



# Program Business Need Identification

## Power and Water Corporation

**CONTROLLED DOCUMENT**

**NMSC3**

### SCADA and Communications Optus Fibre Cable Shared Asset Installation

Proposed:

Approved:

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Date: 3/11/2017

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Date: 6/2/2018

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Date: 3/11/2017

Finance Review  
Date: 03/11/2017

PMO QA  
Date: 06/11/2017



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## 1 Project Summary

<b>Project Name:</b>	SCADA and Communications Optus Fibre Cable Shared Asset Installation		
<b>Program No:</b>		<b>SAP Ref:</b>	
<b>Financial Commencement:</b>	<b>Year</b>	2019/2020	
<b>Business Unit:</b>	Power Networks		
<b>Program Owner (GM):</b>	Djuna Pollard	<b>Phone No:</b>	8985 8431
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<b>Date of Submission:</b>		<b>File Ref No:</b>	
<b>Submission Number:</b>		<b>Priority Score:</b>	
<b>Primary Driver:</b>	Commercial / Efficiency	<b>Secondary Driver:</b>	
<b>Program Classification:</b>	Capital Program of Works		

## 2 Recommendation

### Major Project >\$1M or Program

It is recommended that Investment Review Committee (IRC) note the proposed five year Optus Fibre Optic Cable installation program for an estimated budget of \$2.65M, and approve the inclusion of this program into the SCI for this amount.

The forecast for this program of work extends beyond the current SCI period. The first two years of this program aligns with the last two years of the 2017-18 SCI. This program will be included in the 2019-24 Regulatory Proposal to the Australian Energy Regulator (AER).

Note that individual projects within the program will be documented in Business Case Category Cs to be approved by the Executive General Manager Power Networks.

This will be a shared asset under the NER Clause 6.4.4.

## 3 Description of Issues



This BNI describes the Optus Fibre Optic Cable commercial arrangement.

In 2000, as part of the first Northern Territory Governments outsourcing of telecommunications services, PWC entered into a commercial agreement with Optus to install fibre optic cable for Optus' use in Darwin. As part of the commercial arrangement, PWC owns the optical fibre cable and leases all cores to Optus

To date, PWC has invested [REDACTED] on the fibre optic assets. [REDACTED]

The existing contract expires during the first year of the regulatory control period 2019 - 2014, however Optus has advised that they wish to renegotiate a new contract and plan to start negotiations in the second half of 2017.

This BNI has been developed on the basis that PWC will negotiate a new contract with Optus in 2020.

Key Contract Items:

Table 1: Key Contract Items

Item	Contract details summary
<b>PWC contract administrator</b>	
<b>Commencement date</b>	2000
<b>Contract extension options</b>	10 year extension was enacted in 2010
<b>End date</b>	1 July 2020
<b>Contract extension options</b>	No more available
<b>Future plans by Optus</b>	Contacted PWC about extending/renegotiating the contract
<b>Average annual expenditure</b>	\$530,000 (FY18, real)
<b>Average annual volumes</b>	[REDACTED] (total 105 km installed)
<b>Contract rate</b>	Quoted each job based on scope, average rate (total cost / total volumes) has been \$ [REDACTED]



<p><b>PWC gifted assets</b></p>	<div style="background-color: black; width: 100%; height: 15px; margin-bottom: 5px;"></div> <div style="background-color: black; width: 100%; height: 15px; margin-bottom: 5px;"></div> <div style="background-color: black; width: 100%; height: 15px;"></div>

**3.1 Historical volumes and expenditure**

Figure 1 shows the historical volumes installed each year since the start of the contract. The chart shows variation from year to year but the average annual installation volume for the period of 2003 to 2016 is [REDACTED]. The average unit rate during the same period has been \$ [REDACTED] per kilometre, adjusted to FY18 dollars. These values have excluded 2000 to 2002 inclusive as they appear to be outliers in terms of volumes and unit cost.

The contract does not specify a minimum volume to be installed annually or a unit rate. The actual installation is based on Optus’ needs and a quoted cost per installation.

