

2018 SYSTEM CONTROL CHARGES REVIEW

DRAFT DECISION

March 2019

Disclaimer

This Draft Decision has been prepared by the Utilities Commission in accordance with the *Electricity Reform Act 2000* and *Utilities Commission Act 2000*. To the maximum extent permitted by law, the Utilities Commission disclaims and excludes all liability for any loss, claim, demand, damages, costs and expenses of any nature (whether or not foreseeable and whether direct, indirect or consequential and whether arising from negligence or otherwise):

- suffered or incurred by any person relying or acting on any information provided in, referred to or omitted from, this document; or
- arising as a result of, or in connection with, information in this document being inaccurate or incomplete in any way or by reason of any reliance on it by any person, including by reason of any negligence, default or lack of care.

Purpose and structure of this paper

The purpose of this paper is to communicate the commission's Draft Decision on Power and Water Corporation's (PWC) submission under section 39(2) of the *Electricity Reform Act 2000* to increase the system control charge, from the current \$0.001 per kWh to \$0.0057 per kWh, from 1 July 2019, and an annual review of the charge.

Further, this paper provides the commission's associated considerations, reasons and recommendations in relation to its Draft Decision, and seeks feedback from stakeholders, noting PWC has indicated it will submit a revised proposal which will align with the commission's recommendations.

Inquiries and submissions

Any questions or submissions in relation to this Draft Decision should be directed to the Utilities Commission by **17 April 2019**, preferably electronically by email.

Utilities Commission of the Northern Territory

GPO Box 915

DARWIN NT 0801

Telephone: +61 8 8999 5480

Email: utilities.commission@nt.gov.au

Confidentiality

In the interests of transparency and to promote informed discussion, the commission will generally make submissions publicly available.

Persons wishing to submit confidential information should:

- clearly identify the relevant sections of the submission that are confidential
- provide a copy of the submission suitable for publication with any confidential material removed.

Confidential information is defined in section 26 of the *Utilities Commission Act* as information that could affect the competitive position of a licensed entity or other person or is commercially sensitive for some other reason.

Timetable

The expected timeframe for consultation is outlined below.

Action	Timeframe
Commission issues Draft Decision	19 March 2019
Comments due on Draft Decision	17 April 2019
Final Decision	30 April 2019

Table of Contents

Disclaimer	i
Purpose and structure of this paper	ii
Inquiries and submissions	ii
Confidentiality	ii
Timetable	ii
Table of Contents	iii
Glossary	1
DRAFT DECISION	2
POWER AND WATER CORPORATION'S PROPOSAL	3
Background	3
Legislative framework	3
Scope and process of commission's review	4
SYSTEM CONTROL'S COSTS	6
Cost forecasts	6
Direct costs	6
Corporate overheads	7
New Control and Administrative Centre	7
Allocation of costs to activities	8
Allocation of time to activities	9
Allocation of costs to activities	9
Recommended costs to be recovered	12
PROPOSED SYSTEM CONTROL CHARGE	13
Energy consumption forecast	13
Number of charges	14
Based on energy from the grid or total demand	15
Charges applied to retailers, generators or a combination	15
REGULATORY APPROACH	17
Price control mechanism	17
RECOMMENDED CHARGES AND COMMENCEMENT	19
Recommended charges	19
Recommended commencement	20
APPENDICES	22
Appendix A: Revenue cap formulae	22
Appendix B: Overs and unders account	24

Glossary

Term	Definition
Act	<i>Electricity Reform Act 2000</i>
AER	Australian Energy Regulator
AEMO	Australian Energy Market Operator
CAM	Cost Allocation Methodology
Commission	The Utilities Commission of the Northern Territory
CPI	Consumer Price Index
CSO	Community Service Obligation
FTE	Full time equivalent
NPV	Net present value
NTEM	Northern Territory Electricity Market
PWC	Power and Water Corporation
Regulations	Electricity Reform (Administration) Regulations
SCTC	System Control Technical Code
TGen	Territory Generation
UC Act	<i>Utilities Commission Act 2000</i>
WACC	Weighted average cost of capital

DRAFT DECISION

In accordance with section 39(2) of the *Electricity Reform Act 2000*, the commission's draft decision is to **not approve** the Power and Water Corporation's proposed \$0.0057 per kWh system control charge to be applied by the power system controller from 1 July 2019.

POWER AND WATER CORPORATION'S PROPOSAL

Background

Power and Water Corporation (PWC) holds a System Control Licence to conduct system control and market operator functions. An independently operated business unit within PWC, known as System Control and Market Operator (System Control) provides these regulated services, as well as other services.

PWC, as the licensed system controller, carries out system control and market operator functions in accordance with section 38 of the *Electricity Reform Act 2000* (the Act) and the System Control Technical Code (SCTC).

Currently PWC charges retailers for System Control's services in accordance with the current system control charge, which was approved by the commission in 2000. However, since 2000, there has been a significant change in the number and nature of System Control's functions and the cost of undertaking these functions.

PWC states that the current system control charge of \$0.001 per kWh provides revenue of approximately \$1.8 million per annum, and is not sufficient to meet its actual operating costs for providing system control and market operator functions, with the funding shortfall estimated by PWC at approximately \$7 million in 2017-18.

PWC has made a submission to the commission under section 39(2) of the Act proposing an increase to the system control charge, from the current \$0.001 per kWh to \$0.0057 per kWh, from 1 July 2019, and an annual review of the charge.

Legislative framework

The commission is an independent statutory body established by the *Utilities Commission Act 2000* (UC Act).

Section 6(1) of the UC Act provides the commission with functions, including licensing under relevant industry regulation Acts and regulating prices charged by government and other businesses for providing certain monopoly services.

