

# Draft Decision

**Power and Water Corporation  
Electricity Distribution  
Determination 2024 to 2029  
(1 July 2024 to 30 June 2029)**

**Attachment 5  
Capital Expenditure**

**September 2023**

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## Contents

<b>5</b>	<b>Capital expenditure</b>	<b>1</b>
5.1	Draft decision	2
5.2	PWC’s proposal	3
5.3	Reasons for draft decision	6
<b>A</b>	<b>Reasons for decision on key capex categories</b>	<b>11</b>
A.1	Property	11
A.2	Information and Communication Technology	15
A.3	Consumer Energy Resources	24
<b>B</b>	<b>Contingent Project</b>	<b>28</b>
B.1	Assessment approach	31
B.2	Draft decision	33
	<b>Shortened forms</b>	<b>34</b>

## 5 Capital expenditure

Capital expenditure (capex) refers to the money required to build, maintain or improve the physical assets needed to provide standard control services (SCS).<sup>1</sup> Generally, these assets have long lives and a distributor will recover capex from customers over several regulatory control periods. A distributor’s capex forecast contributes to the return of and return on capital building blocks that form part of its total revenue requirement.

Under the regulatory framework, a distributor must include a forecast of total capex that it considers is required to meet or manage expected demand, comply with all applicable regulatory obligations, and to maintain the safety, reliability, quality, and security of its network (the capex objectives).<sup>2</sup>

We must decide whether or not we are satisfied that this forecast reasonably reflects prudent and efficient costs and a realistic expectation of future demand and cost inputs (the capex criteria).<sup>3</sup> We must make our decision in a manner that will, or is likely to, deliver efficient outcomes that benefit consumers in the long term (as required under the National Electricity Objective (NEO)).<sup>4</sup>

The *AER’s capital expenditure assessment outline* explains our and distributors’ obligations regarding capex under the National Electricity Law and Rules (NEL and NER) in more detail.<sup>5</sup> It also describes the techniques we use to assess a distributor’s capex proposal against the capex criteria and objectives.

### Total capex framework

We analyse and assess capex drivers, programs and projects to inform our view on a total capex forecast. However, we do not determine forecasts for individual capex drivers or determine which programs or projects a distributor should or should not undertake. This is consistent with our ex-ante incentive-based regulatory framework and is referred to as the ‘capex bucket’.

Once the ex-ante capex forecast is established, there is an incentive for distributors to provide services at the lowest possible cost, because the actual costs of providing services will determine their returns in the short term. If distributors reduce their costs, the savings are shared with consumers in future regulatory control periods. Our assessment of the ex-ante capex is consistent with the NEO, which in addition to providing for the lowest possible costs also recognises that services should be valued appropriately and adapt to changing circumstances to maintain efficiencies in the long term interest of consumers. This incentive-based framework provides distributors with the flexibility to prioritise their capex program given their circumstances and due to changes in information and technology.

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<sup>1</sup> These are services that form the basic charge for use of the distribution system.

<sup>2</sup> NT NER, cl. 6.5.7(a).

<sup>3</sup> NT NER, cl. 6.5.7(c).

<sup>4</sup> NEL, ss. 7, 16(1)(a).

<sup>5</sup> AER, *Capex assessment outline for electricity distribution determinations*, February 2020.

Distributors may need to undertake programs or projects that they did not anticipate during the revenue determination. Distributors also may not need to complete some of the programs or projects proposed if circumstances change, these are decisions for the distributor to make. We consider a prudent and efficient distributor would consider the changing environment throughout the regulatory control period and make decisions accordingly.

Importantly, our decision on total capex does not limit a distributor's actual spending. We set the forecast at a level where the distributor has a reasonable opportunity to recover its efficient costs.

### Assessment approach

We provide guidance on our assessment approach in several documents, including the following which are of relevance to this decision:

- *AER's Expenditure Forecast Assessment Guideline*<sup>6</sup>
- *Regulatory Investment Test for Distribution and Transmission (RIT-D and RIT-T) Guidelines*<sup>7</sup>
- *AER's Asset Replacement Industry Note*<sup>8</sup>
- *AER's Information and Communication Technologies (ICT) Guidance Note*.<sup>9</sup>

We also had regard to the guiding principles in the AER's *Better Resets Handbook – Towards consumer centric proposals* which encourages networks to develop high quality, well-justified proposals that genuinely reflect consumers' preferences.<sup>10</sup>

Our draft decision has been based on the information before us, which includes:

- the distributor's regulatory proposal and accompanying documents and models.
- the distributor's responses to our information requests.
- stakeholder comments in response to our Issues Paper.

## 5.1 Draft decision

Our draft decision is that we are not satisfied that Power and Water Corporation's (PWC) proposed total forecast capex of \$568 million (\$2023–24) reasonably reflects the capex criteria. Our substitute forecast is \$432.8 million, which is 24% below PWC's forecast.

We consider this forecast will provide for a prudent and efficient service provider in PWC's circumstances to maintain the safety, reliability and security of electricity supply on the distribution network. Table 5.1 outlines our substitute estimate of forecast capex and compares this to PWC's proposed forecast capex.

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<sup>6</sup> AER, *Expenditure Forecast Assessment Guideline for Distribution*, August 2022. The legal requirements of the AER under the NEL and the NER in assessing capex are outlined in section 2.1.

<sup>7</sup> AER, *RIT-T and RIT-D application guidelines (minor amendments) 2017*, September 2017.

<sup>8</sup> AER, *Industry practice application note for asset replacement planning*, January 2019.

<sup>9</sup> AER, *AER publishes guidance on non-network ICT capital expenditure assessment approach*, November 2019.

<sup>10</sup> AER, *Better Resets Handbook – Towards consumer-centric network proposals*, December 2021.

**Table 5.1 AER’s draft decision on PWC’s total net capex forecast (\$ million, 2023–24)**

	2024–25	2025–26	2026–27	2027–28	2028–29	Total
PWC’s proposal	102.2	103.9	92.4	122.0	147.6	568.0
AER’s draft decision	101.2	102.2	93.7	67.5	68.1	432.8
Difference (\$)	-1.0	-1.8	1.3	-54.5	-79.4	-135.2
Difference (%)	-0.93%	-1.7%	1.4%	-44.6%	-53.8%	-23.8%

Source: AER analysis and PWC’s proposal.

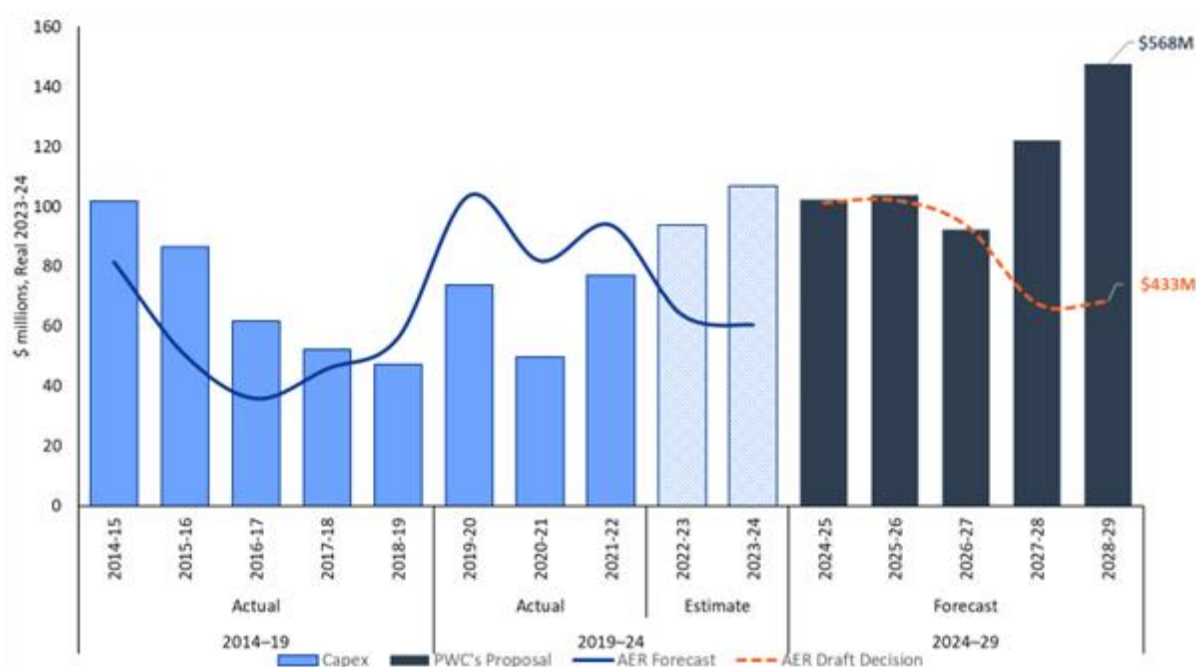
Note: Numbers may not add up due to rounding. Modelling adjustments relate to updates to the consumer price index (CPI), real cost escalation assumptions and PWC’s updated capex model.

## 5.2 PWC’s proposal

PWC’s proposal forecasts \$568.0 million (\$2023–24) capex over the 2024–29 regulatory control period. This represents an increase of approximately 39% compared to actual and expected expenditure over the 2019–24 period.<sup>11</sup>

Figure 5.1 outlines PWC’s historical capex trend, its proposed forecast for the 2024–29 regulatory control period, and our draft decision.

**Figure 5.1 PWC’s historical and forecast capex (\$ million, \$2023–24)**



Source: AER analysis.

<sup>11</sup> PWC, *Revenue Proposal - Attachment 8.01 - Capital Expenditure*, January 2023, p. v.

The increase in proposed capex over the 2024–29 regulatory period arises largely from two non-network related projects and programs:

- PWC’s plans to co-locate staff into one PWC owned location. This non-network property project is the primary driver of the proposed capex uplift in the later years of the regulatory control period shown in Figure 5.1 above
- an uplift in PWC’s asset management capabilities, with a focus on information and communication technology (ICT) systems, operating technology and the replacement of aging assets. PWC is seeking to improve its asset data and risk-based asset management practices and undertake further asset replacement in order to establish a smoother level of network replacement capex in the future by investing in its people and systems (non-network capex).

