	312	415	492	563	663	772	868	974
48	Business support	-	88	175	260	345	410	469	552	644	724	812
49	**Non-network opex**	-	193	385	573	760	901	1,033	1,215	1,416	1,592	1,786
50	**Operational expenditure**	-	632	1,263	1,877	2,492	2,955	3,386	3,984	4,642	5,219	5,855

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**

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												
7					**Asset condition at start of planning period (percentage of units by grade)**							
8	**Voltage**	**Asset category**	**Asset class**	**Units**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade unknown**	**Data accuracy (1–4)**	**% of asset forecast to be replaced in next 5 years**
9												
10	All	Overhead Line	Concrete poles / steel structure	No.	0.93%	0.50%	0.55%	98.00%	0.02%	3	1.43%
11	All	Overhead Line	Wood poles	No.	6.57%	6.50%	9.37%	77.19%	0.37%	3	9.22%
12	All	Overhead Line	Other pole types	No.	1.95%	2.60%	3.90%	18.18%	73.37%	2	4.55%
13	HV	Subtransmission Line	Subtransmission OH up to 66kV conductor	km	43.28%	26.07%	15.37%	15.28%		2	28.53%
14	HV	Subtransmission Line	Subtransmission OH 110kV+ conductor	km	-	-	-	-	-	N/A	-
15	HV	Subtransmission Cable	Subtransmission UG up to 66kV (XLPE)	km	-	-	5.63%	94.37%		2	-
16	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Oil pressurised)	km	-	-	100.00%			2	-
17	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Gas pressurised)	km	-	-	100.00%			2	100.00%
18	HV	Subtransmission Cable	Subtransmission UG up to 66kV (PILC)	km	-	-	74.10%	25.90%	-	2	3.80%
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.	3.33%	26.67%	50.00%	20.00%		3	23.33%
25	HV	Zone substation Buildings	Zone substations 110kV+	No.	-	-	-	-	-	N/A	
26	HV	Zone substation switchgear	22/33kV CB (Indoor)	No.	-	-	-	100.00%		3	-
27	HV	Zone substation switchgear	22/33kV CB (Outdoor)	No.	22.36%	6.82%	28.36%	42.46%		2	36.36%
28	HV	Zone substation switchgear	33kV Switch (Ground Mounted)	No.	-	-	-	-	-	N/A	
29	HV	Zone substation switchgear	33kV Switch (Pole Mounted)	No.	33.73%	9.64%	15.66%	40.97%	-	2	15.66%
30	HV	Zone substation switchgear	33kV RMU	No.	-	-	-	-	-	N/A	
31	HV	Zone substation switchgear	50/66/110kV CB (Indoor)	No.	-	-	-	-	-	N/A	
32	HV	Zone substation switchgear	50/66/110kV CB (Outdoor)	No.			60.00%	40.00%		2	-
33	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (ground mounted)	No.	22.41%	11.21%	32.18%	34.20%		2	35.29%
34	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (pole mounted)	No.	30.00%	5.00%	10.00%	55.00%		2	30.00%
35												

