Options Evaluation Report (OER)

Data and Decisioning – 1.0

TransGrid

Approvals

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Change history

Revision	Date	Amendment
0.1	18 June 2021	Moved content over to new template from draft version and updated risk information from team.
0.2	5 July 2021	First content re-draft
0.6	28 Sept 2021	Updated Template and reworked options
0.12	12 Oct 2021	Updated with copywriter
0.14	18 Oct 2021	Minor updates
1.0	15 Nov 2021	Latest version update for November submission

Executive summary

Sustained, Quantified & Insightful

This Options Evaluation Report (OER) sets out our proposed approach to changing our data governance to comply with the current draft of the Critical Infrastructure Bill 2020 (CI Bill), including replacing our legacy data warehouse (ORA).

In the current regulatory period, we have already invested in security controls and capabilities to meet our existing obligations and manage the changing cyber threat landscape. The draft CI Bill requires us to comply with an enhanced regulatory framework, including how we manage the traceability, collection, storage, access and quality of critical data. To this end, we propose introducing a new data governance and management approach to comply with the requirements of the proposed CI Bill.

This will involve replacing [redacted]

This OER considers two options to achieve compliance with the draft CI Bill:

> A Base Case where we introduce a new data governance approach to meet the requirements in the CI Bill and replace [redacted] with a minimum viable product to meet our current and future business needs.

> Option 1 where we build on the Base Case by further enhancing the organisational availability of data by onboarding a much larger data set, so additional insights can unlock increased performance. This option also looks to employ additional technology that can automate and build proactive data models to drive increased business performance.

	Base Case	Option 1	Rationale for investment
Enterprise reporting platform/data warehouse	Replace legacy systems with a minimum viable product	Base Case + additional investment to onboard a larger data set and additional technology to automate and build proactive data models to improve decision making	Current system limitations prevent us from complying with the proposed CI Bill.
Data Governance & Management	Implement a formal framework and management practice supporting adherence to regulatory requirements, including compliance with the CI Bill.	Same as Base Case	[redacted] The framework needs to be defined to improve data classification and management, identify compliance risks and conform to data protection laws..

We recommend proceeding with the Base Case to ensure continued data quality post transition to the new ERP. The Base Case has the advantages of giving us the strong governance and data quality required to comply with the proposed CI Bill and delivering the highest NPV.

The following options are assessed in this OER.

Option	Description	Direct capital cost ($M)	Network and corporate overheads ($M)	Total Capital cost ($M)	Net Present Value (NPV) ($M)	Overall Rank
Base Case	**Minimum Viable Product to meet CI Bill**	[redacted]	[redacted]	$6.0	N/A	1
Option 1	**Enhanced reporting capability**	[redacted]	[redacted]	$16.283	-$6.695	2

The proposed capital expenditure for the preferred option, the Base Case, is summarised below

IT Capex $M	FY24	FY25	FY26	FY27	FY28	TOTAL
Recurrent costs	$1.32	$1.134	$0.546	$0	$0	$3.0
Non-recurrent costs	$1.32	$1.134	$0.546	$0	$0	$3.0
TOTAL	***$2.64***	***$2.268***	***$1.092***	***$0***	***$0***	***$6.0***

The numbers in this OER represent the total cost of ownership for an asset consistent with past submissions. There has been a change in accounting practices associated with IFRS[1] that has come in place. The proposed capital expenditure for preferred option in this OER shown with IFRS impact is below

IT Capex $M	FY24	FY25	FY26	FY27	FY28	TOTAL
Recurrent costs	$1.32	$1.134	$0.546	$0	$0	$3.0
Non-recurrent costs	$1.32	$1.134	$0.546	$0	$0	$3.0
TOTAL	***$2.64***	***$2.268***	***$1.092***	***$0***	***$0***	***$6.0***

There are no IFRS impacts to the data solution planned in this OER. However, in future when solutions are available, this may change depending on product roadmaps or new technologies.