PWC, as the licensed system controller, carries out system control and market operator functions in accordance with section 38 of the Act and the SCTC.

Regulation 3F of the Electricity Reform (Administration) Regulations (the Regulations) provides that for the purposes of the Act, the System Control Licence is to be a licence authorising the system controller to operate a wholesale market in relation to the Darwin-Katherine power system.

The SCTC provides that the system controller must also perform the market operator role and fulfil the responsibilities of the market operator that are set out in the SCTC.

Regulation 5A(1) of the Regulations provides that the SCTC may make provision for operating protocols, system security and dispatch, disconnection and any matter relevant to the reliability, safety or security of the system or control of the operation of the system.

Regulation 5A(2) provides that a code prepared by PWC for the Darwin-Katherine power

system (the SCTC) may also make provision for the operation of a wholesale market in relation to that system.

Under section 39(1) of the Act, a system controller is entitled to impose and recover charges relating to the operations of system control. Section 39(2) of the Act states that the schedule of charges to be applied for the purpose of section 39(1) is to be approved by the Utilities Commission.

Scope and process of commission's review

While Section 39 of the Act provides the commission with broad discretion on the approval process for system control charges, the commission is cognisant of, and will accordingly have regard to, the objects of the Act. These include to promote efficiency and competition in the electricity supply industry, to facilitate the maintenance of a financially viable electricity supply industry and to protect the interest of consumers of electricity.

Similarly, pursuant to section 6(2) of the UC Act, in performing its functions, the commission must have regard to the need to, among other things, prevent misuse of monopoly power, to promote economic efficiency, to ensure consumers benefit from competition and efficiency and to facilitate maintenance of the financial viability of regulated industries.

Accordingly, on 21 November 2018, the commission published an associated Issues Paper which identified topics that should be considered as part of the review of the system control charge and sought feedback from all stakeholders.

All interested parties were invited to make submissions on the Issues Paper by 11 January 2019. The consultation period was subsequently extended to 18 January 2019, with four submissions received, from EDL NGD (NT) Pty Ltd (EDL), Jacana Energy (Jacana), Rimfire Energy Pty Ltd and Territory Generation (TGen).

The commission engaged ACIL Allen Consulting (ACIL Allen) to assist it in making its draft and final decisions, through assessing and making recommendations where appropriate in relation to the following matters:

- PWC's identification of System Control regulated functions, noting some regulated functions are limited to the Darwin-Katherine electricity system (ie. not a regulatory function in the Alice Springs and Tennant Creek electricity systems)
- PWC's recommendation that the system control charge be consistent across all three regulated systems despite some functions being limited to the Darwin-Katherine system
- PWC's cost allocation model, to verify that System Control's regulated and unregulated functions are correctly attributed, and that the model is well constructed (ie. logical, accurate, repeatable)
- PWC's corporate overhead allocation for System Control
- PWC's inclusion of costs associated with a proposed new Control and Administrative Centre
- the appropriateness of using the proposed energy consumption forecasts provided to PWC by the Australian Energy Market Operator (AEMO) for PWC's distribution determination, and if not appropriate, a better alternative
- whether a pricing or revenue control mechanism would be appropriate and if so, a proposed mechanism, setting out why this mechanism is appropriate.

ACIL Allen's associated report to the commission is published on the commission's website together with this Draft Decision.

In addition to its submission paper to the commission, PWC provided detailed excel spreadsheets underpinning the associated tables and calculations in relation to System Control's allocation of costs to the commission, and met with ACIL Allen to work through identified concerns with the original submission. ACIL Allen also met with Jacana and TGen to discuss their submissions.

SYSTEM CONTROL'S COSTS

PWC System Control, as the licensed system controller, provides a combination of regulated and unregulated system control and market operator services.

The focus of the commission's review is on the regulated services provided in accordance with PWC's System Control obligations under the Act, PWC's System Control Licence, the SCTC and other associated instruments.

Accordingly, this chapter considers the costs that are forecast by PWC to be incurred by PWC System Control to undertake these functions, including feedback from stakeholders on questions posed through the Issues Paper in relation to costs.

Cost forecasts

PWC's original submission proposes to base its system control charge on escalating the actual costs incurred in 2017-18, including for personnel and other direct costs such as for IT and communications, vehicles, training and insurance, corporate overheads. From 2019-20, PWC includes costs for a proposed new Control and Administrative Centre, as summarised in Table 1 below.

Table 1: Summary of System Control and Market Operator revenue and proposed costs

	2017-18 Actual	2018-19 Forecast	2019-20 Forecast	2020-21 Forecast
Personnel costs	\$6,339,860	\$6,449,300	\$6,515,225	\$6,731,925
Other direct costs	\$639,949	\$1,451,300	\$1,387,475	\$1,300,575
Total direct costs	\$6,979,809	\$7,900,600	\$7,902,700	\$8,032,500
Corporate overheads	\$2,030,142	\$2,153,800	\$1,899,100	\$1,723,400
New Control and Administrative Centre	-	-	\$670,000	\$681,063
Total costs	\$9,009,951	\$10,054,400	\$10,471,800	\$10,436,963

Direct costs

Two submissions provide feedback on System Control's proposed costs. Jacana questions the efficiency of the costs proposed by PWC, in particular the corporate overheads. TGen notes that PWC had proposed a reduction in the number of staff, but that personnel costs are increasing.

Accordingly, while the commission has not undertaken a comprehensive review of PWC System Control's efficiency, due to the lack of similar sized System Control operations in other Australian electricity markets to enable effective benchmarking, ACIL Allen did benchmark the efficiency of certain costs such as labour costs, and identified a number of issues, including some anomalies in the salaries for personnel and double counting in direct costs.