PWC’s estimated capex in the current 2019–24 regulatory period is \$26.6 million lower (5.7%) than our capex forecast.<sup>12</sup> Figure 5.1 shows actual capex in the first three years of the current regulatory period has been lower than the forecast, but PWC expects to increase capex significantly in the last two years of the 2019–24 period.<sup>13</sup> PWC states that the lower-than-expected delivery of network capex in the first three years has primarily been driven by external factors that have constrained its existing resources. This included a need to connect more large-scale renewable generation to its transmission network, human resourcing issues, as well as a re-prioritisation of the core capabilities as part of its ICT program.<sup>14</sup>

Table 5.2 provides a breakdown of PWC’s capex proposal in more detail.

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<sup>12</sup> PWC, *Revenue Proposal - Attachment 8.01 - Capital Expenditure*, January 2023, p. 10.

<sup>13</sup> PWC, *Revenue Proposal - Attachment 8.01 - Capital Expenditure*, January 2023, p. 10.

<sup>14</sup> PWC, *Revenue Proposal - Attachment 8.01 - Capital Expenditure*, January 2023, p. 11.

**Table 5.2 PWC’s forecast capex categories verses current period actual/estimates (\$ million 2023–24)**

Category	PWC 2019–24 capex	PWC 2024–29 capex	Change from 2019–24 (%)	Proportion of total capex
Replacement	150.5	176.6	17%	31%
Augmentation	62.9	33.2	-47%	6%
Connections	37.9	7.0	-82%	1%
Property	24.2	106.7	340%	19%
ICT	49.5	70.7	43%	12%
Fleet	23.8	14.0	-41%	2%
Non-network capex - other	7.7	8.7	13%	2%
DER	-	13.2	-	2%
Capitalised overheads	94.3	144.7	53%	25%
<b>Gross Total</b>	<b>450.8</b>	<b>574.8</b>	<b>28%</b>	
Customer contribution connections	40.6	5.9	-85%	
Disposals	0.8	0.8	6%	
<b>Net Total</b>	<b>409.4</b>	<b>568.0</b>	<b>39%</b>	

Source: AER analysis.

Note: Numbers may not add up to total due to rounding.

While PWC is forecasting a reduction in its augmentation and connection expenditures, it expects that an increase in network replacements, property, ICT and customer energy resource expenditure will more than offset the reduction.

The 340% increase in forecast property capex reflects the proposed single site consolidation project to co-locate some of PWC’s Darwin staff, who are located across five sites, into one PWC owned location.<sup>15</sup> PWC proposed to recover \$89.8 million from electricity network customers for this new building.

PWC’s \$70.7 million forecast for ICT non-network capex includes recurrent ICT capex of \$17.7 million (25% of ICT) and non-recurrent ICT capex of \$53 million (75% of ICT). The increase in forecast ICT capex by 43% reflects:

- a delay in some of the system replacements PWC had initially intended to commence in the 2019–24 period which are now proposed to occur in the 2024–29 period, including a new asset management system, mobility and capital delivery system, and the physicals-to-financials ICT systems<sup>16</sup>
- continued investment in PWC’s systems capability uplift to replace legacy systems
- the growing need to manage cyber-security threats.

<sup>15</sup> PWC, *Revenue Proposal - Attachment 8.01 - Capital Expenditure*, January 2023, p. 92.

<sup>16</sup> PWC, *Revenue Proposal - Attachment 8.01 - Capital Expenditure*, January 2023, p. 77.



The increase in capitalised overheads by 53% reflects PWC’s adoption of a new capitalisation methodology that aligns with accounting standards and our approved Cost Allocation Method. This has resulted in a corresponding reduction in overheads being expensed as part of operating expenditure and is more closely aligned with approaches used by a number of other network providers.

The reduction in expected customer contribution connections capex is a result of a change in the classification of services from Standard Control Services to Alternative Control Services, which directly attributes connection costs to the customers requesting the service.

### 5.3 Reasons for draft decision

We reviewed PWC’s capex drivers, programs and projects to inform our view on a total capex forecast that reasonably reflects the capex criteria. We conducted top-down analysis such as examining trends and forecast costs compared with historical capex, and inter-relationships between cost categories. To complement this, we conducted bottom-up analysis of PWC’s specific major programs and projects.

Our capex assessment focused primarily on the material capex categories that either represented a significant uplift in expenditure, had stakeholder interest or are new and evolving areas, such as consumer energy resources. Capex that was relatively small and forecast using established modelling approaches and inputs in line with our expectations, meant that we did not need to undertake a more detailed analysis of the individual programs and projects. Our draft decision is reflective of this approach as set out in Tables 5.4 and 5.5 below.

Further, in considering the scope of our review we had regard to how PWC has performed against the Better Resets Handbook expectations for capex.<sup>17</sup>

Our assessment against each expectation is set out in Table 5.3.

**Table 5.3 Better Resets Handbook capex expectations**

Capital expenditure expectations	AER Position
Top-down testing of the total capex forecast and at the category level.	PWC have not met this expectation as total capex has increased by 28% above the historical expenditure.
Evidence of prudent and efficient decision-making on key projects and programs.	PWC have not met this expectation as there is insufficient justification for the property, ICT and CER expenditure increases.
Evidence of alignment with asset and risk management standards.	PWC have not met this expectation. While there is evidence of improvement in asset and risk management from the previous regulatory determination, further evidence is required to assess the asset and risk management practices for ICT and CER.

<sup>17</sup> AER, *Better Resets Handbook – Towards Consumer Centric Network*, December 2021, pp. 19–23.

Capital expenditure expectations	AER Position
Genuine consumer engagement on capital expenditure proposals.	PWC have not met this expectation. Stakeholder submissions indicated that there was a lack of consultation on property and ICT expenditure which are significant parts of PWC's proposal.

While we have not accepted PWC's total capex forecast, we are broadly supportive of PWC's forecasting approach. However, we have identified a few components of PWC's forecast that are not prudently required to maintain the safety, reliability or security of the network, or reflect the efficient costs of doing so. This includes the proposed single site property consolidation project, the operational technology uplift component of PWC's proposed information and communication technology (ICT), and the consumer energy resources (CER) expenditure for the 2024–29 regulatory control period.

Table 5.4 sets out our draft decision for PWC by capex category.

**Table 5.4 AER draft decision by capex category (\$ million 2023–24)**

Category	PWC proposal	AER draft decision	Difference (\$)	Difference (%)
Replacement	176.6	176.6	–	–
Augmentation	33.2	33.2	–	–
Connections	7.0	7.0	–	–
Property	106.7	22.4	-84.2	-79%
ICT	70.7	48.6	-22.1	-31%
Fleet	14.0	14.0	–	–
Non-network capex - other	8.7	8.7	–	–
CER	13.2	1.1	-12.1	-91%
Capitalised overheads	144.7	131.9	-2.8	-9%
<b>Gross Total</b>	<b>574.8</b>	<b>443.6</b>	<b>-131.2</b>	<b>-23%</b>
Less Customer contribution connections	5.9	6.3	0.4	7%
Less Disposals	0.8	0.8	–	–
Modelling adjustments		-3.7	-3.7	
<b>Net Total</b>	<b>568.0</b>	<b>432.8</b>	<b>-135.2</b>	<b>-24%</b>

Source: PWC's capex model and AER analysis.

Note: Numbers may not sum due to rounding. Modelling adjustments relate to updates to the consumer price index (CPI), real cost escalation assumptions (including the exclusion of external contract labour cost escalation) and PWC's updated capex model May 2024.

Table 5.5 summarises our views on each of the capex categories and whether they are prudent and efficient and reflect the capex criteria, and the reasons for this. Further detail

and reasons on capex that we have not accepted for the draft decision are contained in Appendices A.1 to A.3.

Our findings on each capex driver are part of our broader analysis and should not be considered in isolation. We do not approve an amount of forecast expenditure for each individual capex driver or project/program. However, we use our findings on the different capex drivers to assess a regulated business' proposal as a whole and arrive at a substitute estimate for total capex where necessary. Our decision on total capex does not limit a regulated business' actual spending.

**Table 5.5 Summary of findings and reasons, by capex category**

Issue	Findings and reasons
Replacement	<p>We have included PWC's replacement expenditure in the total forecast capex.</p> <p>PWC has proposed an increase in replacement, totalling \$174 million and reflecting the significant portion of the assets built after Cyclone Tracy in 1974 that are reaching their expected technical life.</p> <p>This includes:</p> <ul style="list-style-type: none"> <li>• two major programs (\$53 million) – the Berrimah zone substation and the Darwin high voltage cable replacement, which are on-going in nature and we consider necessary to maintain reliability</li> <li>• a suite of smaller programs (\$85 million) that are targeted to specific asset types or known condition issues. We accept the need to undertake these programs, which includes the Alice Springs pole and service replacement program</li> <li>• a volumetric condition and failure based program (\$37 million) to address general replacement needs. We accept the need to undertake general replacements and this program.</li> </ul> <p>However, we note replacement expenditure is required to maintain rather than improve the reliability of services to customers.<sup>18</sup> We observed an improvement in the System Average Interruption Frequency Index since 2014 as a result of PWC's efforts to improve its asset management practices and better targeted replacements. Although it is not yet clear that PWC has reached a sustainable level of reliability performance, it is important that replacement is targeted at maintaining the reliability of customer service.</p> <p>We expect PWC to fully take into account its reliability performance, including quality and security of supply, when considering the replacement needs required in the future, and to demonstrate that its program of works aligns with maintaining reliability consistent with customer expectations.</p>
Augmentation	<p>We have included PWC's augmentation expenditure in the total forecast capex.</p> <p>PWC proposed \$52.6 million in augmentation and is a substantial reduction compared to the actual/estimated capex in the current regulatory period. This is driven by a flattening of peak demand due to an increase in solar consumption during the day. The proposed augmentation is attributed to demand accruing in high growth locations on the network, which we consider to be reasonable.</p>

<sup>18</sup> NT NER, cl. 6.5.7(a)(3)(iv).

