An evaluation of proponent environmental data under the EPBC Act

Final Project Report

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Copyright and disclaimer

Important disclaimer

Contributors and acknowledgement

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About this document

Purpose

This project report details and evaluation of proponent data generated under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the Australian Government Department of Environment and Energy (DoEE).

Audience

This document has been made publically available for use by a range of stakeholders interested in environmental data generated and used for environmental assessment and monitoring under the EPBC Act.

Executive Summary

This report presents an analysis of environmental data generated and potentially lodged with government, as part of the environmental impact assessment, approval and monitoring processes under the EPBC Act.

A review of the nature and volume of environmental data generated was undertaken through: a desktop review of documents lodged with DoEE for 20 selected referrals under the EPBC Act together with two detailed case studies (in NSW and WA); a workshop with Department of the Environment and Energy (DoEE) officers to explore perspectives on environmental data; and an analysis of processes, stakeholders and institutional arrangements that shape data generation under bilateral assessment arrangements in New South Wales, Queensland, Victoria and Western Australia.

The 20 cases reviewed comprised 522 lodged documents of which only 25% (125 documents comprising circa 10,000 pages) had any references to data (e.g. Tables or maps). From the references to data, the team estimated the existence of 416 data sets, with nearly half the (inferred) datasets generated at referral submission stage. Approximately 50% of inferred datasets related to fauna and 40% to flora. In all cases, threatened species and ecological communities was one of the matters of national environmental significance affected by the development proposal. In cases where data is used in reports, there is generally a lack of reference to the underlying data.

The workshop with DoEE officers provided interesting insights, including the fact that biodiversity data is valued, but is not necessarily of direct use value for officers assessing submissions. For these officers information products i.e. reports, that reference data is of primary use, with data of significant 'option' value (i.e. accessible if needed) to further interrogate, or assess submissions as well as for other uses.

The two detailed case studies, provided a richer picture of the type of data and the conditions under which it was generated. Contracts, and procurement arrangements for environmental surveys, are an important enabler and/or barrier to sharing data with government. Environmental data generated by proponents (or in many cases contracted environmental consultants), may be limited reuse value to them and data storage and management actually represents an increasing cost. However, this data is typically not shared with government, unless this is regulated (through for example conditions set in environmental survey licensing) and enforced by government. In some cases, dis-incentives for proponents to lodge data with government exist, as depositors may be required to pay for access to data lodged in government systems.

From the analysis of EPBC referral, assessment and monitoring in four states, it is evident that the processes are complex, with multiple agencies typically involved in (and leading) different aspects of environmental assessment depending on the nature of development activity and its impacts. The complexity of processes and institutional arrangements means that typically no single government officer has comprehensive understanding of the entire process, with effective interactions between organization and process steps being reliant on relationships between individuals. The flow of data into government systems is highly variable across states.

Based on the research undertaken in this project, several recommendations are made for short and longer term actions. In the shorter term it is recommended that the DoEE requires proponents to properly cite data used in reports. Several longer-term recommendations to improve the lodgement of data with government focus on regulation, standards and data rights in environmental survey procurement processes that could be tackled as part of review and refinement of bilateral assessments in conjunction with state agencies.

Introduction

In this section

Background and context

The Environmental Protection and Biodiversity Conservation (EPBC) Act enables the Australian Government to join with the states and territories in providing a national scheme of environment and heritage protection and biodiversity conservation. The EPBC Act focuses Australian Government interests on the protection of matters of national environmental significance, with the states and territories having responsibility for matters of state and local significance. The DoEE administers the EPBC Act.

Objectives of the EPBC Act include

- providing for the protection of the environment, especially matters of national environmental significance (MNES)
- conserving Australian biodiversity
- providing a streamlined national environmental assessment and approvals process
- enhancing the protection and management of important natural and cultural places
- controlling the international movement of plants and animals (wildlife), wildlife specimens and products made or derived from wildlife
- promoting ecologically sustainable development through the conservation and ecologically sustainable use of natural resources
- recognising the role of Indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity
- promoting the use of Indigenous peoples' knowledge of biodiversity with the involvement of, and in cooperation with, the owners of the knowledge.

About the EPBC Act

The EPBC Act 1999 is the key legislative tool for the protection of MNES of which there are nine:

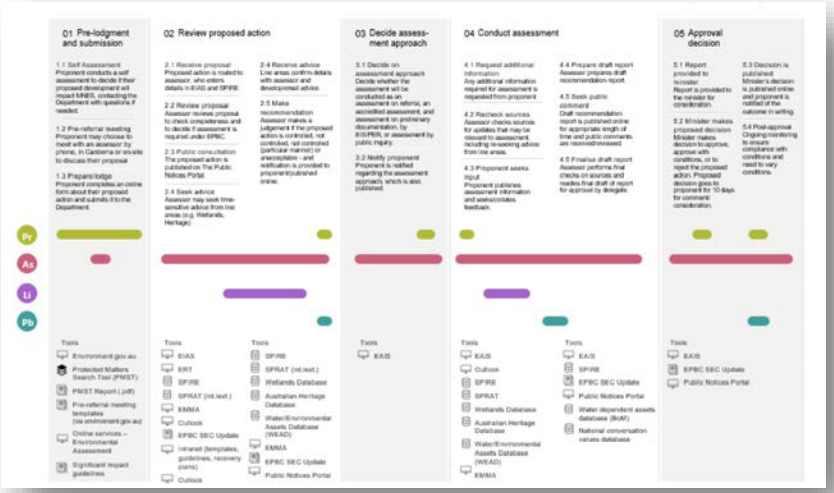
- World heritage properties
- National heritage places
- Wetlands of international importance
- Nationally threatened species of flora and fauna, and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- water resources, relating to coal seam gas and large coal mining developments

Development proposals that are likely to impact MNES must be referred to DoEE for environmental impact assessment and subsequent approval under the EPBC Act.

Matters of National Environmental Significance (MNES) and data

Previous research conducted by ThinkPlace for DoEE has identified the multiple points of the referral and assessment process at which data is potentially generated, collected or exchanged. The diagram below provides an overview of the multiple stages of the assessment process (further details can be obtained in the *MNES Information Experience Blueprint* 2017).