Further, it was noted that PWC increased its direct labour costs by 3 per cent each year, which is a higher growth rate than assumed by the Australian Energy Regulator's (AER) draft revenue determination.

To eliminate the potential for any variance between the actual and forecast Consumer Price Index (CPI), ACIL Allen recommends that labour costs and non-labour costs be presented in real terms with salaries to be in line with Deloitte Access Economics' labour price growth forecast and escalated by CPI each year, rather than presenting the costs in nominal terms inclusive of PWC's assumption of CPI. The commission agrees with this recommendation.

Corporate overheads

In its submission, TGen seeks further explanation on the corporate overheads, particularly in relation to BSIM, 'Customer and Stakeholder' activities and 'Retail' activities'. To clarify, BSIM costs are in relation to IT systems including financial management, geographical information and asset management systems, and intranet and internet administration and service desk. Costs are allocated for BSIM on the basis of the number of full time equivalents (FTE) and contractors and an 'OPS Driver' and/or 'CON Driver'.

'Customer and Stakeholder' activities include ministerial and client relations, and communications and marketing, and 'Retail activities' are customer and billing. Costs for these activities are allocated on the basis of the number of FTEs and contractors.

PWC's submission states that corporate overheads are allocated to the Power System Controller function in accordance with the Cost Allocation Methodology (CAM) approved by the AER in its draft 2019-24 electricity distribution revenue determination process. The commission notes that the AER assessed PWC's corporate overheads as very high, which is consistent with Jacana's observation. However, it made no adjustment to the proposed expenditure in its draft decision.

Subsequently, based on additional information provided by PWC, ACIL Allen found that PWC's cost allocation is not consistent with the CAM approved by the AER. If different cost allocation methodologies are used, then PWC could recover more than 100 per cent of the costs across different business units and different regulatory processes.

Accordingly, consistent with ACIL Allen's recommendation, PWC should revise its corporate overheads to align its CAM with that approved by the AER in its draft and ultimately final determination and make associated changes to the allocated corporate overheads to System Control and system control charges.

New Control and Administrative Centre

Two submissions specifically comment on the proposed new facility.

Jacana states there is insufficient information in PWC's proposal to have an informed opinion on the viability or otherwise of existing arrangements or if the proposal ensures prudent and efficient expenditure on the new facility. Further, Jacana does not support PWC's assertion that a new facility is warranted to change the perception that System Control is controlled by PWC and for cultural change benefits and cost effectiveness.

TGen states that the proposed new facility appears reasonable given the state of the existing facilities appears to be inadequate, however understand the project is not well advanced and on this basis, consider it unrealistic that it would be operational by July 2019.

Discussions with PWC confirm that it has not yet developed a business case for the proposed new facility, and that based on a proposal submitted by a developer it would take 7-9 months to deliver from signing of the lease agreement. Further, the commission understands that as a government owned corporation, PWC would require the Shareholding Minister's approval prior to committing to a project of this size.

ACIL Allen notes that PWC has assumed that 90 per cent of the costs for the new facility will be paid for by System Control through regulated changes and 10 per cent will be paid for by Power Networks.

Given the lack of information, such as a business case, and uncertainty about project timing and costs for the new facility, ACIL Allen recommends the new facility be excluded from the system control charge at this stage, with the costs passed through when there is more certainty. The commission agrees with ACIL Allen's recommendation, subject to a robust review by the commission of the associated business case and pass through proposal.

Allocation of costs to activities

In its submission, PWC states that it undertakes 70 activities to meet its regulatory obligations and included a list of these in an appendix to its submission. Further information was provided by PWC to the commission, and through discussions held with ACIL Allen, in relation to these activities.

ACIL Allen's review of PWC's list of activities notes that there is not a one for one mapping of regulatory obligations to activities, the terminology in the activity description does not align to the SCTC, the distinction between some activities is only evident by referencing the SCTC and some references in the SCTC do not exist.

The commission's Issues Paper asked stakeholders if the system control and market operator activities identified by PWC accurately reflect the regulated services that System Control is obligated to provide under the Act and SCTC.

Jacana observes that the list suggests a large amount of work, and states that a list with the key activities synthesized out would be more meaningful, and enable a better view of the quantum of work actually required.

TGen queries whether three of the activities identified as system control functions (maintaining wall boards, witnessing code compliance testing and assessing evaluation and scoping code compliance testing) relate to regulatory obligations.

TGen's specific queries were investigated. PWC's view was that the time allocated to these activities relate to its regulatory obligations, and that PWC Networks incurs significantly higher costs to maintain the wall boards. Further, PWC System Control referred to its broad responsibility to maintain power system security, which may include witnessing performance capability tests and provided evidence that separate time is allocated for activities under the Power Networks Service Level Agreement that relate to generator testing.

Subsequently, ACIL Allen found that there is no evidence to suggest that the allocation of time to these activities is materially incorrect.

Market Operator activities

TGen's submission identifies 14 activities in PWC's list that relate to market operator functions and states that, notwithstanding whether these have been ring fenced from the system control and market operator unregulated functions, it does not consider section 39(1) of the Act to be the appropriate mechanism to recover the costs for these activities.

Sections 1.7.4(g) and 1.7.5 of the SCTC (and relevant definitions) provide that the market operator responsibilities must be performed by System Control in accordance with Attachment 6 of the SCTC. Regulation 3F of the Regulations similarly provides that the market operator responsibilities are to be performed by System Control pursuant to the System Control Licence. Performing the market operator responsibilities is therefore part of the System Controller's functions under the SCTC, Regulations and Act. Accordingly, the commission is of the view that carrying out those functions is part of the 'operations of system control' and so can be charged under section 39(1) to recover the cost of carrying out those operations.