Issue	Findings and reasons
Connections	<p>We have included PWC's connections forecast in the total forecast capex.</p> <p>PWC proposed \$6.9 million in connections. This is a sizable reduction compared to the current period and is due to PWC reclassifying connection services to align with the AER's classification guideline,<sup>19</sup> which has resulted in a number of services being reclassified as alternative control services.<sup>20</sup> The proposed forecast expenditure reflects this and we consider the proposed connection expenditure for standard control services to be reasonable.</p>
Property	<p>We have <b>not</b> included PWC's proposed property forecast in the total forecast capex.</p> <p>PWC proposed \$106.7 million for property capex. Our draft decision is to include \$22.2 million for property in our alternative property estimate. This is \$84.5 million or 79% less than what PWC proposed. Our alternative estimate does not include PWC's proposed single site consolidation project, but allows for property remediation costs and property leases, including an additional allowance for on-going business lease costs PWC will face in the absence of the single site reconciliation.</p> <p>Our reasons for this are set out in Appendix A.1.</p>
ICT	<p>We have <b>not</b> included PWC's proposed ICT forecast in the total forecast capex.</p> <p>PWC proposed \$70.7 million for ICT. Our draft decision is to include \$48.2 million for ICT in our alternative ICT estimate. Our alternative estimate does not include PWC's proposed Operational Technology uplift capex but includes all of PWC's other ICT projects. Whilst our decision is to accept PWC's proposed \$11.5 million in cyber security capex as prudent, this is a placeholder as we require PWC to provide additional information in its revised proposal to justify that these are efficient costs.</p> <p>Our reasons for this are set out in Appendix A.2.</p>
Other Non-network capex, including Fleet and Spares	<p>We have included PWC's non-network capex forecast in the total forecast capex.</p> <p>PWC proposed \$13.9 million in other non-network expenditure, which includes fleet, inventory and spares. This represents a significant reduction in forecast fleet leasing capex of 40% from the current period, and includes expenditure on plant, tools and equipment which is comparable to the current period. For these reasons, we consider PWC's proposed expenditure on other non-network expenditure to be reasonable.</p>
CER	<p>We have <b>not</b> included PWC's proposed CER forecast in the total forecast capex.</p> <p>PWC proposed \$13.2 million of capex for CER integration investments, primarily to develop comprehensive dynamic operating envelop capability and offer dynamic export limits to all CER customers from 2028. Our alternative estimate is \$1.1 million and does not include PWC's proposed capex to implement dynamic operating envelopes but includes its expenditure for installer outreach programs, which combined with ongoing compliance activities (opex) will result in improved inverter compliance and minimise reductions to its static export limits.</p> <p>Our reasons for this are set out in Appendix A.3.</p>

<sup>19</sup> AER, *Electricity Distribution Service Classification Guideline*, August 2022.

<sup>20</sup> PWC, *Attachment 7.01 Service Classification*, 31 January 2023.

Issue	Findings and reasons
Capitalised overheads	<p>We have included \$131.9 million of PWCs capitalised overheads in the total forecast capex.</p> <p>This is \$12.8 million (or 9%) less than the \$144.7 million in capitalised overheads proposed by PWC. This is because capitalised overheads are an allocated portion of total forecast capex, requiring a modelling adjustment based on our alternative forecast of total capex.</p> <p>PWC adopted a new capitalisation methodology that aligns with accounting standards and the AER's approved Cost Allocation Method. This more closely aligns PWC with approaches adopted by other network service providers. Previous opex overheads are now being classified as capex overheads and PWC has made improvements in identifying and allocating its labour costs across all capex categories.</p> <p>We reviewed the change in methodology and reallocation between capex and opex and note while capex overhead expenditure has increased, opex overhead expenditure has decreased, whilst the overall overhead expenditure has remained relatively the same. For these reasons we consider PWCs proposed capitalised overheads expenditure to be reasonable.</p>
Asset disposals	<p>We have included PWC's asset disposal forecast in the total forecast capex.</p>
Customer contributions	<p>We have included PWC's customer contribution forecast in the total forecast capex.</p> <p>This has gone up slightly, by \$0.4 million, as a result of the lower recovery of capitalised overheads allocated to Standard Control Services.</p> <p>PWC proposed \$5.9 million in customer contributions. The sizable reduction in capital contributions is a result of the change in Standard Control Services and Alternative Control Services classification and aligns with the proposed connections expenditure and policy.<sup>21</sup></p>
Contingent projects	<p>We have accepted four out of the five of PWC's proposed contingent projects.</p> <p>PWC proposed five contingent projects with a total indicative cost of \$342 million. We consider four of PWC's five proposed contingent projects should be classified as a contingent project for the 2024–29 regulatory control period.</p> <p>Our reasons for this are set out in Appendix B.</p>
Ex-post review	<p>We are required to provide a statement on whether the roll forward of the regulatory asset base (RAB) from the previous period contributes to the achievement of the capex incentive objective. The capex incentive objective is to ensure that, where the RAB is subject to adjustment in accordance with the NER, only expenditure that reasonably reflects the capex criteria is included in any increase in value of the RAB.</p> <p>We may exclude capex from being rolled into the RAB when a distributor has overspent the amount of capex above the allowance that does not reasonably reflect the capital expenditure criteria.<sup>22</sup></p> <p>We have reviewed PWC's capex performance for the 2017–18 to 2021–22 regulatory years. PWC incurred total capex below its regulatory forecast for the ex-post review period. On this basis, the overspending requirement for an efficiency review of past capex is not satisfied.</p> <p>We are satisfied that including this actual capex in the RAB is likely to contribute towards achieving the capex incentive objective.</p>

<sup>21</sup> PWC, *Attachment 7.01 Service Classification*, 31 January 2023.

<sup>22</sup> AER, *Capital Expenditure Incentive Guideline*, November 2013, p. 17.

# A Reasons for decision on key capex categories

This appendix sets out our assessment of key capex categories and programs/projects within PWC’s total capex forecast that we have not included in our alternative estimate and the reasons for our decision. This appendix includes:

- Property (Appendix A.1)
- Information and Communication Technology (Appendix A.2)
- Consumer Energy Resources (Appendix A.3).

## A.1 Property

Property is non-network expenditure that relates to the maintenance, refurbishment and optimisation of offices, operational depots, warehouses, training and other specialist facilities used by PWC in support of its business operations.

### A.1.1 AER’s draft decision

We are not satisfied that PWC’s proposed \$106.7 million (\$2023–24) for property capex reflects the capex criteria.<sup>23</sup> Our decision is to include \$22.2 million (\$2023–24) for property in our alternative property capex estimate. This is \$84.5 million or 79% less than what PWC proposed. Our alternative estimate does not include PWC’s proposed single site consolidation project but allows for property remediation costs and property leases, including an additional allowance for on-going business lease costs PWC will face in the absence of the single site reconciliation.

### A.1.2 PWC’s proposal

PWC forecast \$106.7 million (\$2023–24) of non-network property capex in the 2024–29 period, compared to actual/estimated total non-network other capex (property, fleet and plant) of \$54.8 million in the 2019–24 regulatory period. This reflects a ‘one-off’ new project of \$89.8 million to consolidate PWC’s staff across five sites into one central location.<sup>24</sup>

PWC’s forecast \$106.7 million of non-network property capex comprises:<sup>25</sup>

- single site consolidation (\$89.8 million)
- property leases (\$6.4 million)
- property remediation costs (\$10.5 million).

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<sup>23</sup> NT NER, cl.6.5.7(c).

<sup>24</sup> The proposed total cost of the new multi-level office is \$159.1 million and the portion allocated to PWC’s standard control services is forecast at \$89.8 million. PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 91.

<sup>25</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, pp. 93–94.

A key component of PWC’s property capex is its single site consolidation project. PWC is seeking to co-locate key business services and support functions into a consolidated single site (Ben Hammond complex) to enhance business operations and long-term fiscal prudence. PWC intends to develop and optimise its Ben Hammond complex for shared business functions and enable the consolidation of employees from the Mitchell Centre, Woods Street, Hudson Creek and 19 Mile Depot facilities.<sup>26</sup>

PWC acknowledges that whilst it is still at the early stages of business planning, initial analysis suggests there may be a net benefit in consolidating its staff in one site by developing the Ben Hammond complex. The project comprises the construction of a multi-level office, including a cyclone shelter, together with associated project management costs. Total project cost is estimated at \$159.1 million and the portion allocated to standard control services is forecast at \$89.8 million. PWC recognises this is a material investment and requires deeper analysis of benefits and costs. PWC’s initial analysis suggests the benefits include reduction in lease costs across all sites, improved efficiency of staff from collaboration, improved response to faults and outages and improved emergency response.<sup>27</sup> PWC acknowledges that the business case for the material one-off project to centralise most of its Darwin staff in one location is still at a conceptual stage of design.<sup>28</sup>

In the interim, PWC’s property and building forecasts anticipate an extension of the current Mitchell Centre lease, but only for five years (rather than the current 10 year term). A two-year development is assumed, with expenditure forecast to be incurred in FY28 and FY29.<sup>29</sup>

### A.1.3 Reasons for decision

#### Single site consolidation

Our draft decision is not to accept PWC’s proposed single site consolidation project with an associated capex of \$89.8 million.

We raised concerns regarding the lack of supporting information and the scope of the project with PWC and sought further information.<sup>30</sup> We consider that PWC’s proposed single site consolidation project capex does not reasonably reflect its capex requirements over the next regulatory period because PWC:

- did not provide any quantitative or substantial qualitative analysis to support the project to show that this is prudent and efficient

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<sup>26</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Regulated Network Property Strategy (public)*, 31 January 2023, p. 10.

<sup>27</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Regulated Network Property Strategy (public)*, 31 January 2023, p. 10.

<sup>28</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 93.

<sup>29</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Regulated Network Property Strategy (public)*, 31 January 2023, p. 10.

<sup>30</sup> AER staff attended workshops in Darwin, 11–13 April 2023 and on 13 April 2023 submitted an information request to PWC regarding its single site consolidation project seeking additional information on options analysis, project delivery timelines, cost estimates and leasing assumptions for existing sites. PWC responded to our information request on 3 May 2023. PWC was unable to provide the AER with any substantive detail regarding the project; PWC, *Response to AER Information Request #011, Question 4 - Single Site Consolidation*, 3 May 2023 (confidential).

- acknowledges that the project is still at a conceptual stage of design, requires deeper analysis of the costs and benefits, and that a business case will need to be developed.

The Consumer Challenge Panel, sub-panel 27 (CCP27) submitted that it had not observed any engagement with customers or stakeholders on this project and that PWC must engage with customers on the costs and bill impacts if it is to obtain customer support for its revised proposal.<sup>31</sup> PWC has committed to further engagement with its customers and development of the inputs for the cost benefit analysis and assessment of funding models and options.<sup>32</sup> Jacana Energy also noted that the proposed site consolidation at the Ben Hammond complex included in PWC's regulatory proposal was not raised or discussed by PWC during any of its engagements with Jacana Energy.<sup>33</sup>

To effectively assess whether the proposed single site consolidation project reasonably reflects PWC's capex requirements, we require PWC to provide further information to support the proposal. This includes a detailed evaluation of the options, including a cost benefit analysis and cost and delivery planning advice.