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**

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)						
36												
37	Voltage	Asset category	Asset class	Units	Grade 1	Grade 2	Grade 3	Grade 4	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
38												
39	HV	Zone Substation Transformer	Zone Substation Transformers	No.	5.97%	25.37%	37.31%	31.35%		3	23.88%
40	HV	Distribution Line	Distribution OH Open Wire Conductor	km	51.34%	18.31%	22.48%	7.87%		2	11.94%
41	HV	Distribution Line	Distribution OH Aerial Cable Conductor	km	-	-	-	-		N/A	-
42	HV	Distribution Line	SWER conductor	km		32.27%		67.73%		2	-
43	HV	Distribution Cable	Distribution UG XLPE or PVC	km	0.10%	0.01%	11.92%	87.97%		1	0.64%
44	HV	Distribution Cable	Distribution UG PILC	km	-	0.04%	53.92%	46.04%		1	0.64%
45	HV	Distribution Cable	Distribution Submarine Cable	km	100.00%	-	-	-	-	1	-
46	HV	Distribution switchgear	3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers	No.			37.78%	62.22%		3	9.00%
47	HV	Distribution switchgear	3.3/6.6/11/22kV CB (Indoor)	No.			40.00%	60.00%		2	-
48	HV	Distribution switchgear	3.3/6.6/11/22kV Switches and fuses (pole mounted)	No.	21.99%	12.56%	58.61%	6.84%		2	10.38%
49	HV	Distribution switchgear	3.3/6.6/11/22kV Switch (ground mounted) - except RMU	No.	13.16%	-	36.84%	50.00%		2	7.00%
50	HV	Distribution switchgear	3.3/6.6/11/22kV RMU	No.	24.81%	10.65%	11.59%	52.95%		2	9.72%
51	HV	Distribution Transformer	Pole Mounted Transformer	No.	2.95%	35.04%	34.76%	27.25%		2	7.63%
52	HV	Distribution Transformer	Ground Mounted Transformer	No.	1.79%	13.98%	41.24%	42.99%		3	1.73%
53	HV	Distribution Transformer	Voltage regulators	No.	-	-	7.69%	92.31%		3	-
54	HV	Distribution Substations	Ground Mounted Substation Housing	No.	11.65%	5.48%	5.25%	77.62%		3	-
55	LV	LV Line	LV OH Conductor	km	73.44%	17.65%	6.93%	1.98%		1	
56	LV	LV Cable	LV UG Cable	km	-	-	15.50%	84.50%		1	-
57	LV	LV Streetlighting	LV OH/UG Streetlight circuit	km	39.44%	20.30%	16.09%	24.17%		2	-
58	LV	Connections	OH/UG consumer service connections	No.	0.73%	1.64%	10.92%	48.27%	38.44%	1	-
59	All	Protection	Protection relays (electromechanical, solid state and numeric)	No.	-	4.36%	66.19%	22.69%	6.76%	2	14.03%
60	All	SCADA and communications	SCADA and communications equipment operating as a single system	Lot	20.00%	40.00%	20.00%	20.00%		2	100.00%
61	All	Capacitor Banks	Capacitors including controls	No.	-	-	-	100.00%		3	-
62	All	Load Control	Centralised plant	Lot	34.79%	39.13%		26.08%		3	73.92%
63	All	Load Control	Relays	No.	15.57%	6.63%	38.27%	39.53%		2	
64	All	Civils	Cable Tunnels	km	-	-	-	-	-	N/A	-

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**

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
Alexandra	11	15	N-1	1	74%	15	75%	No constraint within +5 years	
Anderson's Bay	15	18	N-1	5	83%	23	66%	No constraint within +5 years	
Arrowtown	9	6	N-1	2	142%	24	39%	Subtransmission circuit	Firm Capacity of Arrowtown, Coronet Peak, Dalefield and Remarkables combined is constrained by subtransmission
Berwick	1	4	N	1	39%	4	39%	No constraint within +5 years	
Cardrona	4	6	N	1	68%	6	84%	No constraint within +5 years	
Camphill	5	8	N	2	64%	8	70%	No constraint within +5 years	
Clyde/Earnscleugh	3	4	N	3	70%	4	86%	No constraint within +5 years	
Commonage	12	17	N-1	6	72%	17	81%	No constraint within +5 years	
Coronet Peak	5	6	N	2	88%	6	89%	No constraint within +5 years	
Corstorphine	13	23	N-1	6	56%	23	56%	No constraint within +5 years	
Cromwell	11	9	N-1	1	124%	24	52%	No constraint within +5 years	
Dalefield	2	4	N	2	67%	4	76%	No constraint within +5 years	
East Taieri	16	23	N-1	4	70%	23	70%	No constraint within +5 years	
Ettrick	2	4	N	2	53%	4	53%	No constraint within +5 years	
Frankton	15	15	N-1	6	97%	15	114%	Transformer	
Fernhill	7	10	N-1	4	67%	10	72%	No constraint within +5 years	
Green Island	13	18	N-1	6	74%	18	74%	No constraint within +5 years	
Halfway Bush	15	14	N-1	6	106%	23	64%	No constraint within +5 years	
Kaikorai Val.	10	23	N-1	6	45%	23	46%	No constraint within +5 years	
Lauder Flat	1	3	N	1	24%	3	40%	No constraint within +5 years	
Lindis Crossing	6	8	N	4	72%	8	81%	No constraint within +5 years	
Mosgiel	7	12	N-1	4	58%	12	58%	No constraint within +5 years	
Neville St (Carisbrooke)	12	18	N-1	6	64%	23	51%	No constraint within +5 years	
North City	18	28	N-1	6	65%	28	65%	No constraint within +5 years	
North East Val.	11	18	N-1	6	60%	18	60%	No constraint within +5 years	
Omakau	3	4	N	2	75%	4	97%	No constraint within +5 years	
Outram	3	4	N	2	78%	9	31%	No constraint within +5 years	
Port Chalmers	7	10	N-1	3	65%	10	65%	No constraint within +5 years	
Queensberry	3	4	N	3	70%	4	77%	No constraint within +5 years	
Queenstown	14	20	N-1	6	70%	20	76%	No constraint within +5 years	
Remarkables	2	4	N	-	67%	4	97%	No constraint within +5 years	
Roxburgh	2	6	N	2	30%	6	30%	No constraint within +5 years	
Smith St	14	18	N-1	6	78%	23	61%	No constraint within +5 years	
South City	15	18	N-1	6	85%	18	85%	No constraint within +5 years	
St Kilda	15	23	N-1	6	65%	23	64%	No constraint within +5 years	
Wanaka	20	24	N-1	2	83%	24	95%	Subtransmission circuit	Firm Capacity of Wanaka, Cardrona, Camphill, Queensberry and Lindis Crossing combimed is constrained by subtransmission
Ward St	11	23	N-1	6	47%	23	47%	No constraint within +5 years	
Willowbank	13	18	N-1	6	70%	18	70%	No constraint within +5 years	
					-				
					-				
					-				
					-				