[1] International Financial Reporting Standards Foundation (IFRS Foundation) ruling means that in the 2023-28 period we will expense costs for configuration or customisation in cloud computing arrangements, whereas in the 2018-23 regulatory period these costs were treated as capex.

1. Context

1.1 Background

1.1.1 Why is this important?

The Australian Government is committed to protecting the essential services that all Australians rely on. The Government considers the threat of a cyber-attack on Australia's critical infrastructure to be "immediate", "realistic" and "credible", with the potential to take down the nation's electricity network at immense impost to society and economy.

The Department of Home Affairs is progressing the need for tighter cyber security in national assets through the Security Legislation Amendment (Critical Infrastructure) Bill 2020 (Cth) (CI Bill) and Systems of National Significance reform. The reform embeds preparation, prevention and mitigation activities into the business-as-usual operating of critical Australian assets, including those operated and maintained by us.

To comply with the requirements in the proposed CI Bill, we will need to introduce a new data governance and management approach and replace our current enterprise reporting platform (CARD) and data warehouse (ORA).

1.2 The Critical Infrastructure Bill

1.2.1 Background of the bill

In response to cyber security and critical infrastructure concerns, the Federal Government passed the Security of Critical Infrastructure Act 2018 (CI Act), which introduced obligations in the electricity, gas, water and ports sectors to ensure the physical and electronic security of Australia's critical infrastructure.

The Government is presently tabling a proposed Bill amendment to introduce an enhanced regulatory framework that increases the security and resilience requirements of Australia's critical infrastructure. This builds on work completed by AEMO.

1.2.2 Requirements under the CI Bill and need for new data governance approach

When enacted, the CI Bill 2020 will require us, as the operator of critical transmission infrastructure, to:

- Meet sector-specific requirements for the electricity sector and telecommunications sector
- Implement an all-hazards critical infrastructure risk management program addressing natural and human induced risks
- Report cyber security incidents to the Australian Signals Directorate
- Continue reporting ownership and operational information (including outsourcing and off-shoring) in the Department of Home Affairs' Register of Critical Infrastructure Assets
- Undertake prescribed cybersecurity activities anticipated for Systems of National Significance, including:
  - Incident response plans
  - Cyber security exercises
  - Vulnerability assessments
  - Access to system information

Meeting these additional obligations requires a new approach to data governance, security, access and use. For example, to comply with the prescribed 'access to system information' activities we need new capabilities, including how we: categorise which data is confidential and who should have access to it; and trace who has access to different data systems. Our current data governance system lacks these and other essential data compliance capabilities.

1.2.3 The need to replace existing systems

[redacted]

The draft CI Bill requires us to be more proactive in how we undertake vulnerability and risk assessments, including on our information systems. Achieving the requirements in the draft CI Bill will require us to introduce automated

tools that can check and correct for vulnerabilities, such as checking if confidential data has accidentally been categorised as non-sensitive data.

[redacted]

We have concluded that we need to replace [redacted]. Replacing [redacted] with modern solutions would be more cost efficient than upgrading them and provide us with the additional functionality we need to deliver our forward work program and improve future operations by improving decision making through better information.

1.3 Risk Drivers

This program aims to address the following risk:

- **Worker Health & Safety:** The ability to use data to communicate, co-ordinate and plan our transmission works, resources and customer contacts is essential to provide a safe workplace and safely perform maintenance activities.
- **Reputation:** A data incident due to outdated technology – or even the publicity associated with failing to comply with the CI Bill – will compromise our reputation with stakeholders and customers.
- **Compliance:** Manual effort is required to collate data from disparate sources. With insufficient data governance or awareness of data flows, accuracy in regulatory reporting may be compromised. Without the necessary reporting tools, delays in regulatory reporting may occur, leading to compliance issues. This risk is rated as 'Medium' due to its short- to medium-term nature and the manual work-arounds available.
- **Reliability**: Without due consideration to data flows within the organisation and designated sources of truth for specific data sets, there is a risk of duplication and system redundancy.
- **Finance:** Insufficient governance and poor data management practices may result in legal and regulatory fines arising from a data incident, breach of obligations, or poorly informed financial decisions.
- **People/IR:** Currently, teams are using manual work arounds to enable us to continue to meet our regulatory and reporting requirements. As time passes, without a working data solution, more and more people will be required to maintain compliance using laborious, manual methods.
- **Environment:** N/A