PWC provided updated advice that it has now undertaken a preliminary assessment of the direct and indirect costs and benefits of the project.<sup>34</sup> Based on the proposed scope and expenditure of \$159.1 million, and considering the direct benefits of avoid lease costs, facility management savings, reduced energy consumption costs and employee efficiencies, PWC advise that the project is not economic. This update substantiates our concerns with the proposed project and supports our draft decision to not include the site consolidated project in total forecast capex.

PWC are now considering an alternative reduced scope option for the project, which excludes the proposed cyclone shelter.<sup>35</sup> PWC have indicated that the total project cost that it is seeking from network customers could be around \$56 million, compared to the \$89.8 million initially proposed.<sup>36</sup> PWC are proposing to submit a revised business case, and cost benefit analysis, as a part of its revised proposal.<sup>37</sup>

### Property leases

PWC is proposing \$6.4 million (\$2023–24) capital expenditure for property leases for the 2024–29 regulatory period compared to approximately \$21.2 million expected to be spent in the current regulatory period. PWC state this difference is mainly due to the timing of capitalisation of leases.<sup>38</sup>

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<sup>31</sup> Consumer Challenge Panel 27, *Advice to AER 2024-29 Electricity Determination - Power and Water Corporation* - May 2023, p. 18.

<sup>32</sup> PWC, *Information Request IR#011 Question 4 Single Site Consolidation – Update*, 30 June 2023, p. 3.

<sup>33</sup> Jacana Energy, *Submission 2024-29 Electricity Determination - Power and Water Corporation*, May 2023, p. 1.

<sup>34</sup> PWC, *Information Request IR#011 Question 4 Single Site Consolidation – Update*, 30 June 2023.

<sup>35</sup> PWC, *Information Request IR#011 Question 4 Single Site Consolidation – Update*, 30 June 2023.

<sup>36</sup> PWC, *Information Request IR#011 Question 4 Single Site Consolidation – Update*, 30 June 2023, p. 2.

<sup>37</sup> PWC, *Information Request IR#011 Question 4 Single Site Consolidation – Update*, 30 June 2023, p. 3.

<sup>38</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 94.



PWC's property and building forecasts anticipate an extension of the current corporate site lease at the Mitchell Centre but only for five years rather than the current 10 year term because PWC are anticipating the single site consolidation project would be completed by 2030.<sup>39</sup>

As we have not included PWC's proposed single site consolidation project capex in the total capex forecast, PWC will need to continue leasing the Mitchell Centre for the next regulatory period. As a result, we consider PWC's property lease capex should be increased to reflect an additional five year lease period for the Mitchell Centre. Our draft decision includes \$5.6 million to reflect an additional five year lease period for the Mitchell Centre, with a total capital expenditure for property leases of \$12 million.

We consider that our alternative property lease capex of \$12.0 million is likely to reasonably reflect its capex requirements over the next regulatory period.

### **Property remediation costs**

PWC identified 10 projects where upgrades to property facilities are required at a forecast capex of \$10.5 million (\$2023–24). The programs included in property remediation are:<sup>40</sup>

- building compliance program addressing building-related non-compliance, environmental and security risks (\$5.8 million)
- minor capital works such as office refurbishments and building upgrades to accommodate staff (\$2.4 million)
- low value asset pool (\$0.6 million)
- installation and upgrade of physical and electronic security infrastructure throughout to ensure the physical security of PWC's resources and facilities (\$1.6 million).

Based on our review of PWC's business case for building compliance costs<sup>41</sup> and historical costs for the other property remediation programs proposed by PWC, we consider that PWC's proposed property remediation capex is likely to reasonably reflect its capex requirements over the next regulatory period because:

- PWC's property and facilities must comply with various legislation, regulations and codes to prevent instances of non-compliance or risks to health and safety, people and culture, or legal and regulatory.

Following a compliance audit commencing in September 2020, PWC reported that it had identified instances of non-compliance across its six corporate sites. The audit identified several corporate buildings which have areas of non-compliance or high risk scenarios which PWC need to address in order to ensure all staff and contractors are safe, do not

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<sup>39</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Regulated Network Property Strategy (public)*, 31 January 2023, pp. 10 and 24.

<sup>40</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 94.

<sup>41</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Building Compliance and Remediation – Corporate Sites (public)*, 31 January 2023.

incur any fines and can maintain its licence to operate.<sup>42</sup> We consider it likely that PWC will require an investment in property remediation during the 2024–29 regulatory period to ensure its corporate buildings are compliant.

- we consider PWC’s credible building compliance options analysis supports its recommended option of a staged remediation process combined with preventative action, with prioritisation of work based on a risk assessment. We consider this option addresses the identified need in a technically feasible and deliverable manner and is the option with the least cost<sup>43</sup>
- PWC’s minor capital works property remediation programs forecast capex is consistent with historical costs
- although there is an increase in physical and electronic security infrastructure capex from historical levels, we consider this increase to be reasonable to comply with the obligations under the amended Australian Energy Sector Cyber Security Framework (AESCSF)
- the project scope and estimated costs for each individual project included in PWC’s building compliance program are reasonable. These projects include upgrading fire systems, the removal of asbestos and rectifying non-compliant structures.

## A.2 Information and Communication Technology

Information and communication technology (ICT) refers to all non-network related devices, applications and systems that support PWC’s business operations. ICT expenditure is categorised broadly as either replacement of existing infrastructure for reasons due to end of life, technical obsolescence or added capability of the system with the acquisition of new assets.

### A.2.1 AER’s draft decision

We are not satisfied that PWC’s proposed \$70.7 million (\$2023–24) for ICT capex reflects the capex criteria.<sup>44</sup> Our decision is to include \$48.2 million (\$2023–24) for ICT in our alternative ICT capex estimate. Our alternative estimate does not include PWC’s proposed Operational Technology uplift capex but includes all of PWC’s other ICT projects. Whilst our decision is to accept PWC’s proposed \$11.5 million in cyber security capex as prudent, we have included this in our alternative estimate as a placeholder as we require PWC to provide additional information in its revised proposal to justify that these are efficient costs.

### A.2.2 PWC’s proposal

PWC’s proposed 2024–29 ICT capex of \$70.7 million (\$2023–24) is \$20.4 million or 41% higher than the actual and estimated ICT capex in the current period.<sup>45</sup>

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<sup>42</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Regulated Network Property Strategy (public)*, 31 January 2023, p. 10.

<sup>43</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Regulated Network Property Strategy (public)*, 31 January 2023, p. 14.

<sup>44</sup> NT NER, cl. 6.5.7(c).

<sup>45</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 76.

PWC has proposed nine ICT projects.<sup>46</sup> The majority of PWC's proposed ICT capex relates to non-recurrent ICT systems<sup>47</sup> which PWC claim will improve its financial, asset management and service delivery capabilities. PWC considers that its current systems are legacy ICT systems and do not enable it to perform efficiently. PWC is also proposing recurrent capex to ensure its ICT systems remain reliable and cyber-secure.<sup>48</sup>

PWC's proposed ICT systems recurrent capex of \$17.7 million include the following projects:

- hardware replacement
- software replacement
- field device and telephony communication replacement
- minor ICT projects.

The majority of PWC's proposed non-recurrent ICT capex is due to three major projects which collectively represent 75% of the ICT capex forecast:<sup>49</sup>

- Capability Uplift project (Operating Model) (\$20.8 million)
- Operational Technology capability uplift project (\$21.6 million)
- Cyber security enhancement project (\$11.5 million).

PWC's Operating Model involves new capabilities critical to its transformation strategy, including financial management, asset management, capital delivery and service delivery. This project commenced in the 2019–24 regulatory period. PWC expects to have delivered the replacement of the metering and billing system with new capabilities, together with updates to its Energy Management System. PWC's second capability uplift project is the Operational Technology (OT) Capability Uplift project and is designed primarily to provide ICT functionality to support distribution system management and outage management.

### A.2.3 Reasons for decision

Our assessment approach to ICT capex is outlined in our *Guidance Note on Non-network ICT capex assessment approach* (Guidance Note).<sup>50</sup> We require the businesses to allocate its ICT expenditure into two categories, 'recurrent' ICT and 'non-recurrent' ICT. Recurrent ICT is expenditure that is related to maintaining existing IT services, functionalities, capability and/or market benefits, and occurs at least once every five years.<sup>51</sup> Non-recurrent ICT is any

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<sup>46</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, pp. 76–77.

<sup>47</sup> The AER's assessment approach to ICT capex is outlined in our *Guidance Note on Non-network ICT capex assessment approach*. We require the businesses to allocate its ICT expenditure into two categories, 'recurrent' ICT and 'non-recurrent' ICT.

<sup>48</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 76.

<sup>49</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, pp. 84–89.

<sup>50</sup> AER, *Non-network ICT capex assessment approach*, November 2019.

<sup>51</sup> AER, *Non-network ICT capex assessment approach*, November 2019, p. 8.

ICT expenditure that is not ‘recurrent’ and generally includes major upgrades or major version transitions, complying with new obligations and new or expanded ICT functionality.<sup>52</sup>

We are satisfied that PWC has accurately classified its recurrent and non-recurrent ICT expenditure in accordance with the Guidance Note.

In assessing PWC’s proposed ICT capex for the 2024–29 regulatory period, we have analysed the information provided in PWC’s proposal, including business cases, additional material provided in response to information requests,<sup>53</sup> and data provided to us by PWC in response to Regulatory Information Notices (RIN) issued by us to PWC under the NEL.

Having reviewed the cost estimates, business cases and relevant models, and PWC’s responses to our information requests, we consider PWC’s proposed ICT capex has been largely derived on a reasonable basis. The exception is PWC’s OT Capability Uplift project which we consider the proposed capex is not fully required for the 2024–29 regulatory period.