Through prior research and existing Departmental knowledge it has been identified that the value of proponent data has not been quantified or well described to date. Furthermore, the degree to which proponent data is captured by state/territory government is not yet well documented.



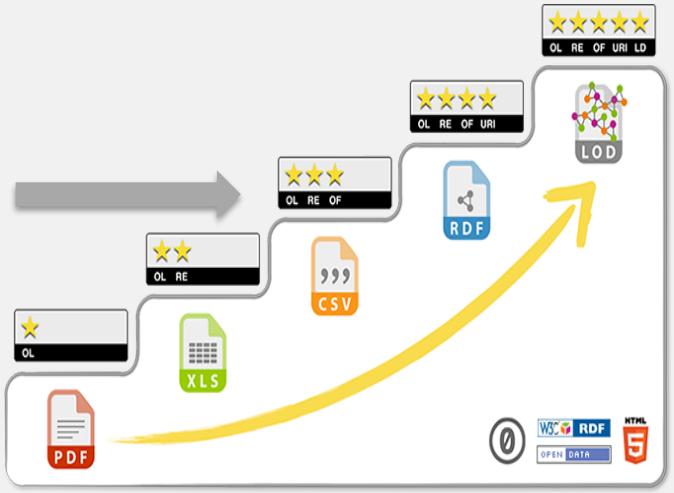
Documents lodged with DoEE as part of the referral, assessment and monitoring process are based on often significant volumes of data.

Encouraging discoverable, accessible and reusable environmental information is a key priority for DoEE and is part of a broader government move towards open data.

What do we mean by data?

Documents submitted to DoEE contain much information presented in text, tabular and map form. This information is based on potentially significant volumes of data collected as part of the environmental impact assessment (EIA) process.

However, data is usually difficult to extract from these documents – the data are 'trapped' in unstructured forms in non-machine readable documents (e.g. PDFs) and cannot be easily reused beyond its initial context. The 5-star Open Data Rating provides a useful conceptual framing describing increasing level of open and accessible data from web accessible documents to increasingly machine readable, structured, linked open data.



5 star - below, plus: Link your data to other people's data to provide context

4 star - below plus, use open standards from W3C (RDF and SPARQL) to identify things, so that people can point at your stuff

3 star - as (2) plus non-proprietary format (e.g. CSV instead of excel)

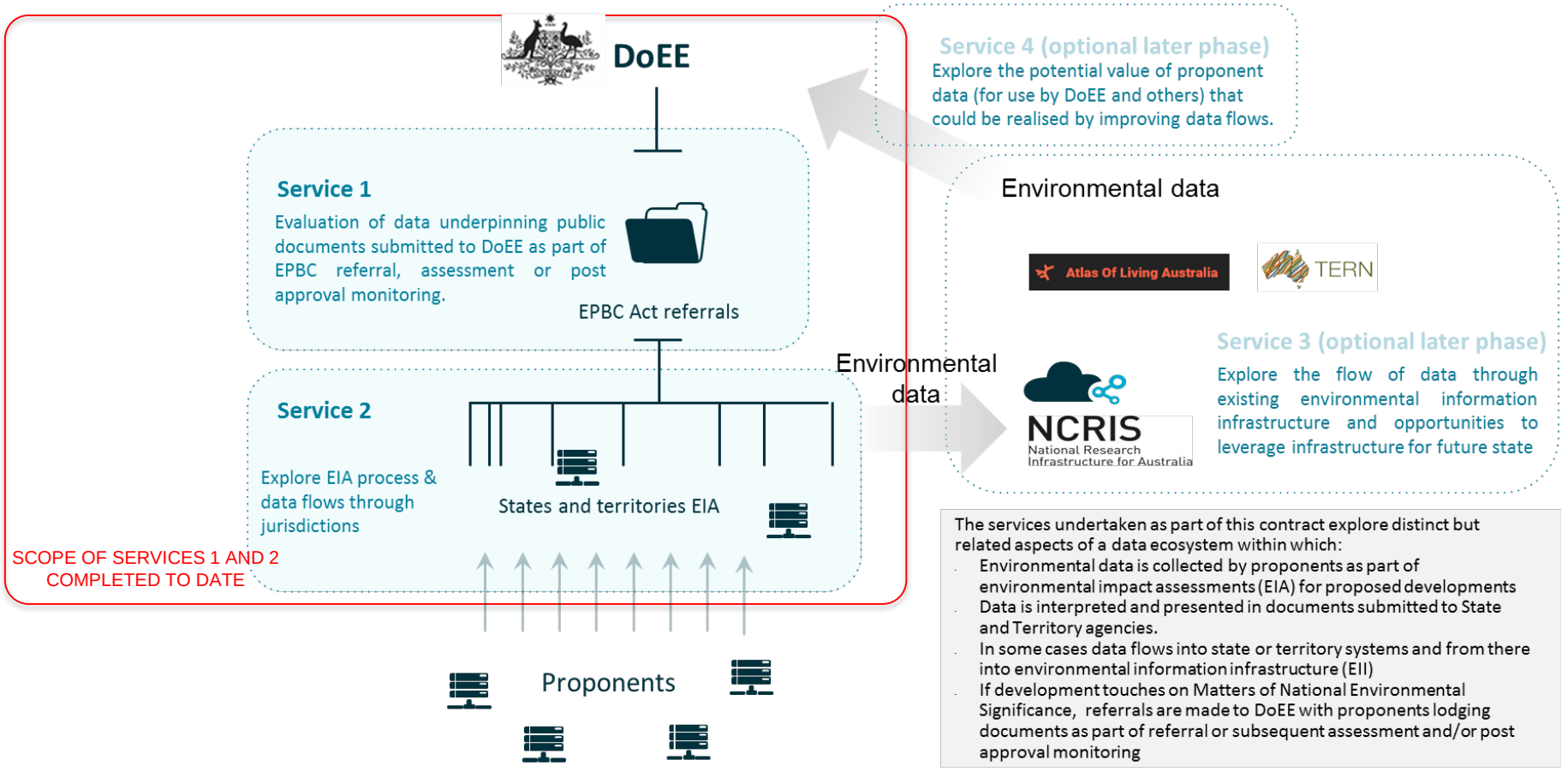
2 star - Available as machine-readable structured data (e.g. excel instead of image scan of a table)

1 star - Available on the web (any format, e.g. PDF or .docx)

In the context of this project, we used this rating system to clearly differentiate between documents (1 star) that may contain 'views' of environmental data that cannot be readily extracted and the machine readable, structured data (2 star and above) that is generated through the EIA and which could be integrated, and reused to realise value.