If the costs for performing the market operator functions under the SCTC could not be recovered as part of charges under section 39(1), then System Control would be required by the Act and SCTC to perform those without any ability to recover its efficient costs of doing so. The commission does not consider that such an interpretation would be consistent with the objects of the Act or the UC Act.

Nonetheless, for transparency, it is important that these activities, and associated time and costs be separately identified.

The commission is mindful that there may need to be a pass through mechanism to provide for any increase or decrease to the system control charge if System Control's obligations under the SCTC in the future change as part of the transition from the Interim Northern Territory Electricity Market (NTEM) to a 'full' NTEM.

Allocation of time to activities

ACIL Allen's review of the process undertaken by PWC to allocate time to activities for the purpose of the submission identifies three issues, being an inconsistent approach in the number of standard hours in a week (ranged between 35 and 40), an assumption that a month is four weeks and an inconsistent approach for accounting that each employee works 42 weeks per annum rather than 52 weeks per year.

Accordingly, ACIL Allen recommends that PWC adopt a consistent approach for allocating time to activities. The commission supports this recommendation.

Allocation of costs to activities

Direct costs

PWC's submission allocates direct costs, other than travel costs, to each employee based on the allocators as summarised in Table 2 below.

Table 2: PWC's allocation of direct costs to employees in original submission

Cost category	Direct cost allocator
IT and communications	FTEs
Vehicle costs, Insurance	Allocated to employees with vehicles
Training costs	FTE salary cost
Professional fees, Contract labour	Allocated to engineer
Materials, External service agreements, Property charges, Other costs	FTE salary cost

The commission considers the allocation of IT and Communications on the basis of FTEs, and of vehicle costs and insurance (which is related to vehicles) on the basis of employees with vehicles reasonable.

The commission notes ACIL Allen's advice that training costs could be allocated on the basis of FTE numbers or FTE salary cost, and accepts PWC's view that FTE salary cost is preferred, based on an assumption that the higher the salary for an employee, the more expensive the training for that employee will be. Further, the commission is comfortable that professional fees and contract labour be allocated to the engineer.

The commission understands that external service agreements relate to IT and communication services supplied by the Department of Corporate and Information Services. On this basis, it is more appropriate that these costs be allocated by FTEs, rather than FTE salary cost.

Corporate overheads

PWC's original submission allocated corporate overhead costs to System Control on the basis of the cost allocators as summarised in Table 3 below.

Table 3: PWC's allocation of corporate overheads to activities in original submission

Cost category	Allocation of corporate overhead to activity	Allocation of corporate overheads to System Control
Customer and billing	Direct allocation to relevant activities	FTE and Contractors
Finance – general	Personnel plus other direct costs	FTE
Finance – overdraft	Personnel plus other direct costs	Nil
Finance – accounts payable	Personnel plus other direct costs	Nil
IT – FMS, GIS, Maximo, RMS	Personnel plus other direct costs	'OPS Driver', FTE and Contractors
IT – Business Intelligence system, Datasmart system, EDMS, Internet administration, Intranet administration, Service desk, Small systems administrator	Personnel plus other direct costs	'OPS Driver', 'CON Driver', FTE and Contractors
IT - BSIM administrations	Nil	FTE and Contractors
HR – Training	Personnel costs	FTE
HR – HR Operations and Employee Relations	Personnel costs	FTE, FTE and Contractors
Insurance – Workcover insurance	Allocated evenly across all activities, except business management	FTE and Contractors
Insurance – General insurance	Allocated evenly across all activities, except business management	Nil

Insurance – Vehicle insurance	Allocated evenly across all activities, except business management	Vehicle numbers
<i>Other corporate</i>		
Work, Health and Safety	Personnel costs	FTE and Contractors
Facilities, Sustainable Energy, Managing Director, Risk, Audit & Compliance, Executive, Board	Allocated evenly across all activities, except business management	FTE and Contractors
Records Management, Procurement	Personnel plus other direct costs	FTE and Contractors
Communications and Marketing	Direct allocation to relevant activities	FTE and Contractors
General Counsel	Allocated evenly across all activities, except business management	Legal instructions
Design and Diagnostic	Personnel plus other direct costs	FTE and Contractors
Ministerial and Client Relations	Direct allocation to relevant activities	FTE and Contractors
Wholesale Markets	Personnel plus other direct costs	Time
Environmental Services	Allocated evenly across all activities, except business management	Environmental
Project Management Office	Direct allocation to relevant activities	FTE and Contractors
Strategy & Planning	Allocated evenly across all activities, except business management	Even, FTE and Contractors
Economics & Regulation	Personnel plus other direct costs	Time

A review by ACIL Allen identified a number of issues with the approach taken by PWC to allocate overhead costs to activities. These are summarised below:

- corporate overhead costs allocated evenly across all activities, except those in the Business Management group of activities – The direct costs associated with these activities range from less than \$10,000 to over \$6 million. An even allocation of corporate overheads results in some less time intensive activities bearing a very high proportion of corporate overheads while very time intensive activities bear a relatively small proportion of corporate overheads. This is not considered a reasonable approach
- the basis for allocating some of the corporate overheads to activities is inconsistent with the methodology for allocating corporate overheads to the Power System Controller. For example, while the corporate training costs are allocated to the Power System Controller on the basis of FTEs, corporate training costs are allocated to System Control activities based on personnel costs
- there are some corporate overheads that are allocated to the system control function on the basis of an allocator which are then directly attributed to specific activities. For example, corporate overheads labelled retail are allocated to the system control function on the basis of the number of FTEs and contractors. The majority of these costs (85 per cent) are then allocated to the activity 'Customer/Retailer inquiries'. This results in an

allocation of corporate overheads that is more than four times higher than the personnel costs associated with the activity

- the allocation of costs, which have been allocated to Business Management, evenly across all other activities is illogical. For example, each person allocates a proportion of their time to leave. The costs associated with this time are then allocated across all activities. The costs associated with an employee's leave are recovered equally from activities which have little of that employee's time attributed to them as those which have a lot of time attributed to them.