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

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**

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 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
	*Consumer types defined by EDB**							
12	Standard Domestic 8kVA		(1)	19	18	20	19	19
12a	Standard Domestic 15kVA		1,170	758	792	793	791	791
12b	Load Group 0		(3)	32	6	5	5	6
12c	Load Group 0A		43	59	51	52	51	53
12d	Load Group 1A		13	64	34	33	32	33
12e	Load Group 1		79	53	54	53	54	54
12f	Load Group 2		129	215	130	128	130	128
12g	Load Group 3		2	5	6	6	6	5
13	Load Group 3A		7	2	3	2	3	2
14	Load Group 4		8	3	4	3	5	4
15	Load Group 5		-	-	-	-	-	-
16	Street Lighting & DUML							
17	**Connections total**		1,447	1,210	1,098	1,095	1,096	1,095
18	**include additional rows if needed*							
19	**Distributed generation**							
20	Number of connections		875	1,074	1,294	1,533	1,792	2,071
21	Capacity of distributed generation installed in year (MVA)		1	1	1	1	1	1

12c(ii) System Demand

			Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	Maximum coincident system demand (MW)	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
25	GXP demand		238	240	242	245	247	249
26	*plus* Distributed generation output at HV and above		56	56	56	56	56	56
27	**Maximum coincident system demand**		294	296	299	301	303	305
28	*less* Net transfers to (from) other EDBs at HV and above		0	0	0	0	0	0
29	**Demand on system for supply to consumers' connection points**		294	296	298	301	303	305
30	**Electricity volumes carried (GWh)**							
31	Electricity supplied from GXPs		1,099	1,105	1,110	1,116	1,121	1,127
32	*less* Electricity exports to GXPs		45	45	45	45	45	45
33	*plus* Electricity supplied from distributed generation		320	320	320	320	320	320
34	*less* Net electricity supplied to (from) other EDBs		(1)	(1)	(1)	(1)	(1)	(1)
35	**Electricity entering system for supply to ICPs**		1,375	1,380	1,386	1,391	1,397	1,402
36	*less* Total energy delivered to ICPs		1,293	1,298	1,303	1,308	1,313	1,319
37	**Losses**		82	82	82	83	83	84
38								
39	**Load factor**		53%	53%	53%	53%	53%	52%
40	**Loss ratio**		5.9%	5.9%	5.9%	6.0%	6.0%	6.0%

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**
Network / Sub-network Name	**Total Business**

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*
9	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
10	**SAIDI**						
11	Class B (planned interruptions on the network)	148.6	140.0	140.0	140.0	140.0	140.0
12	Class C (unplanned interruptions on the network)	112.4	100.1	99.1	98.1	97.1	96.2
13	**SAIFI**						
14	Class B (planned interruptions on the network)	0.72	0.7	0.7	0.7	0.7	0.7
15	Class C (unplanned interruptions on the network)	2.09	1.64	1.63	1.61	1.59	1.58

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**
Network / Sub-network Name	**Dunedin Sub-network**

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*
9	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
10	**SAIDI**						
11	Class B (planned interruptions on the network)	159.6	150.0	150.0	150.0	150.0	150.0
12	Class C (unplanned interruptions on the network)	73.1	56.8	56.3	55.7	55.2	54.6
13	**SAIFI**						
14	Class B (planned interruptions on the network)	0.82	0.80	0.80	0.80	0.80	0.80
15	Class C (unplanned interruptions on the network)	1.42	0.96	0.95	0.94	0.93	0.92

Company Name	**Aurora Energy Limited**
AMP Planning Period	**1 April 2018 – 31 March 2028**
Network / Sub-network Name	**Central Otago Sub-network**

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*
9	for year ended	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**
10	**SAIDI**						
11	Class B (planned interruptions on the network)	131.0	130.0	130.0	130.0	130.0	130.0
12	Class C (unplanned interruptions on the network)	158.5	160.1	158.5	156.9	155.3	153.8
13	**SAIFI**						
14	Class B (planned interruptions on the network)	0.55	0.55	0.55	0.55	0.55	0.55
15	Class C (unplanned interruptions on the network)	2.83	2.59	2.56	2.54	2.51	2.49