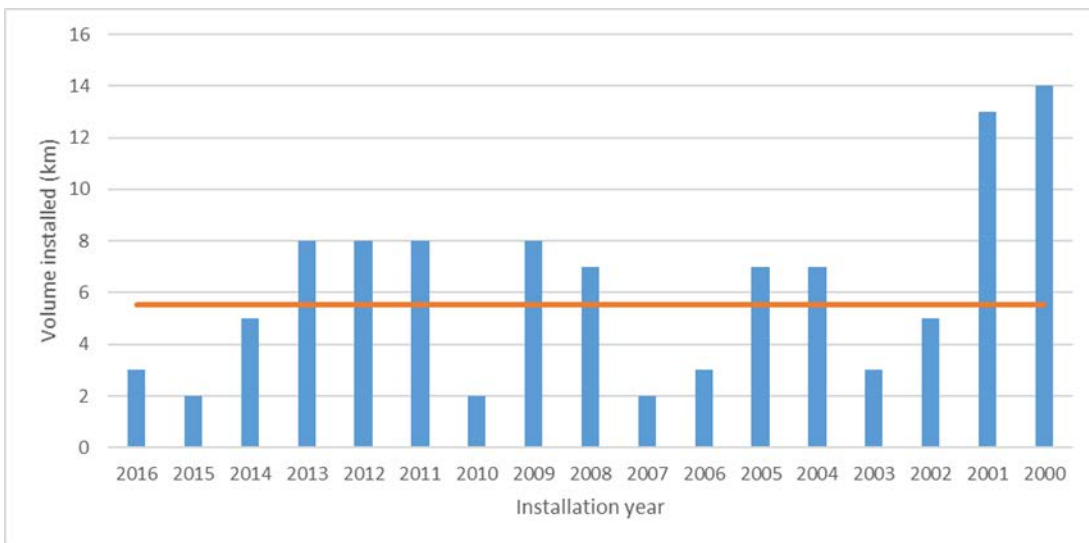


Figure 1: Historical Installation Volumes (km)

This asset will be a shared asset. Only the part of the asset value that is used for the distribution network can be rolled into the Regulated Asset Base (RAB). This is estimated to be 4.2% to 5.5% based on historical allocation of fibre cores.



### 3.1 Project Needs

#### a. Safety

The SCADA and Communications Network is critical to ensure the safe operation of the electrical network. A functioning and reliable SCADA and Communications network is required for operators at System Control to:

- Monitor the state of the electrical network at all times;
- Operate the electrical network in a timely and efficient manner without the need to send a technician to site;
- React to electrical network events to ensure the network remains in a safe configuration; and
- Isolate the electrical network to allow maintenance.

The SCADA and Communications Networks also provide tele-protection to provide improved safety to the public and minimise potential damage to the electrical assets by clearing electrical faults as quickly as possible.

#### b. Compliance

The Power Networks Technical Code and Planning Criteria require Power Water Corporation to maintain a communications network for monitoring and control of the electricity network. PWC is also required by the Technical Code to provide a communications network between any Users connected to the network and System Control.

#### c. Reliability

The SCADA and Communications network is critical to ensure the reliable operation of the electrical network. It is required for operators at System Control to:

- Monitor the state of the electrical network at all times;
- Operate the electrical network in a timely and efficient manner without the need to send a technician to site;
- React to electrical network events to ensure the network remains in a safe configuration; and
- Switch the electrical network to restore supply.

## 4 Potential Solutions

Since this is an existing contractual arrangement, there are no alternative options until 1 July 2020. It is expected PWC will renegotiate suitable terms and continue to lease Fibre Optic Cable to Optus.

### Option 1 – Fulfil Contractual Obligations

Install the cable as required by Optus until 2020 under the existing contractual terms and thereafter under the new contractual arrangements.



PWC is expecting an ongoing investment by Optus of [REDACTED] during the next regulatory control period, at a total cost of \$2.7M in FY18 dollars.

PWC has received significant benefits from its contract with Optus. PWC has recovered all its capital costs, routine maintenance costs and received a [REDACTED]. In addition, the Optus Fibre Network has been used to develop the PN SCADA and Communications Network which provides communications services for protection, SCADA and other operational communications requirements.

**Option 2 - Non-Network Alternatives**

Due to the type and function of these assets, there are no non-network alternatives or solutions that can be implemented in place of installing this asset.

**4.1 Capex/Opex Substitution**

Capex/Opex substitution is not a viable solution for this project.

**4.2 Contingent Project**

This project does not qualify as a contingent project as defined by the NER Clause 6.6A.1. Although the expenditure is contingent on Optus initiating the cable installation, the project cost does not exceed \$30 million or 5% of the forecast capital budget forecast.

**5 Strategic Alignment**

This program aligns with the Asset Objectives defined in the Strategic Asset Management Plan (SAMP) and Asset (Class) Management Plans (AMP). The capital investment into the SCADA and Communications infrastructure outlined in this program will contribute to the Corporation achieving the goals defined in the Board’s Strategic Directions and SCI Key Result Areas of Health and Safety and Operational Performance.

**6 Timing Constraints**

There are no timing constraints for the project outside of requirements of the commercial arrangement with Optus.

**7 Expected Benefits**

As far as the project provides capacity to PWCs SCADA and Communications network, this project provides benefits to the network as listed in the table below.