Project description

Services 1 and 2 of this project are focused on reviewing, analysing, synthesising and presenting findings about the nature, scope (and in a potential additional phase, the value) of data generated to support environmental impact assessment, approval and monitoring processes under the EPBC Act.



The services undertaken as part of this contract explore distinct but related aspects of a data ecosystem within which:

- Environmental data is collected by proponents as part of environmental impact assessments (EIA) for proposed developments
- Data is interpreted and presented in documents submitted to State and Territory agencies.
- In some cases data flows into state or territory systems and from there into environmental information infrastructure (EII)
- If development touches on Matters of National Environmental Significance, referrals are made to DoEE with proponents lodging documents as part of referral or subsequent assessment and/or post approval monitoring

Project Intent Statement for Services 1 and 2

Current state

Under the Environmental Protection and Biodiversity Conservation Act, individuals and organisations proposing developments in areas of high conservation value must seek assessment and approval from the Federal Minister for Environment.

Proponent applications are of varying quality with inconsistencies in information content. Proponents typically lodge documents (digitized representations of paper-based reports) that do not easily allow the extraction and reuse of data.

Each jurisdiction has a different EIA process and regulations, with varying requirements for the deposit of data collected by proponents collected for environmental impact assessments, prior to referral to the DoEE. This data may be captured in jurisdictional systems, and some of these jurisdictional systems feed into national environmental information infrastructure such as ALA or TERN. However these flows are not well documented.

The DoEE's ability to effectively monitor and enforce outcomes is currently hampered by lack of access to proponent data. This data may also have significant value for other uses within and beyond the DoEE.

The change required

From	To
Document based files containing, views of underlying data and very few links to data are lodged with the DoEE	Lodgement and capture of data used to inform proponent submission reports, to enable use and re-use of this data
Lack of clarity around proponent data flows	Improved understanding of data flows from proponents into jurisdictional systems
Limited visibility and access to primary information which can inform initial Departmental assessment of proponent submissions, and support ongoing monitoring and evaluation of assessment conditions	Provision of proponent data to support informed Departmental assessment, monitoring and evaluation processes and other purposes
Navigation of multiple jurisdictional and Departmental assessment processes and systems	Harmonised approaches to capturing and sharing proponent data across heterogeneous jurisdictional environmental assessment processes

Future state

Access to proponent data

The DoEE anticipates that having reliable access to data used by proponents to develop their proposal reports will enable:

- well-informed assessment decisions and approval conditions to be made;
- Improved monitoring and enforcement of approval conditions, based on access to original proponent data
- sharing, exchange and reuse of data across a range of environmental decision making and policy areas within and beyond the Department

This project

Services 1 and 2 (this project) will improve understanding of the nature, of proponent data generated in relation to EPBC Act approval and compliance processes and the nature of proponent data flows data flows through jurisdictional EIA processes. The potential addition of services 3 and 4 would improve understanding of value of data and the nature of existing environmental information infrastructure that could be used to enable proponent data capture and sharing.

Enabling access to and use of proponent data for improved environmental outcomes

Drivers

- Accuracy and discrepancies in Departmental data management systems and processes expose the assessment process to heightened levels of risk
- Open Data - Australian Governments are committed to delivering open data with investments in improving the scope and quality of open data
- Regulatory reform Drivers in Regulatory Maturity Project Final Report, 2016.
- One stop - move towards a 'one project, one assessment decision' framework for environmental approvals (Major Project Development Assessment Processes. Productivity Commission Research Report 2013
- Improved efficiency- Removal of unnecessary duplication of science in assessments on threatened species (Inquiry into streamlining environmental regulation, 'green tape', and one stop shops)

Approach

Service 1 - proponent data assessment

1.1 Desktop review of identified cases will be undertaken:

i. A broad-brush review of 20 selected case studies to identify the nature and types of data underpinning documents lodged with DoEE

ii. Detailed analysis of 2 selected cases will be undertaken to research the nature and scope of data collected and used by proponents.

iii. Interviews with proponents, to explore referral and monitoring processes

1.2. Workshop – with DoEE to understand current processes and use of proponent data. Lines of enquiry will be developed from the desktop review.

Service 2 - Jurisdictional processes and data flows

2.1. Desktop review and documentation of jurisdictional processes

2.2. Workshop – with stakeholder from one jurisdiction to explore current processes and use of proponent data. Lines of enquiry will be developed from the desktop review.

Project aims

From the Intent Statement, six key aims guided our lines of enquiry

1. Improved understanding of the nature of proponent data and its flow through jurisdictional EIA and monitoring processes to DoEE under auspices of EPBC
2. Improved understanding of data flows from proponents into Commonwealth EIA and monitoring processes and information systems
3. Understanding of the type and value of data used to inform proponent submission reports, to enable potential future re-use of this data
4. Exploration of DoEE assessment, monitoring and evaluation processes and their requirements for proponent data and information
5. Identification of social and institutional enablers and constraints which inform the development, provision and exchange of proponent data and information
6. Exploration of sharing, exchange and reuse of data across a range of environmental decision making and policy areas within and beyond DoEE and jurisdictional counterparts

Project assumptions

Several assumptions about environmental data collected and submitted under the EPBC Act were tested throughout this project.