[redacted]

2. Related Needs/Opportunities

Related ICT Programs/OERs. This table describes why this Data and Decisioning OER is important to the other OERs.

ICT Programs/OERs	Importance to other OERs*	Relationship commentary
Cyber Security	High - Functional	The Enterprise Data Model in this OER will allow us to define our data and set security classifications against it. It will also inform both the Business Continuity Plan and Disaster Recovery plan, increasing our resilience and ability to respond to potential cyber events, particularly in relation to our obligations in light of the CI Bill.
Customer Safety & Support	Medium - Benefits	This OER supports the objectives of the Customer Safety and Support OER. Sharing data about outages and to issue warnings regarding bushfires requires a deep understanding of the source of truth for key data sets and the key connections between them.
Employee Enablement	Medium - Benefits	The upgrade of SharePoint in the Employee Enablement OER will be based upon the framework defined in this OER.
Infra. & Network	Medium - Scope	Our data architecture and the use cases for the production and consumption of data influence and inform the design of our infrastructure and network and the footprint of the infrastructure in our data centres.
Operational Evolution	Medium - Benefits	The Operational Efficiency OER is predicated on extending core systems and driving value from existing technologies. The Operational Evolution OER depends this OER to implement the proposed option in accordance with the proposed budget.
Application Maintenance / Bespoke	Medium – Benefits/Scope	The Application Maintenance OER will use the governance data management frameworks proposed in our options in the management of Bespoke applications. This Data OER and its implementation will have a direct correlation with the cost to refresh our applications and transfer data.

* KEY
High – the OER is essential from a functional or compliance perspective to another OER
Medium –the OER is required to fully realise the benefits of another OER or would result in a change in scope
Low – the OER is has a low level of dependency to another OER

3. Options

3.1 Base Case – Minimal Viable Product to meet CI Bill

This option introduces a new data governance approach to meet the requirements in the CI Bill and replaces [redacted] with a minimum viable product to meet our current and future business needs.

This option will perform the following as a recurrent capital spend initiative:

Begin data management and categorisation. We propose building an enterprise data model that defines how data is produced and consumed across the business to help us comply with the draft CI Bill. By gaining an overarching view of the data available and the connections between data sets, we can work towards removing data silos and data redundancies and begin to enhance data quality, [redacted].

Implementing a data governance framework will also uplift our data management and reporting capability and improve governance. Data governance will be supported by data foundation capabilities around data quality management, Metadata management and data risk management. These are essential criteria for us to meet the proposed CI bill requirements around security classification, supporting the identity management solution proposed in our Cyber Security OER, access, archiving, privacy and consumption.

Finalise build of modernised data warehouse – We propose refreshing our current data warehouse platform [redacted] The new data warehouse will include some automation of business rules and logic for use across the business and store the data in a business friendly, readily accessible format for self-service enterprise reporting and analytics.

The resulting improved reporting and analytics capability to facilitate data-driven decision making and regulatory and compliance reporting is the key driver of this option. We will also be able to better serve customers by keeping them information about network projects or issues, such as outages, that affect them in close to real time.

Decommission legacy reporting service. [redacted]

On-board and integrate additional reporting sources to improve central accessibility. We will tap into other IT projects to deliver additional data sources onto the platform. These additional data sources will support numerous additional use cases, helping to improve broader business unit reporting and encouraging intra departmental reporting, underpinning an enterprise level view of information from the business.