Overall, ACIL Allen found PWC's approach to the allocation of costs to activities complex, with many steps in the allocation process that results in an illogical allocation of costs to activities.

Recommended costs to be recovered

Based on the revised information provided by PWC and ACIL Allen's recommendations, the commission considers the System Control and Market Operator costs summarised in Table 4 below would be appropriate to be recovered through the system control charge.

Table 4: Recommended System Control and Market Operator costs to be recovered, Real \$2019

	2019-20	2020-21	2021-22	2022-23	2023-24
System Control					
Personnel costs	\$6,246,938	\$6,234,444	\$6,253,147	\$6,284,413	\$6,322,120
Other direct costs	\$621,059	\$615,667	\$465,367	\$465,367	\$465,367
Corporate overheads	\$2,005,861	\$1,882,657	\$1,805,923	\$1,726,639	\$1,650,835
Total	\$8,873,858	\$8,732,767	\$8,524,438	\$8,476,419	\$8,438,322
Market Operator					
Personnel costs	\$516,019	\$514,987	\$516,532	\$519,115	\$522,230
Other direct costs	\$105,420	\$104,759	\$74,107	\$74,107	\$74,107
Corporate overheads	\$211,001	\$198,041	\$189,969	\$181,629	\$173,655
Total	\$832,440	817,787	\$780,608	\$774,851	\$769,992
System Control + Market Operator	\$9,706,298	\$9,550,554	\$9,305,046	\$9,251,270	\$9,208,314

The recommended regulated costs to be recovered are less than those originally submitted by PWC. The costs associated with the proposed new Control and Administrative Centre are not included in the recommended costs to be recovered. The corporate overhead costs have decreased, however this reduction is offset by an increase in the allocation of shared costs to the regulated functions.

PROPOSED SYSTEM CONTROL CHARGE

The system control charge is a function of the costs incurred in undertaking the regulated activities and the demand forecast. PWC's original submission proposes that the system control charge in 2019-20 should be \$0.0057 per kWh, as set out below in Table 5.

Table 5: PWC's proposed system control charge

	2017-18 Actual	2018-19 Forecast	2019-20 Forecast	2020-21 Forecast
Total proposed costs	\$9,009,951	\$10,054,400	\$10,471,800	\$10,436,963
Forecast energy (MWh)	1,872,500	1,842,700	1,828,800	1,828,800
System control charge (\$ per kWh)	0.0048	0.0055	0.0057	0.0057

This chapter discusses the energy consumption forecast that underpins PWC's proposed system control charge, the appropriate number of charges to be levied by System Control and the basis for charging customers for system control and market operator functions, including feedback from stakeholders.

Energy consumption forecast

PWC's submission states that it has adopted the energy consumption forecasts prepared by AEMO for the purposes of PWC's distribution determination for the 2019-24 period as the basis for converting the Power System Controller's costs into a charge.

AEMO's energy consumption forecasts prepared for PWC in September 2017 are set out below in Table 6. The commission notes the forecasts match the energy consumption forecast used by PWC to estimate the system control charge.

Table 6: AEMO's energy consumption forecast, 2017-18 to 2020-21

	2017-18 Forecast	2018-19 Forecast	2019-20 Forecast	2020-21 Forecast
	MWh	MWh	MWh	MWh
Darwin-Katherine	1,626,300	1,591,100	1,579,500	1,581,600
Alice Springs	216,800	214,300	211,900	209,700
Tennant Creek	29,400	37,300	37,400	37,500
Total	1,872,500	1,842,700	1,828,800	1,828,800

The commission is advised that in November 2018, AEMO reviewed its energy consumption forecasts in response to the AER's draft determination and did not update the forecasts on the basis that changes to demand and energy consumption would be immaterial.

Jacana and TGen support the use of AEMO's energy consumption forecasts. EDL and Rimfire did not comment on this matter.

Accordingly, the commission agrees that AEMO's energy consumption forecasts, produced for PWC's distribution determination for the 2019-24 period, be used as the basis for determining the system control charge as set out in Table 7 below.

Table 7: AEMO's energy consumption forecast, 2019-20 to 2023-24

	2019-20 Forecast	2020-21 Forecast	2021-22 Forecast	2022-23 Forecast	2023-24 Forecast
	MWh	MWh	MWh	MWh	MWh
Darwin-Katherine	1,579,500	1,581,600	1,584,300	1,587,600	1,592,600
Alice Springs	211,900	209,700	207,800	206,000	204,600
Tennant Creek	37,400	37,500	37,600	37,700	37,800
Total	1,828,800	1,828,800	1,829,700	1,831,300	1,835,000

Number of charges

PWC's original submission proposes a single system control charge, consistent with the structure of the current charge, to recover costs associated with the system control and market operator functions. PWC states a single charge across all regulated systems has the benefit of being administratively simple and provides equitable recovery of costs across all customers in the regulated systems based on their total consumption.

Jacana and TGen do not support PWC's proposal for a single system control charge based on both system control and market operator functions to be levied across all customers in the regulated systems.

Jacana's submission states that it supports transparent cost based charges and accordingly charges based on services provided in a region that reduce cross subsidies between customers and customer classes.

Notwithstanding TGen's query as to whether costs for market operator functions can be legally recovered through system control charges, TGen also supports that the different requirements of each power system be reflected in the costs for each power system.