The CCP27 submission was concerned with PWC’s ICT expenditure proposal.<sup>54</sup> CCP27 submitted that as a result of its review since publishing its draft plan, PWC’s regulatory proposal now includes two major capex investments that were not included in its draft plan, namely a proposal to co-locate staff into one PWC-owned location and an increase in expenditure on major IT systems replacement of around \$30 million. CCP27 stated that it had not observed any engagement with customers or stakeholders on these changes or proposed investments and that PWC must engage with customers on the costs and bill impacts of these investments if it is to obtain customer support for its revised proposal. CCP27 submitted it is important for PWC to explain the anticipated customer benefits (rather than the business benefits) for these initiatives. CCP27 consider major IT upgrade programs are notorious for cost overruns and delayed implementation timeframes.<sup>55</sup>

Jacana Energy expressed concern that a number of key new issues have been included in PWC’s regulatory proposal that were not raised or discussed by PWC during any of its engagements with Jacana Energy.<sup>56</sup> Jacana Energy also expressed concerns in relation to the deliverability of the overall ICT capex proposed by PWC, given the significant increase in expenditure compared to the 2019–24 regulatory period and that some of the system replacements had initially intended to commence in that period.<sup>57</sup>

We acknowledge CCP27 and Jacana Energy’s concerns that PWC has not adequately engaged with stakeholders on a number of capex projects in its proposal, including non-network ICT capex. We consider it important that network businesses effectively engage with

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<sup>52</sup> AER, *Non-network ICT capex assessment approach*, November 2019, pp. 8–9.

<sup>53</sup> AER, *Information Request #11*, 10 May 2023.

<sup>54</sup> Consumer Challenge Panel 27, *Advice to AER 2024-29 Electricity Determination - Power and Water Corporation - May 2023*.

<sup>55</sup> Consumer Challenge Panel 27, *Advice to AER 2024-29 Electricity Determination - Power and Water Corporation - May 2023*, p. 18.

<sup>56</sup> Jacana Energy, *Submission 2024-29 Electricity Determination - Power and Water Corporation*, May 2023, p. 4.

<sup>57</sup> Jacana Energy, *Submission 2024-29 Electricity Determination - Power and Water Corporation*, May 2023, p. 4.

stakeholders in all aspects of their regulatory proposal. To this end, we requested PWC provide additional information to support its proposed non-network ICT capex program.

### **ICT Systems (recurrent)**

PWC’s proposed ICT Systems capex of \$17.7 million includes hardware and software replacement as well as field device and telephony communication replacement, and minor ICT projects. PWC’s proposal included business cases for each of these projects.<sup>58</sup> On the basis of our review of these business cases and additional information provided by PWC, we consider that PWC’s proposed ICT Systems capex is likely to reasonably reflect its capex requirements over the next regulatory period because:

- PWC has identified a sufficient business need, including a risk assessment, that justifies each project
- PWC’s options analysis supported its recommended option, including being the only option that satisfies all the assessment metrics
- end-of-life replacements are appropriately assessed by PWC from two perspectives:
  - technical end-of-life – when the software or telecommunications and telephony functions are either, no longer supported by the vendor, or incompatible with contemporary operating systems and infrastructure
  - economic end-of-life – when the costs of extended support contracts (if available) exceed the cost of refresh/upgrade/replacement.
- PWC’s cost estimation for each project is based on a build-up of costs or an average of historical spending, which we consider reasonable.

### **Operational Technology Capability Uplift (non-recurrent)**

PWC has included \$21.6 million in its capex forecast to uplift OT capabilities and proposed a related \$18.8 million opex step change (see the OT capability uplift step change in attachment 6 – opex). PWC’s OT is a secure computing environment that helps monitor, detect issues, operate and control network assets. PWC stated that it currently has limited OT capability on its distribution networks and that its processes are almost completely manual, dependent on key resources, and do not provide timely or accurate visibility of the network.<sup>59</sup>

PWC considers:<sup>60</sup>

- the primary driver for its OT uplift is the increasing complexity of managing a changing generation mix on its distribution network and the associated planning and managing challenges

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<sup>58</sup> PWC, *Revenue Proposal 2023-24 to 2028-29; ICT Hardware Replacement (public), ICT Software Replacement (public), ICT Field Device and Telephony Communications Upgrade (public) and ICT Minor Projects (public)*, 31 January 2023.

<sup>59</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 89.

<sup>60</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 89.

- that its current OT is not sufficient to meet compliance obligations such as reporting of outages to support its Service Target Performance Incentive Scheme
- that its current OT is inadequate to meet cyber security threats.

PWC has proposed a staged, capability-based upgrade of the existing Energy Management System (EMS) platform to support improved network planning and operations with a focus on regulated distribution capabilities and enabling data quality and management.<sup>61</sup>

Whilst we acknowledge that PWC may currently have limited OT capability on its distribution networks and that its processes are largely manual, we are concerned with the scope of and need for PWC's OT uplift and the benefits associated with this project. We reviewed PWC's business case and additional information provided by PWC in response to our concerns that its proposal lacked sufficient supporting information.<sup>62</sup> In May 2023, PWC also changed its narrative and purported drivers of the OT uplift project. PWC is no longer suggesting that the primary drivers of the project are to support the NT Government's 50% renewable target by 2030, but rather the project is to ensure the safety of its employees, the community, and the security and reliability of the power system consistent with its licence and regulatory obligations.<sup>63</sup>

We consider PWC has not demonstrated any safety, reliability, or compliance obligation gaps in its performance that are not addressed by its business as usual expenditures. We consider an investment of the type proposed does not go to maintaining performance against safety, reliability, or compliance obligations. Although PWC changed its driver for this project, PWC has not revised its options analysis to reflect a change in this driver and we consider there are other options to address these performance requirements.

PWC considered three options, and concluded that the preferred option was to upgrade, extend and integrate the EMS platform.<sup>64</sup> No cost benefit analysis was undertaken in selecting this option.<sup>65</sup> Further, it appears that the net present value comparison is a present value of costs which we consider is likely to be an understatement of total costs because PWC have not considered additional costs of the further works required in subsequent regulatory control periods or with other related ICT investments. The options analysis presented by PWC also fails to consider other options to manage the identified network need such as network voltage control, transformer tapping and phase balancing.

We consider PWC has not adequately considered a range of options to address the identified need as well as providing a detailed cost estimate for this project. This is necessary as PWC has now proposed a driver that is materially different to that identified in its proposal.

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<sup>61</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, pp. 89–90.

<sup>62</sup> AER, *Information Request #11*, 10 May 2023.

<sup>63</sup> PWC, *Response to AER Information Request #011, Question 6 - OT Capability Uplift*, 10 May 2023, p. 5.

<sup>64</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capability Uplift Project – Tranche 2 and 3 (public)*, 31 January 2023, pp. 3–4.

<sup>65</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capability Uplift Project – Tranche 2 and 3 (public)*, 31 January 2023, p. 20.

Further, stakeholders also submitted that they had not observed any engagement with customers or stakeholders on PWC’s proposed OT uplift project.<sup>66</sup>

PWC acknowledged our concerns and informed us that work is currently underway to refine the priority, scope and sequencing of OT functions deployed across the business.<sup>67</sup> PWC also confirmed that duplication between the proposed OT uplift project and the Dynamic Operating Envelope project (further discussed in the CER section A.3 below) will also be removed from the OT uplift project. PWC anticipates that this work will likely lead to lower capex and opex than originally proposed. PWC is proposing to submit a revised business case, and proposed expenditure, as a part of its revised proposal.<sup>68</sup>

We consider that PWC’s proposed OT Capability Uplift project capex does not reasonably reflect its capex requirements over the next regulatory period.

### **Cyber Security (recurrent and non-recurrent)**

PWC considers that its cyber security maturity is not adequate to comply with the obligations under the amended Australian Energy Sector Cyber Security Framework (AESCSF) nor robust enough in the face of the worsening cyber-attack landscape. PWC’s business case supports achievement of Security Profile level 2 or SP-2 AESCSF by the end of the 2024–29 regulatory period.<sup>69</sup>

PWC submitted that its current cyber security has been assessed at well below the SP-2 level. PWC has included \$11.5 million in its forecast capex for the 2024–29 period for continuing its cyber security project and proposed a related \$4.4 million opex step change (see the cyber security step change in attachment 6 – opex).<sup>70</sup>

Based on our review of PWC’s business case<sup>71</sup> and additional information provided by PWC,<sup>72</sup> we consider that PWC’s proposed cyber-security capex is likely to reasonably reflect its capex requirements over the next regulatory period because PWC:

- demonstrated that its current cyber-security is well below a SP-2 level that we consider is a prudent cyber security level required of a distribution business in PWC’s circumstances and is seeking to achieve SP-2 level by the end of the 2024–29 regulatory period. PWC demonstrated that its options analysis supports its

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<sup>66</sup> Consumer Challenge Panel 27, *Advice to AER 2024-29 Electricity Determination - Power and Water Corporation* - May 2023, p. 18 and Jacana Energy, *Submission 2024-29 Electricity Determination - Power and Water Corporation*, May 2023, p. 1.

<sup>67</sup> PWC, *Response to AER Information Request #011, Question 6 - OT Capability Uplift Update*, 28 June 2023.

<sup>68</sup> PWC, *Response to AER Information Request #011, Question 6 - OT Capability Uplift Update*, 28 June 2023.

<sup>69</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, ICT Cyber Security Baseline (public)*, 31 January 2023.

<sup>70</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, pp. 84–85.

<sup>71</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, ICT Cyber Security Baseline (public)*, 31 January 2023.

<sup>72</sup> AER, *Information Request #11*, 10 May 2023.

recommended option as providing the flexibility to address emergent risks and sustain SP-2 levels of performance<sup>73</sup>

- established a scope for the project which is prudent. PWC provided a description and cost estimate of each initiative to deliver SP2 compliance within 60 months of 1 January 2023<sup>74</sup>
- developed costs based on a set of initiatives and milestones mapped to the SP-2 AESCSF<sup>75</sup>
- provided a cost estimate that was developed based on a bottom-up assessment of AESCSF SP-2 compliance requirements.<sup>76</sup>

We accept the scope of the cyber security project and the nature of investment for each initiative to deliver SP2 compliance is prudent. However, PWC has not provided a detailed breakdown of the cost estimates for each initiative and we have been unable to test the efficiency of the proposed costs. These cost details include labour and other resources to achieve each initiative.<sup>77</sup> We seek additional information from PWC in its revised proposal to establish the efficiency of the proposed costs including:

- description of the proposed actions to address each of the maturity/capability gaps it identified between its current level of cyber maturity and the level required to achieve SP–2 maturity across each of the 11 domains under the AESCSF framework
- linking each of the above proposed actions to the respective individual costs required to undertake these actions
- detail for the individual costs inputs related to each proposed action, the basis for these costs (including relevant inputs, calculations, assumptions and sources) and set out how they were estimated, such as the number of labour-days or license fee
- demonstrating the efficiency of each cost input, e.g. through market testing and detailing all assumptions or other independent expert reports.