Data collected as part of referral assessment or post approval monitoring (under the EPBC Act) is of value.	
A (to be determined) proportion of new data generated under the auspices of the EPBC Act is not submitted to government.	Service 1
Views of the data in the form of 'information products' e.g. a maps or summary tables are provided in lodged documents.	
Submitted documents provide references to (citations of) data presented in the documents, that would enable users to find the data.	
Raw data may be provided to state/territory governments but in formats (e.g. PDF) that mean the transaction costs of usage is too high for it to be entered and stored in information systems.	Service 2

Project lines of enquiry

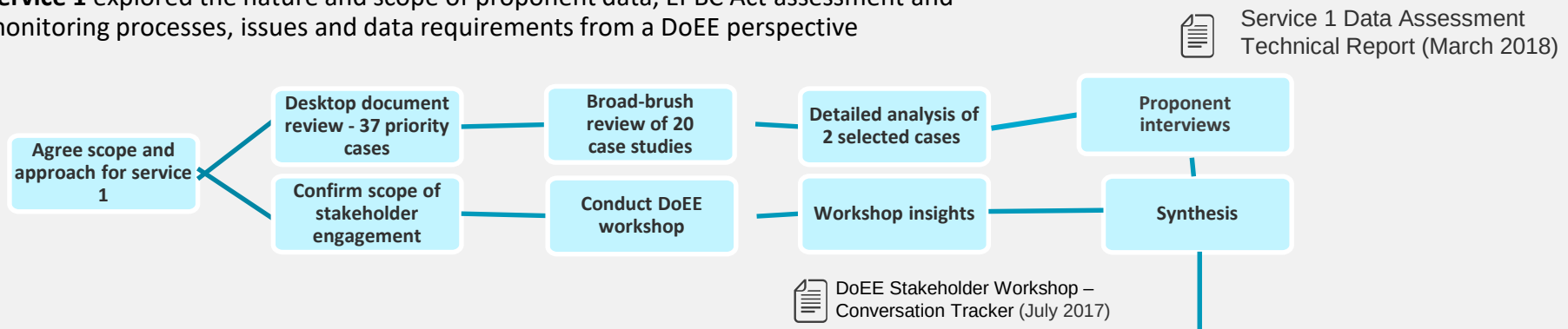
Taking the aims of the project, and considering what we needed to understand in more detail, a series of questions aimed at particular cohorts

Assumptions	The outcome we are seeking is…	We want to discover…	Questions	Cohort
Three key assumptions and descriptions which inform the outcomes we are seeking include: 1. Data has value (either direct or re-use) 2. Data flow is not currently optimised (either from proponent to jurisdiction and jurisdiction to commonwealth, or via other facilities) 3. Costs of ameliorating the system are less than the value of the data	**Understanding jurisdictional processes** Improved understanding of the nature of proponent data and the flow of this information through jurisdictional EIA processes	**How is proponent data captured by jurisdictions?**	• How are proponents capturing data and what legislative requirements inform this process? • In what format and when do proponents provide this information to the jurisdictions? • What systems are in place to capture the data and information?	Jurisdictions Proponents
	Understanding Commonwealth processes Improved understanding of data flows from proponents into Commonwealth EIA processes and information systems	**What proponent data is provided to DoEE?**	• How does data flow from the jurisdiction to DoEE? • What national institutional arrangements inform the provision of data?	Jurisdictions DoEE
	Types of value of data Understanding of the type and value of data used to inform proponent submission reports, to enable potential future use and re-use of this data	**What is the value of proponent data?**	• What types of data are collected, provided and captured by proponents? • What formats are the data captured in? • Who owns the data? • Who would like access to the data for purposes beyond EPBC requirements?	All
	Data requirements Exploration of Departmental assessment, monitoring and evaluation processes and their requirements for proponent data and information	**What types of information does DoEE need for the purposes of the EPBC Act?**	• Why do jurisdictions and DoEE need this data? • What systems are in place to capture proponent data? • What data is available as 5 star, what is available as 1 star? • What data is needed but not available? • What institutions impact on provision of information across DoEE and externally?	DoEE
	Institutional frameworks Identification of state and territory institutional supports and blockers which inform the development, provision and exchange of proponent data and information	**What does the institutional ecosystem look like?**	• What information must be provided to state and territory government departments/agencies?	Jurisdictions DoEE
	Data networks Exploration of sharing, exchange and reuse of data across a range of environmental decision making and policy areas within and beyond DoEE and jurisdictional counterparts	**What does the data ecosystem look like?**	• What systems capture proponent and jurisdictional data to provide to DoEE? • Are there external systems in place and what institutional practices inform their use? • What other data is available to supplement information provided by proponents?	Researchers Jurisdictions DoEE

Project workflow and deliverables

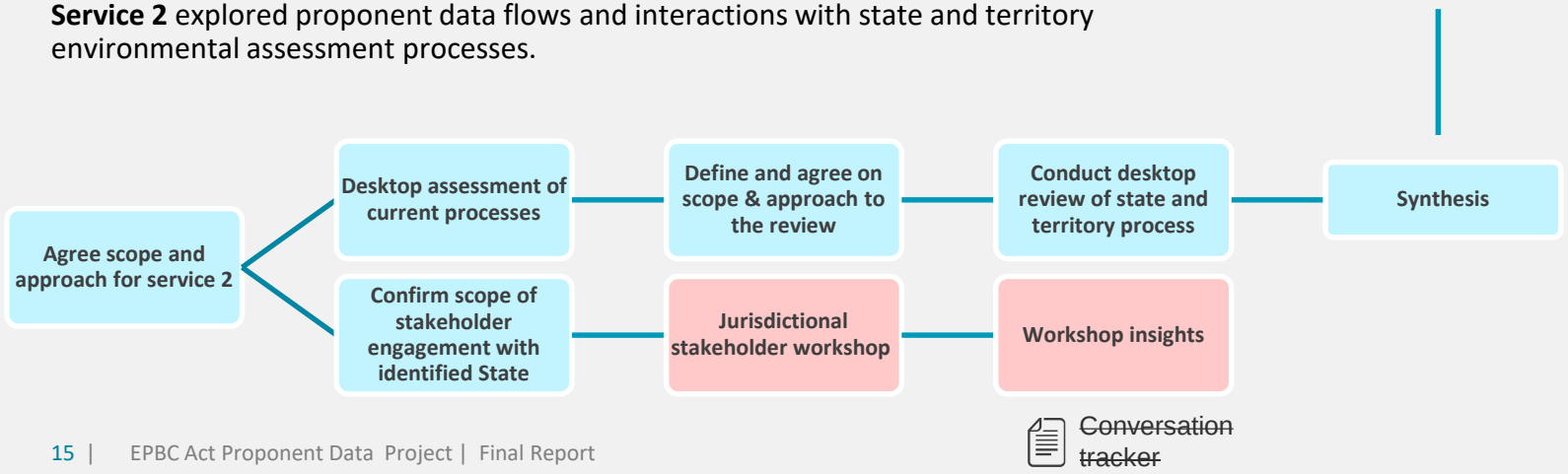
The project to date has been conducted as two discrete sequential streams of activity:

Service 1 explored the nature and scope of proponent data, EPBC Act assessment and monitoring processes, issues and data requirements from a DoEE perspective



Service 1 & 2 Combined Report
(this report)

Service 2 explored proponent data flows and interactions with state and territory environmental assessment processes.



Assessing data submitted to DoEE (Service 1)

In this section

Aims and objectives of service 1

Investigation steps

Scoping the assessment

Data assessment results

In-depth case study 1

In-depth case study 2

Service 1 workshop objectives

Workshop insights

Service 1 Insights

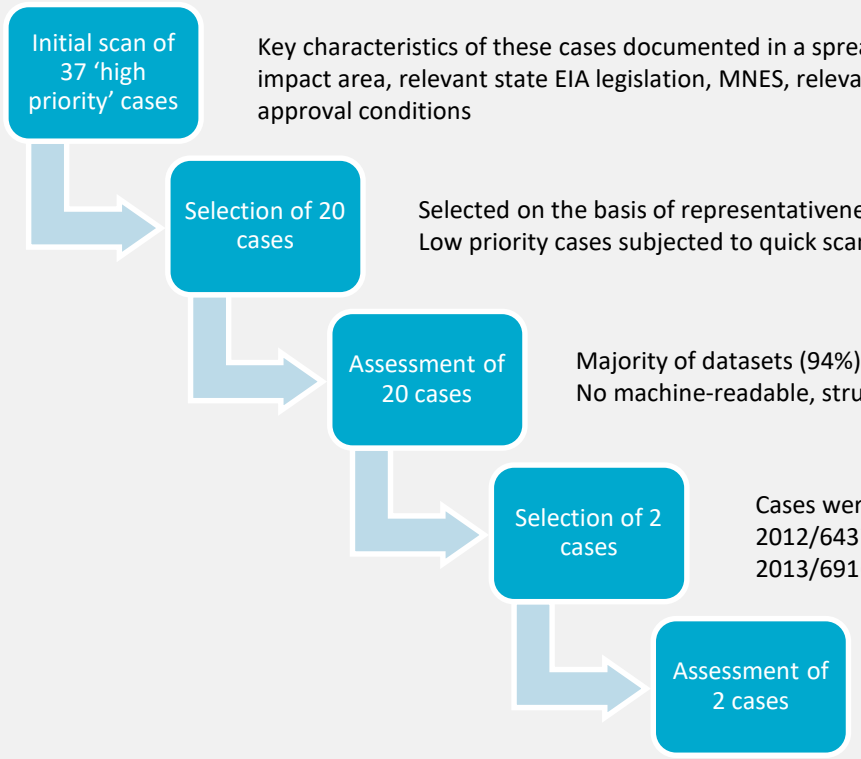
Aims and objectives of service 1

Within the wider scope of the project, Service 1 focused on an evaluation of data underpinning public documents submitted to DoEE as part of EPBC referral, assessment or post approval monitoring. Key aims and objectives of this service included:

1. Quantify and describe the extent, scope and volume of proponent data generated
2. Determine if data generated were submitted to government agencies in digital form
3. Explore whether generated data are discoverable (metadata for data lodged in open government systems), and accessible (ownership and licence)
4. Determine if any patterns in EPBC case studies could be used to estimate the anticipated volume and nature of data in other environmental impact assessments
5. Explore the nature of interactions between proponents, proponents' consultants and government

Investigation steps for service 1

Overall there were five key investigative steps for delivery of service 1. At each investigation step, the amount of document searching and level of scrutiny increased.



It should be noted that there a large number of post-approval monitoring documents (>164) were discovered online for the NSW case study, that were not available through the Australian Government website. This suggests an opportunity exists for DoEE to capture this in a more systematic way in the future.

Scoping the assessment for service 1

Data is potentially generated and available at multiple points within the EPBC Act referral and assessment process. When selecting case studies for review in service 1, the water trigger was deemed to be out of scope. Final case studies selected for review included controlled applications with associated post-approval monitoring requirements where it was anticipated that available proponent data would be richest.

Scoping of MNES for Service 1

In scope for the assessment

Matters of National Environmental Significance

- **world heritage properties**
- **national heritage places**
- **wetlands of international importance (Ramsar listed)**
- **listed threatened species and ecological communities**
- **migratory species protected under international agreements**
- **Commonwealth marine areas**
- **the Great Barrier Reef Marine Park**
- **nuclear actions (including uranium mines)**

Out of scope

- **a water resource, in relation to coal seam gas development and large coal mining development**

Other activities

- **Activities on Commonwealth land**
- **Activities by Commonwealth proponents**

Selection of Case Studies

Criteria for selection of cases (based on assumptions agreed by ERIN and ESD staff) from Environmental Impact Assessment System (EIAS):

- Referred to the DoEE 2011 or later
- Deemed to be controlled action
- Not subject to an ANAO audit
- Not a high National Environmental Significance Threat and Risk Assessment (NESTRA) ranking
- Not a defence project
- Not 'Sensitive' to Monitoring and Assurance Section

152 cases available

Assessment of Case Studies

37 high priority cases were identified where:

- 'survey data' collected as condition of approval; OR
- case is on the Compliance Plans list of Monitoring and Assurance Section

37 cases assessed

Assess 37 cases and select 20 cases for analysis

20 cases analysed

Identify and conduct detailed assessment of

2 cases for deep-dive

Data assessment results for service 1

The 20 cases selected for analysis included 522 reference documents and of these, 125 contained references to, or views of actual data that were further explored.