Extend access to accommodate asset growth and improved asset performance in energy transition. We are embarking on a large program of works in the coming years as we lead the transition to a clean energy future. New assets bring with them an influx of data. Our proposed capabilities mean we will be able to use this information to analyse and manage our assets more efficiently and use data to maximise performance, maintenance and flow of energy to consumers.

3.1.1 Financial summary

The total IT capital expenditure for the Option 1 is estimated to be **$6.0M** to commence in FY24 shown below:

IT Capex $M	FY24	FY25	FY26	FY27	FY28	TOTAL
Recurrent costs	$1.32	$1.134	$0.546	$0	$0	$3.0
Non-recurrent costs	$1.32	$1.134	$0.546	$0	$0	$3.0
TOTAL	***$2.64***	***$2.268***	***$1.092***	***$0***	***$0***	***$6.0***

The nature of these costs is such that the neither the timing, nor the specific activities can be accurately planned this far out from the period. As such, the total expenditure for this Option has been estimated on a best effort basis.

3.1.2 Quantifiable benefits

N/A for Base Case.

3.1.3 Non-quantifiable benefits

The Base Case will:

- Recover accessibility of existing datasets, increasing reporting standardisation
- Deliver an Enterprise Data Model combined with effective data governance so data becomes a business asset
- Improve our ability to implement and maintain interoperable solutions that may allow us to simplify our application landscape
- Improve information management access provided to the broader organisation, driving improved data literacy and data quality
- Improve accessibility of superior toolsets increasing the potential for greater data utilisation
- Allow us to readily source fully traceable and documented evidence to respond to regulatory information requests
- Support compliance with regulatory reporting obligations
- Significantly reduce risk over the current state

3.1.3.1 Net Present Value (NPV)

N/A

3.1.4 Risk Assessment

The specific risks and mitigations associated with the Base Case are:

Category	Risk	Inherent Risk	Mitigation	Residual Risk
Reliability	Manual merging of data from disparate locations result in imprudent business decisions	MEDIUM	Additional scope is available to onboard new data sources into the Data Warehouse, removing the need to manually handle these requests.	LOW

Under the Base Case, the inherent risk associated with this approach is illustrated in the table below:

	WHS	Reputation	Compliance	Reliability	Finance	People/IR	Environment	Risk
Likelihood	Unlikely	Unlikely	Unlikely	Possibly	Unlikely	Unlikely	Unlikely	LOW
Consequence	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	
Risk Level	LOW	LOW	LOW	LOW	LOW	LOW	LOW	

3.2 Option 1 – Enhanced reporting capability

This builds on the Base Case to enhance data availability throughout the organisation by onboarding a much larger set of data, delivering organisational insights to areas that currently lack visibility. For example, performance could be improved by gaining greater visibility of transmission lines, substations and electrical network equipment. Similarly, visibility of asset status improves the efficiency of maintenance scheduling.

This option will also:

- Onboard additional reporting sources via integration for improved central accessibility
- Extend knowledge access across the broader organisation
- Improve compliance and financial efficiency
- Improve data quality and governance
- Extend data access to improve asset performance to support the energy transition
- Improve data quality and governance with additional data analysis.

3.2.1 Financial summary

The total IT capital expenditure for the Option 1 is estimated to be **$16.283M** to commence in FY24 shown below:

IT Capex $M	FY24	FY25	FY26	FY27	FY28	TOTAL
Recurrent costs	$2.532	$1.477	$0	$0	$0	$4.009
Non-recurrent costs	$0.848	$2.193	$3.137	$3.048	$3.048	$12.247
TOTAL	***$3.380***	***$3.670***	***$3.137***	***$3.048***	***$3.048***	***$16.283***

The nature of these costs is such that the neither the timing, nor the specific activities can be accurately planned this far out from the period. As such, the total expenditure for this Option has been estimated on a best effort basis.

3.2.2 Quantifiable benefits

No quantifiable benefits over and above the Base Case.