Our draft decision is to include PWC’s proposed \$11.5 million in cyber security capex in our alternative estimate as a placeholder because we consider it prudent. However, this is subject to PWC satisfactorily providing the additional information in its revised proposal to justify that these are efficient costs or enable us to develop an alternative estimate. We consider PWC has justified a transition to a SP-2 level of compliance and that the scope of proposed works is reasonable, but it needs to substantiate the estimated costs.

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<sup>73</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, ICT Cyber Security Baseline (public)*, 31 January 2023, pp. 12–18.

<sup>74</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, ICT Cyber Security Baseline (public)*, 31 January 2023, p. 27.

<sup>75</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, ICT Cyber Security Baseline (public)*, 31 January 2023, p. 4.

<sup>76</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, ICT Cyber Security Baseline (public)*, 31 January 2023, Appendix B. Cost estimation.

<sup>77</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, ICT Cyber Security Baseline (public)*, 31 January 2023, Table 16.



### Capability Uplift project (non-recurrent)

PWC has forecast \$20.8 million capex to uplift core ICT systems across multiple business workstreams including financial, metering, asset management, capital delivery and customer service. PWC stated that it currently operates under disparate IT solutions and that several solutions are end-of-life and significant customisation has impacted the ability to maintain IT currency, support business practices, and align to regulatory obligations. PWC's future Operating Model initiative identified the potential benefits from uplifting technical competencies across a range of core capability business functions.<sup>78</sup>

The proposed Capability Uplift project replaces legacy IT systems with new capabilities.<sup>79</sup> The full scope of the Capability Uplift project involves the replacement or upgrade of legacy IT system capabilities across six functional domains and is delivered through six workstreams.<sup>80</sup>

PWC considered:<sup>81</sup>

- historical under-investment in technology has meant that core technology systems are outdated and unable to support the growing needs of business, industry and government renewable mandates
- historical under-investment in technology has created inefficiencies resulting in being heavily reliant on manual, time consuming, and error-prone processes to deliver essential services to customers. This has delayed investment in core systems over an extended period
- systems have not kept pace with the evolving needs of the business, the customer base, or the broader power and utilities sector
- continued delays in investment will further raise the risk profile, increase costs, prevent PWC from meeting its compliance and governance mandates, and lead to further degradation in the performance of systems and ultimately core business operations.

Based on our review of PWC's business case<sup>82</sup> and additional information provided by PWC,<sup>83</sup> we consider that PWC's proposed Capability Uplift project capex is likely to reasonably reflect its capex requirements over the next regulatory period because:

- PWC has identified a sufficient business need, including analysis that demonstrates improved ways of working, service provision and customer management

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<sup>78</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 86.

<sup>79</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 86.

<sup>80</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capability Uplift Project – Tranche 2 and 3 (public)*, 31 January 2023, p. 8.

<sup>81</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capability Uplift Project – Tranche 2 and 3 (public)*, 31 January 2023, p. 3.

<sup>82</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capability Uplift Project – Tranche 2 and 3 (public)*, 31 January 2023.

<sup>83</sup> AER, *Information Request #11*, 10 May 2023.

- PWC's options analysis supports its recommended option of continuing to implement the full scope of the project. The recommended option has the highest business benefits with a positive net present value (NPV) of \$4.1 million (the other options had negative NPVs) and addresses the strategic and operational business needs.<sup>84</sup> The phased implementation in this option will likely ensure that it is deliverable
- PWC has identified operational challenges associated with manual, and error prone processes combined with legacy systems that are unlikely to support business needs, including:<sup>85</sup>
  - manual and time-consuming business operations
  - inconsistent and immature work practices
  - extensive customisation and legacy systems
  - limited system integration.
- we acknowledge that consultant analysis shows a majority of the capacity uplift work streams have a low process maturity, are driven by poor system capabilities, have inconsistent work practices, and poor data management practices<sup>86</sup>
- PWC's approach to sourcing the required resources for this project are based on reasonable principles.

### **ICT Applications (non-recurrent)**

PWC has forecast \$2.2 million on new ICT applications, which includes two new minor programs to improve customer connectivity and a system to monitor its infrastructure.<sup>87</sup> PWC's proposal included business cases for each of these projects.<sup>88</sup> On the basis of our review of these business cases and additional information provided by PWC,<sup>89</sup> we consider that PWC's proposed ICT applications capex is likely to reasonably reflect its capex requirements over the next regulatory period because:

- PWC has identified a sufficient business need, including a risk assessment, that justifies each project
- PWC's options analysis supports its recommended option, including being the only option that satisfies all the assessment metrics
- PWC's cost estimation for each project is based on past projects of similar size and input costs reflecting recent experience.

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<sup>84</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capability Uplift Project – Tranche 2 and 3 (public)*, 31 January 2023, p. 5.

<sup>85</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capability Uplift Project – Tranche 2 and 3 (public)*, 31 January 2023, p. 12.

<sup>86</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capability Uplift Project – Tranche 2 and 3 (public)*, 31 January 2023, p. 13.

<sup>87</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 84.

<sup>88</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, ICT Customer Connectivity (public)*, 31 January 2023.

<sup>89</sup> AER, *Information Request #11*, 10 May 2023.

## A.3 Consumer Energy Resources

Consumer Energy Resources (CER) integration includes solar photovoltaic systems (PV), energy storage devices, electric vehicles (EV) and other consumer appliances that are capable of responding to demand or pricing signals. Increasing CER represents a change in the way that consumers interact with electricity networks and the demands that are placed on networks.

CER expenditure enables PWC to accommodate more rooftop solar on the network. This allows more customers to connect their rooftop solar and export more of the electricity they generate back to the grid. CER integration capex includes:

- augmenting the network to physically provide greater PV export capacity
- ICT capex to develop greater visibility of the low-voltage network and manage changes being driven by technological developments.

### A.3.1 AER's draft decision

We are not satisfied that PWC's proposed \$13.2 million (\$2023–24) capex for CER integration reflects the capex criteria.<sup>90</sup> Our decision is to include \$1.1 million (\$2023–24) for CER in our alternative CER integration capex estimate. Our alternative estimate does not include PWC's proposed capex to implement dynamic operating envelopes (DOE) capex but includes its expenditure for installer outreach programs, which combined with ongoing compliance activities (opex) will result in improved inverter compliance and minimise reductions to its static export limits.

### A.3.2 PWC's proposal

PWC proposed \$13.2 million of capex for CER integration investments, primarily to develop comprehensive DOE capability and offer dynamic export limits to all CER customers from 2028. It also proposed \$7.4 million for associated opex as part of its proposed 'Future Networks' step change (see attachment 6 - opex).

PWC stated the investment is needed to improve its ability to accommodate a forecast increase in the uptake of rooftop solar, address forecast reductions in minimum demand and to meet the Northern Territory's 50% renewable energy target by 2030. Currently, around 19,000 of PWC's customers have rooftop solar. PWC claims this figure will increase significantly to 40,000 by 2030–31, based on forecasts provided by Energeia.

### A.3.3 Reasons for draft decision

We assessed PWC's DOE business case, supporting documents and responses to our information requests.<sup>91</sup> In particular, we focused on:

- hosting capacity analysis – DNSPs should study the networks' ability to accommodate more CER connections without experiencing voltage or thermal violations. The output of this analysis is a forecast of export curtailment

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<sup>90</sup> NT NER, cl. 6.5.7(c).

<sup>91</sup> This included PWC, 8.61 – DER CAPEX Dynamic Operating Envelopes (Hosting Capacity), 31 January 2023 and PWC, 8.48 – Energeia – System Minimum and Maximum Demand Forecast, 31 January 2023.

- options analysis – the preferred investment option should be a credible option which maximises the net economic benefits, relative to a ‘business as usual’ base case scenario
- benefit quantification – DNSPs should quantify credible types of benefits and use appropriate input assumptions to quantify benefits.

### Assessment of hosting capacity analysis

PWC noted that its assessment of hosting capacity is extremely limited as it has poor visibility of its low voltage network. It has a small stock of smart meters and network monitoring devices which identify excessive solar exports and hosting capacity constraints on an ad hoc basis. However, it noted that excessive solar export has been identified as the root cause of power quality issues when investigating customer complaints about things such as solar inverters switching off, burnt out appliances and voltage flicker.<sup>92</sup>

In addition, PWC suggested that the forecast impact of minimum demand on system security will need to be addressed via network investment. It noted that, in the absence of effective interventions, the projected increase in the penetration of rooftop solar across the regulated networks combined with the modest project demand growth will increase the frequency of events where minimum demand is below the threshold necessary to maintain adequate system strength (referred to as minimum demand events).<sup>93</sup>

PWC engaged Energeia to provide minimum demand forecasts for its networks. Energeia forecast that minimum demand will fall over the 2024–29 period and will be negative in 2031–32 in PWC's Darwin-Katherine and Tennant Creek networks. It noted that this is primarily driven by solar PV uptake reducing grid load during the middle of the day.<sup>94</sup>

PWC expects rooftop solar photovoltaic (PV) connections will double from 19,600 in 2021–22 to over 40,000 by 2030–31. Energeia used its PV uptake model to forecast cumulative installed distributed PV capacities in the NT. The model considers financial drivers of PV uptake for consumers. For minimum demand forecasts, PV curtailment was estimated based on recent Australian studies which considered the average level of curtailment of solar PV as market penetration increases.<sup>95</sup>

PWC's forecast of minimum demand and negative minimum demand events is strongly dependent on its forecast of solar PV uptake. For its forecast to eventuate there will need to be an average of over 2,100 new solar PV installations each year. Clean Energy Regulator data shows there were just 480 installations so far in 2023 (to the end of June), which also includes upgrades to existing systems.<sup>96</sup> Therefore, we consider it highly questionable that PWC's solar PV and subsequent minimum demand forecasts will materialise.

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<sup>92</sup> PWC, 8.61 – DER CAPEX Dynamic Operating Envelopes (Hosting Capacity), 31 January 2023, p. 47.

<sup>93</sup> PWC, 8.61 – DER CAPEX Dynamic Operating Envelopes (Hosting Capacity), 31 January 2023, p. 5.

<sup>94</sup> PWC, 8.48 – Energeia – System Minimum and Maximum Demand Forecast, 31 January 2023, p. 4.

<sup>95</sup> PWC, 8.48 – Energeia – System Minimum and Maximum Demand Forecast, 31 January 2023, p. 25.