Of the documents containing references to data, 46% were submitted at referral stage, 29% at assessment stage (when proponents were asked to provide further information in support of submissions) and 25% were generated through post-approval monitoring.

Data identified for service 1

522 reference documents

Existence of data expressed in documents

- **125** documents
- **10,972** pages
- **223** fauna datasets
- **173** flora datasets
- **20** other datasets

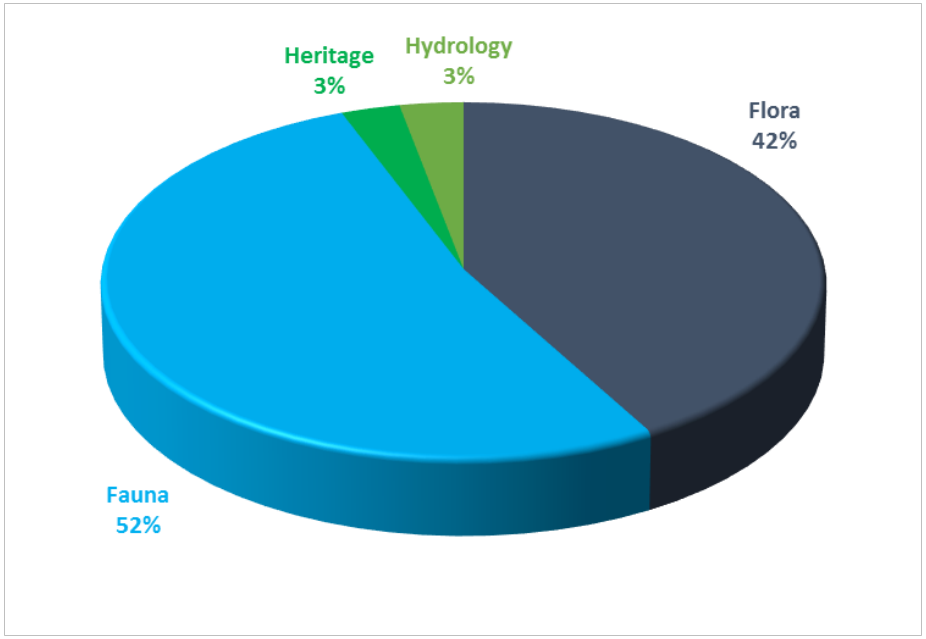
Data identified at different stages in referral stages

01 Referral	02 Review proposed action	03 Decide assessment approach	04 Conduct assessment (optional)	05 Approval decision	06 Post-approval monitoring
57 documents			**36** documents		**32** documents
3661 pages			**5314** pages		**1997** pages
69 fauna datasets			**108** fauna datasets		**46** fauna datasets
67 flora datasets			**89** flora datasets		**17** flora datasets
6 other datasets			**10** other datasets		**4** other datasets

Data assessment results for service 1 (cont.)

The majority of data were flora and fauna data e.g. survey, monitoring, offset requirements, with only a small fraction of inferred datasets representing hydrology and heritage.

- Across the 20 case studies, there was only 1 star data – PDFs and DOCs
- Only 25% of documents had any references to data (e.g. tables, charts or references).
  Approximately 300 documents had no data.
- 416 data sets inferred in 125 documents
- Nearly half the (inferred) datasets generated at referral submission stage
- Generally a lack of references to data in referral documents
- All cases - MNES were threatened species and ecological communities
- Impact area highly variable (7.5 – 6280 ha)



In-Depth Case Study 1: WA development

A detailed case study investigation was undertaken looking at documents lodged with DoEE, together with interviews with environmental consultants contracted by proponents. The results of the desktop review and stakeholder discussions are presented on the next two pages

Three consultants / sub-consultants generated the majority of data referred to in the document reviews

Data collector(s) / consultant	Information / data collected
Lead environmental consultant	Compliance reporting including pre-clearance surveys; Revegetation monitoring (included protected bird species assessments / observations); Offset mapping
Sub-contractors 1	Weed control
Sub-contractors 2	Compliance reporting including satellite tracking of individual protected bird species
Sub-contractors 3	Compliance reporting including protected species behaviour / movements, habitat use, breeding and foraging observations; Tree monitoring

Biodiversity information discovered in the document review aligned with major GBIF classifications

Primary biodiversity data	
Flora occurrence records	Point records of flora made during pre-clearance surveys. Nest and roost tree species records for protected bird species
Fauna occurrence records	Protected species records (observation and satellite tracking)
Taxonomic lists	
Flora species lists	Flora species present in survey and offset areas; Flora species lists for revegetation
Vegetation mapping (veg classes)	Vegetation surveys within 2ha revegetation areas and flora distribution
Vegetation mapping (offsets)	Offset point locations
Secondary biodiversity data (Ecological data)	
Fauna breeding	Observations of bird breeding and hollow use
Fauna behaviour	Observations of protected species foraging; Satellite-derived movement tracks
Fauna biometrics / vital rates / demographics	
Habitat characterisation	Measures of protected bird species habitat (e.g. vegetation structure, cover)
Vegetation condition	Descriptive, in association with offsets; Invasive plant occurrence
Survey standards	DSEWPaC (2012) significant tree guidelines; Whitford Senescence Scale (tree health); EPA Guidance Statement 51 (vegetation surveys) & 56 (terrestrial fauna surveys); EPA position statement 3 (terrestrial biological surveys); Trudgeon (1988) scale (vegetation condition); Aplin (1979) modified vegetation description based on Specht;

In-Depth Case Study 1: WA development (continued)

Interviews with participants representing case study consultants revealed the following key points and insights:

Data

- **Collections** – paper field notes predominate
- **Ownership** - varies depending on relationship between proponent /developer and environmental consultant. Large corporations typically expect ownership and specify this in contract terms and conditions
- **Reuse** – data collected for one client and owned by consultant may be resold to third party. If the client wants the data then no charge, though clients rarely ask for data if its not owned by them.
- **Standards** - budget of proponent dictates the extent to which guidelines are followed. Highly competitive contracts may diminish this
- **Data as cost** – large volumes of project based data – a data management headache and cost diminishing long-term reuse value
- **Data sharing** – little incentive to lodge data with government systems, except where a statutory requirement