Consistent with Jacana and TGen's feedback, ACIL Allen recommends disaggregating the proposed system control charge into a system control component and a market operator component. The benefits of this include:

- transparency – further development of the NTEM is envisaged. If there is a separately identified charge for the market operator functions of System Control, there is greater transparency as to the cost impacts of any market developments
- the system control functions are more mature than the market operator functions, and thus could be determined over a longer period of time (subject to some form of price control mechanism) than a market operator charge
- the system control functions are undertaken on behalf of all customers, while the market operator functions are only undertaken by System Control for Darwin-Katherine customers. Under an efficient cost recovery regime that minimises cross subsidies, the costs associated with the market operator functions should only be recovered from customers in the Darwin-Katherine area

- customers in Alice Springs and Tennant Creek are already paying TGen for market operator functions and therefore should not also be paying for market operator functions in the Darwin-Katherine area.

Consistent with stakeholder feedback and ACIL Allen's recommendation, the commission's view is that the market operator component of the charge should only apply in the Darwin-Katherine area, with the market operator component to be calculated based on the energy consumption forecast in that area only.

Based on energy from the grid or total demand

The current system control charge is levied based on energy used from the grid, which is consistent with the way AEMO levies its system control and market operator fees.

As part of providing expert advice to the commission, ACIL Allen has raised the point that charging based on energy results in customers with solar panels and batteries (who use less energy from the grid) contributing less to the costs associated with the system control and market operator functions, with customers without solar panels and batteries paying commensurately more.

ACIL Allen observe that while customers with solar panels and batteries will pay less, they will not reduce the costs that are incurred by System Control, and may in fact increase System Control's costs due to the increased complexity of managing the electricity system with increased solar.

ACIL Allen suggests that a system control charge levied on the basis of demand (the amount of energy consumed at a point in time) may be more appropriate in the future, noting this would require customers to have an interval or smart meter installed.

The commission notes that all customers consuming more than 40 MWh per annum are anticipated by PWC to have interval or smart meters installed by 1 July 2019, and that more than half of all electricity customers are expected to have a smart meter installed by the end of June 2024 through PWC's new and replacement meter program and the requirement for customers installing rooftop solar to have a smart meter.

Accordingly, while there is merit in levying the system control charge based on demand, given the large number of customers without a smart meter, at least in the short term, and the complexities of levying a different system control charge for different customers based on whether they have an interval/smart meter or accumulation meter, the commission agrees with ACIL Allen that this is better considered in the future.

Charges applied to retailers, generators or a combination

PWC's submission proposes that the system control charge continue to be levied on retailers. However, on the basis that generators may be a more direct recipient of some services, the commission sought stakeholders' feedback on whether the charge should be levied on retailers, generators or a combination of both.

Jacana's submission states that the different generators present differing requirements, and that a transparent causer pays charging structure for system control functions ensures the benefits from competition by reducing the possibility of one generator subsidising another.

Further, Jacana states that in addition to retailers and generators being charged, there is a question as to whether networks should also bear some charge. Similarly, TGen states that it seems appropriate that PWC's network business is charged for system control and market operator services provided to the network business.

EDL states that any proposal to revise the current cost recovery arrangements would need to be justified by demonstrating the clear net benefits of doing so.

The commission's view is that the costs to deliver the system control and market operator functions will ultimately flow through to the total costs to supply electricity to customers, regardless of whether the charge is levied to retailers, generators, networks or a combination of these and given this, considers it more efficient that the charge be paid by retailers based on the consumption of their customers as proposed by PWC.

REGULATORY APPROACH

The current system control charge was set in 2000 and has not been reviewed or updated since. PWC's original submission proposed an annual review of the charge, with a three year outlook.

The commission agrees that it is important to ensure that the system control charge continues to align with costs over time. Specifically, the charge could be set for a defined period, with some form of price control mechanism to determine how the charge may vary over time.

This chapter discusses the form of price control mechanism, and the associated formulae, including feedback from stakeholders and ACIL Allen's report to the commission.

Price control mechanism

Period of time for which the charge is determined

The commission agrees with feedback from Jacana that the approval period for prices is a balance. The appropriate length of the period is informed through balancing the uncertainty of costs over the period with the administrative costs associated with consulting on, and determining, the charges.

Jacana states that uncertainty around the requirements of the NTEM suggests that a shorter period should be considered and that an efficiency should be included.

Similarly, EDL states that the appropriate review time period should depend on the commission's view on the robustness of PWC's proposal, noting a shorter review cycle offers the benefit of developing greater confidence that System Control's costs are efficient, including the application of robust benchmarking.

TGen considers a five-year periodic review of the process appropriate, with a revenue or price cap mechanism.

ACIL Allen's review found that PWC's proposal is more robust and certain for the system control component of the charge compared to the market operator component, excluding the costs for the proposed new Control and Administrative Centre. This suggests that the system control component could be set for a longer period than the market operator component.

However, ACIL Allen advise that the price control mechanism can be designed in a way to allow for the pass through of material changes in costs (system control and/or market operator costs) during the period, which it recommends be five years. This is considered a reasonable solution.

Revenue or price cap

The price control mechanism for the system control charge could be a revenue cap or price cap.

Under a revenue cap, if the revenue recovered from customers in one year is greater (or lessor) than the required revenue for that year, the charge in the subsequent year is adjusted so that, over time, the required revenues are recovered in full. This is administered through an overs and unders account.

Under a price cap, System Control will under (or over) recover revenue relative to the required revenue. Thus, there is an incentive to under forecast energy consumption (over recover revenue).

The advantage of a price cap is that it is easier to administer than a revenue cap.

Jacana's submission indicates a preference for a price cap, due to its simplicity, during periods of relatively stable energy consumption.

EDL's submission indicates that the adoption of an overs and unders revenue control mechanism seems reasonable on the basis of ensuring the financial sustainability of the system control function. However, EDL states that this would need to be subject to an assessment of the costs and complexity of adopting such a mechanism and the degree to which there is evidence of material variations between forecast and actual energy demand.