Driver	Benefit	Measure
Growth / Demand		



Driver	Benefit	Measure
Asset Renewal		
Compliance		
Service Improvement		
Commercial / Efficiency	Commercial return on investment	Actual ROI
Social / Environmental		

## 8 Milestones (mm/yyyy)

1. Investment Planning	2. Project Development	3. Project Commitment	4. Project Delivery	5. Review
01/2018	NA	01/2019	06/2024	09/2024

The program delivery is scheduled to run over 5 years from July 2019 to June 2024. A program review will be held at the end of the 5 year program as well as interim reviews at the end of each Financial Year.

## 9 Key Stakeholders

Stakeholder	Responsibility
Internal governance stakeholders	Executive General Manager Power Networks
	Group Manager Service Delivery
	Chief Engineer
	Senior Manager Asset Management
Internal Design Stakeholders	Manager Protection
	Manager Test & Protection Services
	General Manager System Control
	Manager SCADA and Communication Services
External – Unions and public	ETU
External regulators	Utilities Commission





Stakeholder	Responsibility
	Australian Energy Regulator

## 10 Resourcing Requirements (to next gateway)

Not applicable. Resourcing requirements for this program are considered Business as Usual and will be incorporated into the development of Category C Business Case’s for each individual replacement.

## 11 Delivery Risk

The scope of work in the past has utilised external resources for service delivery. The approach for next regulatory period is to continue to outsource the work to ensure the planned program of works will be implemented.

## 12 Financial Impacts

### 12.1 Expenditure Forecasting Method

This forecast is based on the average historical expenditure for this contract from FY03 to FY17.

As this project is dependent on Optus to initiate the work, PWC considers the historical volumes and costs to provide a reasonable forecast for the next regulatory period.

PWC notes that the current contract with Optus will end during the first year of the next regulatory period. However, Optus has already approached PWC to start negotiations to extend the contract. The negotiations are expected to commence in November 2017 and the outcomes are expected to be known within 12 months.

### 12.2 Historical and Forecast Expenditure

The forecast expenditure is based on historical average installation volumes and average annual expenditure. Since the first three years of the contractual arrangement (2000 to 2002) has significantly higher volumes and expenditure, these have been excluded from the unit rate forecast to better reflect more recent data.

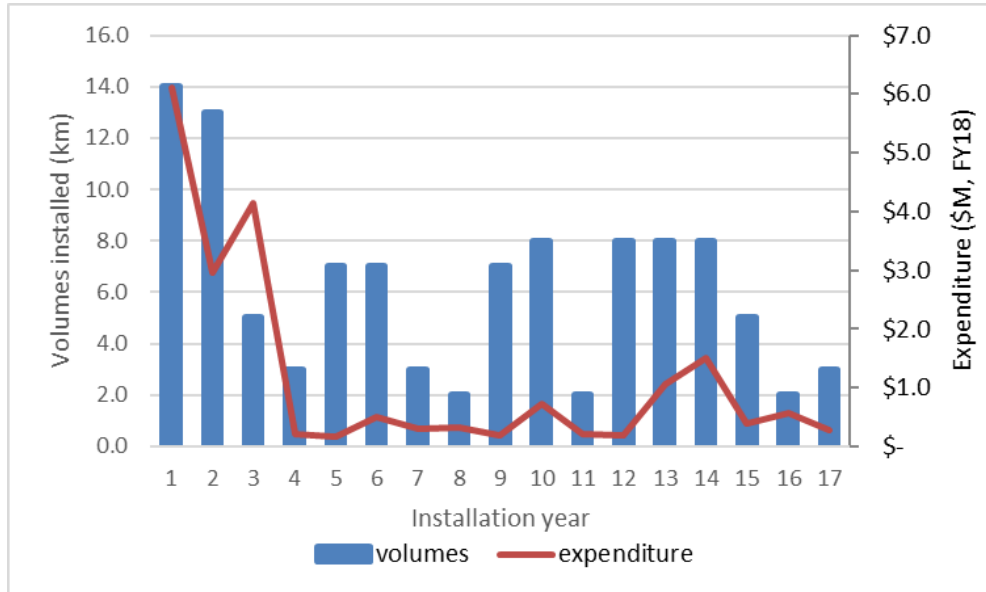


Figure 2: Historical volumes and expenditure

### 12.3 Validation

Trend analysis has been used to forecast the expected volumes and unit rate using actual historical data. Since the fibre optic cable is buried, unit rates vary depending on the ground conditions (ie, the higher the rock content, the higher the cost to install).

Using an average over a long period of time provides a suitable value estimate of the cost.

### 12.4 Opex Implications

There are no Opex step changes associated with the asset.

### 12.5 Variance

The forecast for this program of work extends beyond the current SCI period. The first two years of this program aligns with the last two years of the 2017-18 SCI.