Samples

- Plant samples required as part of veg survey and license required under Wildlife Conservation Act 1950
- Samples must be lodged with government as condition of survey
- Can take up to 18 months for samples to be vouchered

Process

- **Pre-consultation** - DWER does not offer pre-consultation sessions with proponents
- **No statutory time frames** - for state processes - big projects may be delayed for extensive periods of time
- **Delays** - due to agency staff delaying decisions pending request for more information and perceived lack of understanding by WA government agency staff about EIA process.
- **EPBC self referral** - clients are often recommended to commence Commonwealth EPBC approvals first before referring their proposal to WA government.
- **Duplicative reporting** - annual reports to the commonwealth & annual audit reports (and / or a licence report) for a PER that goes to the EPA – often overlapping information requirements and much duplicated effort in compliance reporting to repackage the same data to meet different reporting needs.

In-depth Case Study 2: NSW highway upgrade

Three consultants and their sub-contractors generated a wide variety of the data referred to in the document reviews

Data collector(s) / consultant	Information / data collected
Environmental consultant	Compliance reporting; monitoring; Before After Control Impact (pre-clearance and baseline) monitoring for threatened frog species; Long-nosed Potoroo monitoring.
Sub-contractor 1	Weed control and monitoring effectiveness Revegetation and monitoring
Subcontractor 2	Threatened mammal monitoring and habitat use; Fauna habitat connectivity assessment (proposed)
Roads and Maritime Services (RMS)	Pre- and post-construction Koala monitoring; Threatened invertebrate monitoring and habitat assessments, Southern Pink Underwing Moth breeding; Water quality data; Threatened glider monitoring (proposed);

This case study was terminated after desktop assessment. An alternative case study was proposed and considered to be more appropriate was selected. However, this was subsequently not pursued due to sensitivities around engagement with the proponent.

Biodiversity information discovered in the document review aligned with major GBIF classifications

Primary biodiversity data	
Flora occurrence records	Moth host plant presence records
Fauna occurrence records	Koala, Coastal Petaltail Dragonfly, Southern Pink Underwing Moth, Atlas Rainforest Ground Beetle, Rufous Bettong, Brush-tailed Phascogale, Long-nosed Potoroo, Spot-tailed Quoll and predator (red fox) presence records (by observation, remote cameras and live trapping); Fauna presence records within nest boxes (native/exotic i.e. bees); Threatened glider spp. records (proposed)
Taxonomic lists	
Flora species lists	Flora species lists for revegetation. Invasive species list.
Vegetation mapping (veg classes)	Pre-clearing surveys to identify vegetation exclusion zones
Vegetation mapping (offsets)	*Reference to offset details were not discovered in desktop review of DoEE documents*
Secondary biodiversity data (Ecological data)	
Fauna breeding	Presence locations of moth larvae or eggs
Fauna behaviour	Point record and number of beetle burrows; Koala, phascogale, bettong and quoll activity / habitat use (remote cameras and observations)
Fauna biometrics / vital rates / demographics	Giant Barred Frog; Wallum Sedge Frog, Rufous Bettong, Brush-tailed Phascogale and Long-nosed Potoroo (demographics only); Frog disease control measures.
Habitat characterisation	Moth habitat condition monitoring index (vegetation species composition and cover); Measures and characterisation frog habitat (stream and riparian); Measures and characterisation of Coastal Petaltail Dragonfly, Southern Pink Underwing Moth, and Atlas Rainforest Ground Beetle habitat
Vegetation condition	Butterfly host plant condition monitoring; Invasive plant occurrence; Revegetation monitoring; Photographic records of survey sites.
Survey standards	RMS Biodiversity Mitigation Framework; DSEWPaC (2012) Interim Koala referral advice for proponents; BAAM (2013) assessment criteria form; RTS (2011) Biodiversity Guidelines: Protecting and managing biodiversity on RTA Projects; DSEWPaC (2011) survey guidelines for Australia's threatened mammals; DEC (2004) Threatened species survey and assessment: Guidelines for developments and activities.

Service 1 workshop - objectives

Held on 28 June 2017, this workshop with DoEE staff (primarily from the DoEE assessment functional area) was facilitated to present initial desktop research findings and explore data value.

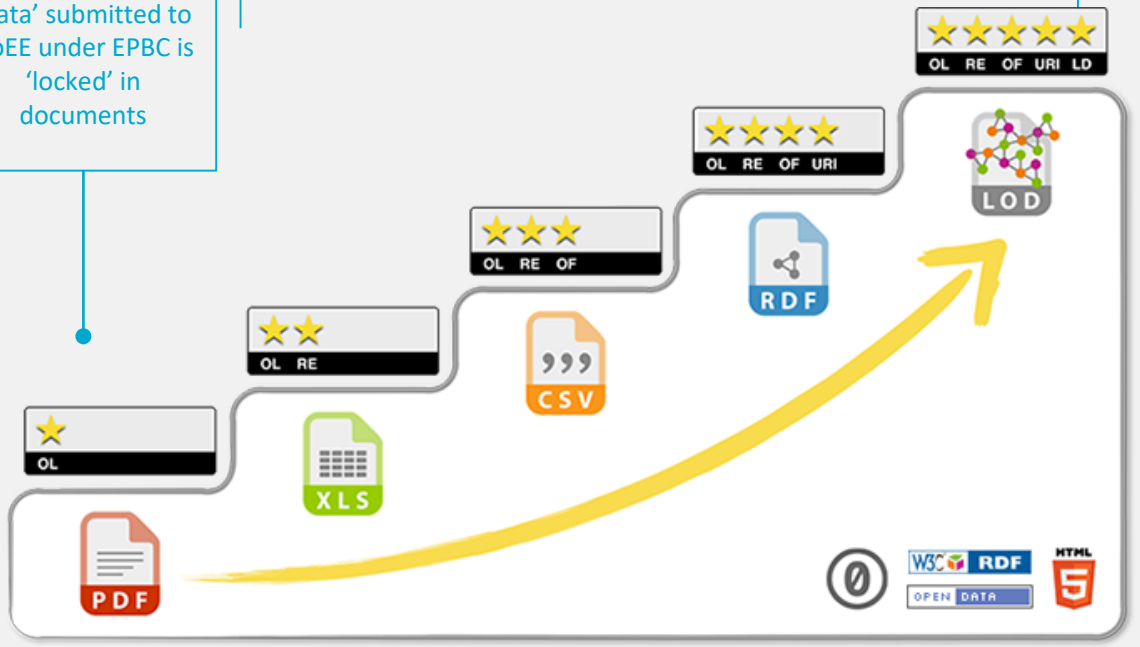
Workshop objectives: To explore and document the perspectives of DoEE stakeholders on value, characteristics, flow and potential use of data generated through EPBC Act referral, assessment and monitoring activities.