<sup>96</sup> Clean Energy Regulator, [Postcode data for small-scale installations](#), viewed 1 August 2023.

## Assessment of options analysis

PWC considered four options to prevent network voltage non-compliance and minimum demand events due to PV penetration:

- option 1 (Base case) — revise the residential static export limit from 5kW to 2.3kW from 2028, to curtail solar year-round
- option 2 (Comprehensive DOEs) — invest in DOE capability and offer it to all customers with distributed energy resources from 2028 (preferred option)
- option 3 (Targeted DOEs) — invest in DOE capability and offer only to targeted commercial and industrial customers with distributed energy resources from 2028
- option 4 (Other solutions) — invest in alternative network and non-network solutions to offset the contributors to minimum demand.

We have assessed these options and consider there are alternative options besides the proposed DOE solution that should be tested. In particular, the base case scenario is effectively a ‘do nothing’ scenario as it involves no business-as-usual investments (such as ongoing voltage management activities). Investments in voltage management and localised network solutions are likely to be appropriate measures in the absence of hosting capacity analysis demonstrating the need for a whole of system solution.

These alternative options are likely to cost less than the proposed DOE investment, along with the other options considered, and would help address minimum demand events, excessive voltage events and system security. These will also be more credible and provide better value than investments considered in Option 4. This option involves significant investments in battery energy storage systems, however, PWC noted that its ability to address minimum demand and voltage rise is yet to be proven.

In addition, PWC’s analysis assumed that there will be a fixed proportion of solar PV inverters (30%) that are non-compliant with technical standards. We consider this will be unlikely and compliance rates will improve over time, particularly for new and replacement installations given that PWC has proposed some expenditure for this purpose. PWC’s analysis indicates that this would enable static export limits to be relaxed; with a 20% rate of non-compliance, export limits would be 2.6kW rather than 2.3kW.

## Assessment of benefit quantification

PWC’s preferred investment option provides a net present value of approximately \$19 million.<sup>97</sup> The primary benefit of the proposed investment is avoided export curtailment, which represents 68% of total benefits. We do not publish customer export curtailment values for the Northern Territory. To estimate avoided dispatch costs, PWC estimated the gas fuel cost of electricity generation and adjusted it for transmission and distribution losses. We consider this approach to valuing avoided curtailment benefits is reasonable. However, as noted above, PWC assumes that static export limits will decrease from 5kW to 2.3kW from 2028

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<sup>97</sup> PWC’s proposal indicated an NPV of \$32.1 million, however this was revised downwards in response to our information request, primarily as a result of reducing the NPV period from 30 years to 20 years.

onwards. This has a significant impact on the forecast volume of curtailment, which drives the overall level of avoided curtailment benefits.

We undertook our own sensitivity analysis to consider how improvements in inverter compliance would impact the economic justification for the proposed investment. If we assume that the rate of inverter non-compliance improves from 30% to 20% and apply a static export limit of 2.6kW (in line with PWC's sensitivity analysis), avoided export curtailment benefits decrease by around 37% and the overall net present value becomes negative. We consider that our sensitivity analysis is relatively conservative as we do not make any adjustment to forecast PV installations. Overall, this makes the proposed investment option less attractive than the base case scenario.

Other benefits (in order of materiality) include avoided network compliance expenditure, avoided greenhouse gas emissions, avoided or deferred network augmentation and decreased electric vehicle (EV) charging costs. We consider that these benefits are largely credible, with the exception of decreased EV charging costs. We consider that these benefits are already captured in avoided export curtailment benefits, which reflect avoided dispatch costs to meet electricity demand, irrespective of whether demand is for EV charging or other purposes.

The inclusion of an emissions reduction objective into the National Electricity Objective applies to the 2024–29 regulatory determination. The Commonwealth Government is currently leading work on developing a value of emissions reduction. This means that distribution network service providers may propose environmental benefits and quantify the emission reductions by applying a value (in accordance with any guidance by Government). Our guidance on the amended national energy objectives (published in September 2023) sets out our expectations of cost benefit analysis and consumer engagement by service providers, which we will consider in reaching our final determination.

## **Conclusion**

Considering the potential benefits of improving inverter compliance, we do not accept PWC's forecast capex of \$13.2 million and instead provide an alternative capex forecast of \$1.1 million to enable PWC to commence its installer outreach programs, which combined with ongoing compliance activities (opex) will result in improved inverter compliance and minimise reductions to its static export limits. We consider this is a more prudent and efficient option than what has been proposed by PWC.

Our assessment highlights a lack of detailed analysis of hosting capacity to demonstrate the extent of current and forecast export constraints on PWC's networks. This would illustrate whether constraints are localised or system-wide, and therefore indicate the optimal investment solution. In its revised proposal, PWC should consider a scenario which includes voltage management activities, improvements in network visibility and accounts for improvements in PV inverter compliance.

## B Contingent Projects

Contingent projects are significant network augmentation or replacement projects that are reasonably required to be undertaken in order to achieve the capex objectives. However, unlike other proposed capex projects, the need for the project within the regulatory control period and the associated costs are not sufficiently certain. Consequently, expenditure for such projects does not form a part of the total forecast capex that we approve in this determination. Such projects are linked to unique investment drivers and are triggered by defined ‘trigger events’. The occurrence of the trigger event must be probable during the relevant regulatory control period.<sup>98</sup> The cost of the projects may ultimately be recovered from customers in the future if the trigger events are met.

PWC has proposed five contingent projects with a total indicative cost of \$342 million (\$2023–24).<sup>99</sup> Table B.1 lists PWC’s proposed contingent projects trigger events and our draft decision trigger events. We consider four of PWC’s five proposed contingent projects should be classified as a contingent project for the 2024–29 regulatory control period.

**Table B.1 PWC's proposed contingent projects and AER draft decision**

Project	PWC proposed trigger event	AER Draft Decision trigger event
<p>Shared transmission works to transport generation from a Renewable Energy Hub in Darwin-Katherine</p> <p>\$120.8 million.</p>	<p>1. A formal notification from a NT Government Minister to Power and Water Corporation, advising that the Government wishes to provide for a Renewable Energy Hub at a site near Darwin and advising the approximate required capacity and location of the Hub.</p> <p>2. The completion of a RIT-T by Power and Water that:</p> <ul style="list-style-type: none"> <li>Identifies a need to undertake shared transmission works to convey generation from a Renewable Energy Hub near Darwin within the regulatory period.</li> <li>Identifies a preferred option consistent with the RIT-T guidelines that maximises the net economic benefit to all those who produce, consume and transport electricity.</li> <li>Determines that the preferred option has a positive net economic benefit and/or is otherwise</li> </ul>	<p>1. A regulatory obligation or requirement within the meaning of s 2D of the National Electricity Law; that requires the Power and Water Corporation to develop a ‘Renewable Energy Hub’ to the Government’s specifications.</p> <p>2. The ‘Renewable Energy Hub’ specifications imposed under a regulatory obligation in accordance with trigger 1, require Power and Water to facilitate the grid connection of 40 MW or more of renewable generation to the CIPS HC 132 kV transmission line in the Weddell region near Darwin.</p> <p>3. The AER is satisfied that Power and Water has successfully completed a RIT-T, that:</p> <p>a) Identifies a need to undertake shared transmission works that provide standard control services to grid connect renewable generators in the Weddell region near Darwin within the regulatory period.</p> <p>b) Identifies a preferred option consistent with the RIT-T guidelines that maximises the net economic benefit to all those</p>

<sup>98</sup> NT NER, cl. 6.6A.1(c)(5).

<sup>99</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, pp. 100–112.

Project	PWC proposed trigger event	AER Draft Decision trigger event
	consistent with the National Electricity Objective at that time.	<p>who produce, consume and transport electricity.</p> <p>c) Determines that the preferred option has a positive net economic benefit and/or is otherwise consistent with the National Electricity Objective at that time.</p> <p>4. Power and Water Board commitment to proceed with the project subject to the AER amending the revenue determination pursuant to the NER.</p>
<p>Unlocking existing large scale renewable generation in Darwin-Katherine</p> <p>\$45.7 million</p>	<p>1. A formal notification from a NT Government Minister to Power and Water Corporation, advising that the Government wishes to accommodate more renewable energy in an area that requires transport of generation on the Darwin-Katherine transmission line and advising the approximate required additional capacity and location of that generation.</p> <p>2. The completion of a RIT-T by Power and Water that:</p> <ul style="list-style-type: none"> <li>• Identifies a need to relieve transmission constraints on the Darwin-Katherine transmission line within the next regulatory period.</li> <li>• Identifies a preferred option consistent with the RIT-T guidelines that maximises the net economic benefit to all those who produce, consume and transport electricity in the NT.</li> <li>• Determines that the preferred option has a positive net economic benefit and/or is otherwise consistent with the National Electricity Objective at that time.</li> </ul>	<p>We consider PWC has not demonstrated a sufficient need for this contingent project and we have not accepted this for the draft decision.</p> <p>PWC acknowledges that more work is required and is undertaking a further review to clarify what the actual constraint is to determine if the proposed contingent project is reasonably necessary to address the need.</p>
<p>Holtze-Kowandi land development</p> <p>\$60.8 million</p>	<p>1. An executed Connection Application and an approved HV Master Plan for Stage 3 of the land development in the Greater Holtze Area.</p> <p>2. A Power and Water planning study demonstrating a likely material constraint in meeting the expected demand arising from Stage 3 of the land development.</p> <p>3. The completion of a RIT-D by Power and Water that meets the following:</p>	<p>1. The approval of a HV Master Plan for the land development in the Greater Holtze and Kowandi areas, and a committed additional load connecting to the Palmerston Zone Substation, that in aggregate exceeds 8 MVA.</p> <p>2. The AER is satisfied that Power and Water has successfully completed a RIT-D, that:</p> <p>a) Identifies a need to undertake distribution augmentation works in the next regulatory period to meet demand</p>