TGen also supports an overs and unders mechanism, but considers that introduction of such a mechanism would require a change to the SCTC. On this basis, it suggested it might be appropriate to make the 2019-20 year a fixed determined schedule of charges while the required changes to the SCTC are made. The commission notes that section 8.6 of the SCTC contains some provisions regarding the setting of system control charges, but does not consider that the SCTC prevents the use of a revenue cap overs and unders mechanism.

On balance, ACIL Allen recommends the use of a revenue cap mechanism to regulate the system control charge over time, with an over and unders account, which is only applied when the balance in the account exceeds a materiality band, such as five per cent of required revenue.

The commission supports ACIL Allen's view that this approach will ensure the charge can be adjusted if there is a material variation between forecast and actual demand, noting the risk of this may be heightened as a result of the Territory Government's commitment to 50 per cent renewables by 2030. The application of a materiality band will reduce the complexity of the revenue cap mechanism if there is not a material variation between forecast and actual demand.

As previously discussed, ACIL Allen recommends that the new Control and Administrative Centre be excluded from the system control charge at this stage, with the costs passed through when there is more certainty. The commission agrees with ACIL Allen's recommendation, subject to a robust review by the commission of the associated business case and pass through proposal.

Further, the commission considers it reasonable that the charge for the market operator component be set for a five-year period, with a revenue cap and an overs and unders account, as detailed at Appendices A and B, to be applied when the balance exceeds a materiality band of five per cent of required revenue.

RECOMMENDED CHARGES AND COMMENCEMENT

This chapter provides detail on the commission's recommended charges, and commencement of the associated charges for PWC's and stakeholders' consideration.

Recommended charges

The recommended regulated costs to be recovered (summarised at Table 4 in this report) represent the unsmoothed revenue that is considered reasonable by the commission to be converted into a charge based on energy consumption.

ACIL Allen recommends the unsmoothed revenue is smoothed by assuming that:

- the revenue in the final year of the period (2023-24) aligns with the forecast costs in that year
- the Net Present Value (NPV) of the smoothed revenue over the five-year period is the same as the NPV of the unsmoothed revenue over that period
- the NPV of the revenue is calculated by discounting using the nominal Weighted Average Cost of Capital (WACC) as determined by the AER for the Power Networks business (5.22 per cent)
- the X-factor is the same each year from 2020-21.

The smoothed revenues and X-factors, as calculated by ACIL Allen, are set out in Table 8 below. The commission notes the recommended X-factors are positive indicating a real decrease in the costs associated with the system control and market operator functions over the five-year period.

Table 8: Recommended smoothed and unsmoothed revenue, Real \$2019, and X-factor

	System control		Market operator	
	Unsmoothed revenue	Smoothed revenue	Unsmoothed revenue	Smoothed revenue
2019-20	\$8,873,858	\$8,787,141	\$832,440	\$821,515
2020-21	\$8,732,767	\$8,698,607	\$817,787	\$808,320
2021-22	\$8,524,438	\$8,610,965	\$780,608	\$795,336
2022-23	8,476,419	\$8,524,207	\$774,851	\$782,561
2023-24	\$8,438,322	\$8,438,322	\$769,992	\$769,992
NPV	\$37,099,156	\$37,099,156	\$3,429,255	\$3,429,255
X-factor		1.02%		1.63%

To calculate the associated charge, the system control revenue is converted to a charge based on the energy consumption across all three regulated systems, and the market operator revenue is converted to a charge based on the energy consumption in the Darwin-Katherine area only.

Accordingly, the recommended 2019-20, and indicative 2020-21 to 2023-24 charges, based on the revenue amounts in Table 8 adjusted by the recommended revenue cap formulae (Appendix A), with a five per cent materiality threshold for the unders and overs account (Appendix B) are set out in Table 9 below. These recommended charges are based on the energy consumption by retailers' customers.

Table 9: Recommended system control charge (Real \$2019)

Component	2019-20	2020-21	2021-22	2022-23	2023-24
System control (\$/kWh)	0.0048	0.0048	0.0047	0.0047	0.0046
Market operator (\$/kWh) ¹	0.00052	0.00051	0.00050	0.00049	0.00048

¹Market operator component to only be paid by customers supplied by the Darwin-Katherine regulated system, with the charge determined based on the total energy consumption in that system only

Recommended commencement

While all submissions received were supportive of PWC's ability to appropriately recover the operating costs associated with performing System Control's regulated functions, only TGen supports the immediate commencement of the revised system control charge.

TGen states 'the sooner the charges are made, the better....so that the industry participants can have certainty on what the rules are going forward'.

Both EDL and Jacana are concerned that PWC's proposed increased system control charge will represent a significant step increase and suggest phasing in the increased charge over a period of time.

EDL notes that the proposed step increase may have a material impact on retail customers, and suggests the commission consider exploring options for phasing in the increase over a transitional period.

Jacana states that 'implementing a substantial increase on 1 July 2019 results in price shock and is not an appropriate or acceptable approach. It states that the impact on consumer costs is not in the interests of consumers and that increases should be phased in over at least a five-year period commencing 1 July 2019. Jacana also states that if the tariff structure is changed, it will need adequate time for IT system changes.

Rimfire Energy's submission does not comment on the timing for commencement for the revised charge, however notes that any change to system control charges will flow through to electricity retailers and, depending on government policy, may impact the profitability of the retailers and/or the cost of electricity for consumers.