### 12.6 Capex Profile

Table 2

Year	2019-20 (\$'000)	2020-21 (\$'000)	2021-22 (\$'000)	2022-23 (\$'000)	2023-24 (\$'000)	Balance (\$'000)	Total (\$'000)
Investment Planning							
Project Development							
Project Commitment							
Project Delivery	530	530	530	530	530		<b>2,650</b>
Review							
<b>Total</b>	<b>530</b>	<b>530</b>	<b>530</b>	<b>530</b>	<b>530</b>		<b>2,650</b>



## Appendix A

### 1. Forecast Expenditure by Expenditure Category

This information is to allow the forecast to be escalated.

The expenditure is to be in today's dollars.

RAB Category	Regulatory Year (A\$M, \$2017-18, Jul to Jun years)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Total	0.53	0.53	0.53	0.53	0.53
Labour	\$0.005	\$0.005	\$0.005	\$0.005	\$0.005
Materials	\$0.525	\$0.525	\$0.525	\$0.525	\$0.525
Contractors					
Other					

#### Definitions

Labour – The cost of direct internal Labour for the project. No overheads.

Materials – the cost of materials used in the project. No overheads.

Contractors – the cost of work performed by Contractors in the project, whether Labour or Materials. No overheads.

Other – expenditure that is not Labour, Materials or Contractors. No overheads.

### 2. Forecast Expenditure by RAB Category

Provide the forecast expenditure for this project / or program, in total and broken down by RAB category, by year for the regulatory control period.

This information is to enable regulatory modelling.

The forecast is to be in today's dollars (\$2017-18).

RAB Category	Regulatory Year (A\$M, \$2017-18, Jul to Jun years)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Total	0.53	0.53	0.53	0.53	0.53



RAB Category	Regulatory Year (A\$M, \$2017-18, Jul to Jun years)				
	2019-20	2020-21	2021-22	2022-23	2023-24
System Capex					
Substations					
Distribution Lines					
Transmission Lines					
LV Services					
Distribution Substations					
Distribution Switchgear					
Protection					
SCADA					
Communications	<b>0.53</b>	<b>0.53</b>	<b>0.53</b>	<b>0.53</b>	<b>0.53</b>
Non-system Capex					
Land and Easements					
Property					
IT and Communications					
Motor Vehicles					
Plant and Equipment					

### 3. Forecast Expenditure by CA RIN Category

This information is to allow the forecast to be escalated.

The expenditure is to be in today’s dollars.

RAB Category	Regulatory Year (A\$M, \$2017-18, Jul to Jun years)				
	2019-20	2020-21	2021-22	2022-23	2023-24
<b>Total</b>					
<b>Repex</b>					



RAB Category	Regulatory Year (A\$M, \$2017-18, Jul to Jun years)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Augex					
Connections					
Non-network: IT					
Non-network: Vehicles					
Non-network: Buildings and property					
Non-network SCADA & network control	0.53	0.53	0.53	0.53	0.53
Non-network: Other					

#### 4. Forecast Asset Disposals by RAB Category

Provide the forecast asset disposals for this project / or program, in total and broken down by RAB category, by year for the regulatory control period.

This information is to enable regulatory modelling.

The forecast is to be in today’s dollars (\$2017-18).

RAB Category	Regulatory Year (A\$M, \$2017-18, Jul to Jun years)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Total					
<b>System Capex</b>					
Substations					
Distribution Lines					
Transmission Lines					
LV Services					
Distribution Substations					



RAB Category	Regulatory Year (A\$M, \$2017-18, Jul to Jun years)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Distribution Switchgear					
Protection					
SCADA					
Communications					
<b>Non-system Capex</b>					
Land and Easements					
Property					
IT and Communications					
Motor Vehicles					
Plant and Equipment					

### 5. Forecast Capital Contributions by RAB Category (if required)

Provide the forecast capital contributions for this project / or program, in total and broken down by RAB category, by year for the regulatory control period.

This information is to enable regulatory modelling.

The forecast is to be in today’s dollars (\$2017-18).

RAB Category	Regulatory Year (A\$M, \$2017-18, Jul to Jun years)				
	2019-20	2020-21	2021-22	2022-23	2023-24
<b>Total</b>	<b>0.53</b>	<b>0.53</b>	<b>0.53</b>	<b>0.53</b>	<b>0.53</b>
<b>System Capex</b>					
Substations					
Distribution Lines					
Transmission Lines					
LV Services					
Distribution Substations					
Distribution Switchgear					
Protection					
SCADA					
Communications	0.53	0.53	0.53	0.53	0.53
<b>Non-system Capex</b>					
Land and Easements					
Property					
IT and Communications					
Motor Vehicles					
Plant and Equipment					