Project	PWC proposed trigger event	AER Draft Decision trigger event
	<ul style="list-style-type: none"> <li>• Identifies a need to undertake augmentation distribution works in the next regulatory period to meet demand for standard control services arising from Stage 3 land release in the Greater Holtze Area.</li> <li>• Identifies the preferred option consistent with the RIT-D guidelines that maximises the net economic benefit to all those who produce, consume and transport electricity.</li> </ul>	<p>for standard control services arising from the land release in the Greater Holtze Area.</p> <p>b) Identifies the preferred option consistent with the RIT-D guidelines that maximises the net economic benefit to all those who produce, consume and transport electricity.</p> <p>3. Power and Water Board commitment to proceed with the project subject to the AER amending the revenue determination pursuant to the NER.</p>
<p>Middle Arm commercial development \$69.1 million</p>	<p>1. Committed customer connections in the Middle Arm Peninsula in Darwin that, in aggregate, exceeds the existing capacity (15 MVA) of the Weddell zone substation.</p> <p>2. The completion of a regulatory investment test for distribution by Power and Water that meets the following:</p> <ul style="list-style-type: none"> <li>• Identifies a need to undertake augmentation distribution works to meet demand for standard control services arising from new customer connections in the Middle Arm Peninsula.</li> <li>• Identifies the preferred option consistent with the RIT-D guidelines that maximise the net economic benefit to all those who produce, consume and transport electricity.</li> </ul>	<p>1. Committed customer connections in the Middle Arm Peninsula in Darwin that, in aggregate, exceed 4.7 MVA to be supplied by the Weddell Zone Substation.</p> <p>2. The AER is satisfied that Power and Water has successfully completed a RIT-D, that:</p> <p>a) Identifies a need to undertake distribution augmentation works in the next regulatory period to meet demand for standard control services arising from new customer connections in the Middle Arm Peninsula supplied by the Weddell zone substation.</p> <p>b) Identifies the preferred option consistent with the RIT-D guidelines that maximises the net economic benefit to all those who produce, consume and transport electricity.</p> <p>3. Power and Water Board commitment to proceed with the project subject to the AER amending the revenue determination pursuant to the NER.</p>
<p>Wishart commercial development \$45.6 million</p>	<p>1. The load is forecast to exceed the rated capacity of 10.7 MVA at Wishart Modular Substation during the next regulatory control period. The forecast load will be calculated based on actual peak demand plus peak demand of committed connections at the Wishart modular substation.</p> <p>2. Total actual plus committed peak demand at Wishart MSS is likely to be more than 15 MVA within the next regulatory control period.</p> <p>3. The completion of a RIT-D by Power and Water that:</p>	<p>1. One or more major spot load developments in the Wishart Modular Substation supply area that are classified as committed loads, and individually or in aggregate cause the Wishart Modular Substation to exceed its current capacity of 10.7 MVA.</p> <p>2. The AER is satisfied that Power and Water has successfully completed a RIT-D, that:</p> <p>a) Identifies a need to undertake distribution augmentation works in the next regulatory period to meet demand for standard control services arising</p>

Project	PWC proposed trigger event	AER Draft Decision trigger event
	<ul style="list-style-type: none"> <li>Identifies a need to undertake augmentation distribution works to meet demand for standard control services arising from new developments in the Wishart supply area.</li> <li>Identifies the preferred option consistent with the RIT-D guidelines that maximise the net economic benefit to all those who produce, consume and transport electricity</li> </ul>	<p>from new developments in the Wishart supply area.</p> <p>b) The preferred option is identified to be a new zone substation at the Wishart modular substation site.</p> <p>c) Identifies the preferred option consistent with the RIT-D guidelines that maximises the net economic benefit to all those who produce, consume and transport electricity.</p> <p>3. Power and Water Board commitment to proceed with the project subject to the AER amending the revenue determination pursuant to the NER.</p>

Source: PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, pp. 100–112.

Two of PWC’s proposed contingent projects relate to significant potential augmentations of its network to enable dispatch of low-cost renewable generation. The other three are to meet localised new demand associated with the development of specific commercial projects in the NT. PWC submitted it is responding to a fast-paced environment as the NT Government implements the 50% renewable target by 2030 and new developments in the NT which includes land development and industrial hubs. For all its proposed contingent projects, PWC considers there is an element of uncertainty on the need, timing, scope, and cost of these projects.<sup>100</sup>

## B.1 Assessment approach

We reviewed PWC’s proposed contingent projects against the assessment criteria in the NER.<sup>101</sup> We considered whether:

- the proposed contingent project is reasonably required to be undertaken in order to achieve any of the capex objectives<sup>102</sup>
- the proposed contingent project capital expenditure is not otherwise provided for in the capex proposal<sup>103</sup>
- the proposed contingent project capital expenditure reasonably reflects the capex criteria, taking into account the capex factors<sup>104</sup>
- the proposed contingent project capex exceeds the defined threshold<sup>105</sup>

<sup>100</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, p. 99.

<sup>101</sup> NT NER, cl. 6.6A.1.

<sup>102</sup> NT NER, cl. 6.6A.1(b)(1).

<sup>103</sup> NT NER, cl. 6.6A.1(b)(2)(i).

<sup>104</sup> NT NER, cl. 6.6A.1(b)(2)(ii).

<sup>105</sup> NT NER, cl. 6.6A.1(b)(2)(iii).

- the trigger events in relation to the proposed contingent project are appropriate.<sup>106</sup>

PWC’s revenue proposal included a description of each contingent project, proposed trigger events, project requirement, proposed capex and demonstration of rules compliance.<sup>107</sup> For the contingent projects proposed by PWC, we are concerned that the triggers are either too broad, not specifically clear and lacked sufficient detail, including network specific locations, or required further justification.

We sought additional information in respect to each proposed contingent project. In addition to the information provided by PWC in its response to our information requests, including updated trigger events for each of the proposed contingent projects, we raised further questions on PWC’s proposed contingent projects in discussions during meetings with PWC prior to the release of our draft decision. Given the uncertainty about the timing and requirements for a contingent project, at this stage, we have not undertaken a detailed assessment of the costs and technical scope of the projects (rather this occurs when the project is triggered and a contingent project application is submitted to us). As part of our assessment for the regulatory determination, we reviewed whether each proposed contingent project is reasonably likely to be required in the 2024–29 regulatory control period based on the materiality and plausibility of the trigger conditions. This gives us a high level view of whether the project is reasonably required to be undertaken in the regulatory control period in order to achieve any of the capex objectives and reflect the capex criteria.

We also considered whether the proposed trigger events for each project are appropriate. This includes having regard to the requirements in the NER for the trigger event:

- to be reasonably specific and capable of objective verification<sup>108</sup>
- to be a condition or event which, if it occurs, makes the project reasonably necessary in order to achieve any of the capex objectives<sup>109</sup>
- to be a condition or event that generates increased costs or categories of costs that relate to a specific location rather than a condition or event that affects the transmission network as a whole<sup>110</sup>
- to be described in such terms that it is all that is required for the revenue determination to be amended<sup>111</sup>
- to be a condition or event, the occurrence of which is probable during the 2024–29 regulatory control period but the inclusion of capex in relation to it (in the total forecast capex) is not appropriate because either:
  - it is not sufficiently certain that the event or condition will occur during the regulatory control period or if it may occur after that period or not at all, or

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<sup>106</sup> NT NER, cl. 6.6A.1(b)(4).

<sup>107</sup> PWC, *Revenue Proposal 2023-24 to 2028-29, Capital Expenditure Attachment (public)*, 31 January 2023, pp. 99–112.

<sup>108</sup> NT NER, cl. 6.6A.1(c)(1).

<sup>109</sup> NT NER, cl. 6.6A.1(c)(2).

<sup>110</sup> NT NER, cl. 6.6A.1(c)(3).

<sup>111</sup> NT NER, cl. 6.6A.1(c)(4).

- assuming it meets the materiality threshold, the costs associated with the event or condition are not sufficiently certain.<sup>112</sup>

## B.2 Draft decision

We consider four of PWC’s five proposed contingent projects should be classified as a contingent project for the 2024–29 regulatory control period. We consider these projects may be reasonably required to be undertaken in order to maintain the quality, reliability and security of supply, or to meet or manage the expected demand for distribution services over the 2024–29 regulatory control period.<sup>113</sup>

We consider that PWC’s proposed contingent project to unlock existing large scale renewable generation in Darwin-Katherine should not be classified as a contingent project for the 2024–29 regulatory control period. We do not consider this project to be reasonably required to maintain the quality, reliability and security of supply, or to meet or manage the expected demand for distribution services over the 2024–29 period.<sup>114</sup>

We received one submission on PWC’s contingent projects from Jacana Energy who were supportive of the contingent project mechanism subject to the AER being satisfied these meet the NER requirements. Jacana Energy considered that PWC needs to provide a more detailed description of the requirements with respect to the capex objectives and the contingent project triggers, including identifying the specific network location(s) associated with the projects and how the proposed scopes would address the identified needs.<sup>115</sup>

We agree with Jacana Energy’s concerns that PWC had not satisfactorily identified the specific network locations associated with the contingent project and how the proposed scope would address the identified needs. We raised concerns with PWC regarding the need and triggers of the proposed contingent projects. PWC acknowledged our concerns and committed to expand the triggers for all the contingent projects to describe an objective verifiable trigger event, the works required, the location on the network and to demonstrate that the trigger event is probable. PWC has amended the triggers to address our concerns and these are reflected in table 5.3 above.<sup>116</sup>

For the four contingent project’s we are accepting, we consider PWC’s amended triggers are sufficiently specific and reflect the specific circumstances that would drive the need for these contingent projects. We consider the contingent project to unlocking existing large scale renewable generation in Darwin-Katherine does not demonstrate a sufficient need, which PWC has acknowledged and will be considering further for the revised proposal.<sup>117</sup>

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<sup>112</sup> NT NER, cl. 6.6A.1(c)(5).

<sup>113</sup> NT NER, cl. 6.6A.1(b)(1).

<sup>114</sup> NT NER, cl. 6.6A.1(b)(1).

<sup>115</sup> Jacana Energy, *Submission 2024-29 Electricity Determination - Power and Water Corporation*, May 2023, p. 6.

<sup>116</sup> PWC, *Response to Information Request #11*, 23 June 2023.

<sup>117</sup> PWC, *Response to Information Request #11*, 23 June 2023.

## Shortened forms

Term	Definition
AER	Australian Energy Regulatory
capex	capital expenditure
CCP27	Consumer Challenge Panel, sub-panel 27
CER	customer energy resources
DNSP or distributor	Distribution Network Service Provider
DOE	dynamic operating envelopes
EV	electric vehicle
ICT	information and communication technology
NEL	National Electricity Laws
NEO	National Electricity Objectives
NER or NT NER	National Electricity Rules As in force in the Northern Territory
NPV	net present value
opex	operating expenditure
PV	photovoltaic
RAB	regulated asset base
RIN	regulatory information notice
SAIDI	system average interruption duration index
SAIFI	system average interruption frequency index