Specifically, Rimfire Energy's submission states that approval of the increased charge without an equivalent increase by the Territory Government to the community service obligation (CSO) payment to retailers or the regulated tariff would result in retailers not being able to recover the cost of supply of the electricity sold. Rimfire Energy states such an outcome would transfer current losses from PWC to the existing retailers, would lead to independent retailers exiting the market and leave Jacana to incur the existing losses (rather than PWC).

The commission has not recommended a change to the structure of the system control charge, however recommends that the charge be split into two separate components, with the market operator component to only be charged for associated customers in the Darwin-Katherine system. Nonetheless, retailers could choose to enter one charge in their IT system

which aggregates the system control and market operator components of the charge meaning that no IT system changes should be required.

The commission notes that retailers will need to update the network charges in their IT systems from 1 July 2019, at which time the system control charges can be updated.

Accordingly, there are no practical barriers to implementing the revised system control charges from 1 July 2019.

The commission acknowledges that there will be customer impacts associated with increasing the system control charge from 1 July 2019. For example, the increase would be approximately \$28.50 per annum for a couple consuming 6613 kWh per annum and approximately \$3240 for a large commercial business consuming 750,000 kWh per annum, assuming the Territory Government allows the increase to flow through to Pricing Order customers. Any increase for larger commercial customers would be on the basis of the individual agreement the customer negotiated with its retailer.

Further, the commission is cognisant of the need to, among other things, protect the interest of consumers. However, this must be balanced with facilitating the maintenance of a financially viable electricity supply industry and providing System Control with a reasonable opportunity to recover its efficient costs of providing the functions it is required to provide under the Act and SCTC.

The system control charge has not been reviewed since 2000, PWC System Control is operating at a significant loss to deliver its regulated services and the Territory Government already significantly subsidises the cost of electricity for households and small and medium-sized businesses (\$72 million in 2018-19). On this basis, the commission considers it reasonable that the revised charge commence on 1 July 2019.

The commission notes that while this period of notice is shorter than would ideally be provided, it is similar to the period of notice that retailers receive of changes in PWC's network charges prior to the start of a regulatory control period, with network charges representing a much larger cost to retailers.

APPENDICES

Appendix A: Revenue cap formulae

The formulae to implement a revenue cap form of price control mechanism for the system control (or market operator) charge is set out below.

The adjusted annual revenue requirement in the first year of the period in which the charge is to be determined is the forecast total costs for the system control and market operator functions for that year, subject to any smoothing of the revenue.

$$AAR_t = AR_t$$

where:

AAR_t is the adjusted annual smoothed revenue requirement for year t

AR_t is the annual smoothed revenue requirement for year t, including any overs and unders carried over from the previous period

The adjusted annual smoothed revenue requirement in the subsequent years of the period is the adjusted annual revenue requirement in the previous period year escalated by Consumer Price Index (CPI) and an "X-factor".

$$AAR_t = AAR_{t-1} \times (1 + \Delta CPI_t) \times (1 - X_t)$$

where:

ΔCPI_t is the annual percentage change in the ABS CPI All Groups, Weighted Average of Eight Capital Cities from the December quarter in years t-2 to the December quarter in year t-1, calculated as follows:

$$\Delta CPI_t = \frac{CPI_{t-1}}{CPI_{t-2}} - 1$$

X_t is the X factor so that the Net Present Value (NPV) of the smoothed revenue requirement over the period is equal to the NPV of the unsmoothed revenue requirement over the period

The total allowable revenue in each year is the adjusted annual smoothed revenue requirement and, when the materiality threshold of the overs and unders account has been exceeded, the balance of the overs and unders account. It also includes the costs associated with the proposed new Control and Administrative Centre, any costs associated with additional market operator functions, and any consequent change in the direct costs and corporate overheads.

$$TAR_t = AAR_t + B_t + C_t$$

where:

TAR_t is the total allowable revenue in year t

B_t is the true-up in year t for any under or over recovery of actual revenue collected through the system control or market operator charge

C_t is:

- a. the costs in year t associated with the proposed new Control and Administrative Centre, when approved by the commission

- b. the change in costs in year t associated with a change in the market operator functions
- c. a change in the allocation of direct costs and corporate overheads in year t arising from these events.

The total allowable revenue is converted to a system control (or market operator) charge which is calculated in accordance with the following equation:

$$TAR_t \geq \sum_{i=1}^n p_t^i q_t^i$$

where:

- p_t^i is the system control (or market operator) charge i in year t
- q_t^i is the forecast quantity of system control (or market operator) charge i in year t

Appendix B: Overs and unders account

The overs and unders account balance for each of the system control charge and the market operator charge is determined using the following approach:

1. The under/over recovery of revenue in the first year is the revenue recovered through the system control (or market operator) charge less the total allowable revenue for that year.
2. The under/over recovery in item 1 is adjusted by 18 months of interest, with the interest rate to be the nominal weighted average cost of capital (WACC) for each year approved by the Australian Energy Regulator for the purposes of the regulated Power and Water Corporation Power Networks business. The under/over recovery item will be adjusted by the WACC in year t-2 for half a year and the WACC for year t-1 for a year.
3. The sum of items 1 and 2 is the closing balance for the first year of the period (year t-2).
4. If the closing balance exceeds the materiality band of five per cent of the total allowable revenue for that year, it is applied in year t.
5. If the closing balance is less than the materiality band of five per cent of the total allowable revenue for that year, it is the opening balance for the next year.
6. The under/over recovery of revenue in the next year (which is now year t-2) is the revenue recovered through the system control (or market operator) charge less the total allowable revenue for that year.
7. The under/over recovery in item 6 is adjusted by 18 months of interest (WACC in year t-2 for half a year and WACC in year t-1 for a year) and the opening balance is adjusted by 12 months of interest (WACC in year t-1).
8. The sum of items 5 to 7 is the closing balance for the next year of the period.
9. Items 4 to 8 are repeated each year.