3.2.3 Non-quantifiable benefits

In addition to those benefits identified in the Base Case, Option 1 will also:

- Improve insights and analytics over the Base Case due to the increased amount of data captured and processed.

3.2.3.1 Significant risk reduction over current state Net Present Value (NPV)

The overall five-year NPV of this option is -$6.695M compared with the Base Case.

3.2.4 Risk Assessment

The specific risks and mitigations associated with Option 1 are:

Category	Risk	Inherent Risk	Mitigation	Residual Risk
Reliability	Manual merging of data from disparate locations result in imprudent business decisions	MEDIUM	Additional scope is available to onboard new data sources into the Data Warehouse, removing the need to manually handle these requests.	LOW

Under the Option 1, the inherent risk associated with this approach is illustrated in the table below:

	WHS	Reputation	Compliance	Reliability	Finance	People/IR	Environment	Risk
Likelihood	Unlikely	Unlikely	Unlikely	Possibly	Unlikely	Unlikely	Unlikely	LOW

	WHS	Reputation	Compliance	Reliability	Finance	People/IR	Environment	Risk
Consequence	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	
Risk Level	LOW	LOW	LOW	LOW	LOW	LOW	LOW	

3.3 Options considered and not progressed

Option	Reason for not progressing
Do Nothing Option	This option involves no continued investment in our existing data capabilities [redacted] Do nothing is not an options [redacted] This option is not feasible and will get progressively worse and time passes, both in cost and risks. It is recommended that this option not be taken forward to the OER stage of review and solution
[redacted]	[redacted]

4. Evaluation

The preferred option, based on the evaluation detailed below is Option 1

4.1 Commercial Evaluation

The commercial evaluation of the options is set out in the table below.

Option	Description	Capex ($M)	Opex ($M)	Benefits ($M/p.a)	NPV ($M)	Rank
Base Case	Minimum Viable Product to meet CI Bill	$6.0	[redacted]	N/A	$N/A	1
Option 1	Enhanced reporting capability	$14.230	[redacted]	N/A	-$6.695	2

The above commercial evaluation is based on:

> 4.8% discount

> A five-year asset life

Discount rate sensitivities based on TransGrid's current AER-determined pre-tax real regulatory WACC of 2.23% and 7.37% appear in the table below.

Option	Description	Discount rate at 2.23% NPV $M	Discount rate at 7.37% NPV $M
Base Case	Minimum Viable Product to meet CI Bill	N/A	N/A
Option 1	Enhanced reporting capability	-$7.296	-$6.163

4.2 Risk assessment

The relative risk assessments of each of the considered options is illustrated in the table below:

	WHS	Reputation	Compliance	Reliability	Finance	People/IR	Environment	Risk
Likelihood	Unlikely	Unlikely	Unlikely	Possibly	Unlikely	Unlikely	Unlikely	LOW
Consequence	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	
Risk Level	LOW	LOW	LOW	LOW	LOW	LOW	Low	

Both options maintain the same low risk profile; however, The Base case is the most prudent investment.

5. Preferred Option

This report recommends proceeding with the Base Case.

The tables below outline the investment, any potential step change in operating costs and the associated benefits of the preferred option.

5.1 Financial Summary of the Preferred Option

5.1.1 Estimated capital costs

The tables below outline the investment, any potential step change in operating costs and the associated benefits of the preferred option:

Category	Item	Budget ($M)
Material	[redacted]	[redacted]
Labour	[redacted]	[redacted]
***Direct Capex*:**		[redacted]
Network and Corporate Overheads:		[redacted]
Capex Total:		***$6.0***

5.1.2 Estimated Opex Step Change

Opex Step Change Year of Change	FY24	FY25	FY26	FY27	FY28	End Of Period
Platform and tools (self-funded)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

5.1.3 Benefits

Benefit	$M/p.a
Benefits Total:	N/A

*Please note benefit calculations may be refined when each of the projects are scoped in detail.