Outcomes: By understanding of the potential value and use of data generated under EPBC Act processes, the conversations from this workshop informed the project in:

- data assessment
- engagement with selected jurisdictions
- calculation of the values and costs inherent in proponent data

Majority of the 'data' submitted to DoEE under EPBC is 'locked' in documents

Majority of the 'data' submitted to DoEE under EPBC is 'locked' in documents
We explored whether any 2 star data (or beyond) is submitted and what the value of this data might be if it were submitted in this form.
Machine-readable structured data can be readily (re)used in a variety of ways such as generating new data by combining data sets.



Service 1 workshop - insights

Key insights from each session of the workshop included the following

Session 2: Exploring data value

Data is cyclical and will build value over time with much value being derived from being able to combine data sets.

There are certain characteristics of 'valuable' data – standardised, expert, structured.

1star data (PDFs) has direct use value - completed forms provide answers to specific questions enabling DoEE staff to perform EPBC process tasks (assessment, compliance monitoring). In this context, 2 star data may not be of much direct use value. 2 star (and above) data is however of value if submissions need to be interrogated further, and for (re)use beyond the EPBC processes.

Session 3: Understanding the data ecosystem

There are lots of information systems in the EPBC Act data ecosystem both within and outside of the DoEE

There is a lack of clarity about data flows outside of DoEE.

Jurisdictions play a key role in creation and persistence of data.

There's a lack of clarity of what systems exist and are used in DoEE.

Session 4: Exploring the nature and use of data

Data on the presence and absence of species is of primary importance.

The quality (and other characteristics) of data determines its utility for decision making.

Survey design is greatly informed by the Protected Matters Search Tool (PMST), guiding proponents as to likelihood of occurrence.

Survey design greatly influences the reliability of data.

Session 5: Future state

There's a need for standards.

Clearer guidance on data collection and submission should be provided to proponents.

A means to store and access data is required.

Tweak regulations to improve data flow.

Key insights from service 1

These represent the key findings from the desktop assessments, the case study interviews and the DoEE workshop

One-star data is prevalent

The desktop reviews discovered large numbers of documents but no data other than 1 star (e.g. PDFs)

High reuse value of data

Data are not necessarily useful for particular process steps within DoEE (cost for the person making these decisions); but the data have value later in terms of reuse

Ownership hinders sharing

Contractual arrangements determine whether proponents or their consultants own the data. Business drivers impact willingness to share. Even when regulations require submission of data to government, this may not occur.

Exploring data flows through states (Service 2)

In this section

Aims and objectives of service 2

Within the wider scope of the project, Service 2 focused on exploring the EIA process and data flows through jurisdictions. Key aims and objectives of this service included:

1. Explore and document the referral, assessment, and post-approval monitoring process under bi-lateral arrangements within each jurisdiction
2. Explore and document the points in the process at which data is generated and how it flows within the referral/assessment process
3. Explore and document the role of institutional arrangements in shaping data collection and sharing activities
4. Explore and document the nature of communication and interaction between DoEE and jurisdictional government agencies
5. Explore and communicate the interwoven nature of: referral, assessment and post approval monitoring processes; national, state and territory institutional arrangements and relationships; and, the degree to which this shapes data collection and sharing.

Overview of service 2

In order to understand data flows under the EPBC Act, it is necessary to first document and understand the processes, institutional arrangements and interactions between Commonwealth and state agencies under the EPBC Act. In each jurisdiction, different pathways through the assessment and approval process, governed by differing institutional arrangements (legislation and lead agencies) are possible, depending on the nature of development activity and its scale, the nature of the proponent (Government or private) and the MNES potentially affected.

A first attempt was made to describe these institutional arrangements but this was too large a scale of study as the team was attempting to describe the entire planning system. Subsequently the team scoped the activity to address focus on the environment assessment organisations and institutions and most common assessment pathways within the bi-lateral assessment process. A combination of desktop research to explore process documentation and iterative input and review from key state government stakeholders was used. Due to the scale of this challenge, it was subsequently decided to scope service 2 research to New South Wales, Victoria, Queensland and West Australia.

A common standardised diagram was developed to visualise process and data flow, stakeholder interactions and institutions and enable comparison between jurisdictions. These process maps are presented on the following pages.

Summary of consultation for service 2

The following organisations were consulted, and contributed to the development of the process maps.

Jurisdiction	Victoria	Western Australia	Queensland	New South Wales
Coordinating agencies	Department of Environment, Land, Water and Planning (DELWP)	Department of Water and Environmental Regulation (DWER) Office of the Environmental Protection Authority (EPA, part of DWER) Department of Biodiversity, Conservation and Attractions (DBCA)	Office of the Coordinator General (OCG) Department of Environment and Heritage Protection (DEHP)	Office of Environment and Heritage (OEH) Department of Planning and Environment (DPE)
People consulted	**Geoff Ralphs** DELWP Impact Assessment **Karen Weaver** DELWP Policy and Infrastructure Coordination **Rebecca Dixon** DELWP Policy and Infrastructure Coordination **Omar Gupte** DELWP Policy and Infrastructure Coordination	**Chris Gentle** WABSI **Jorg Hiltenkamp** WABSI **Andrew Mack** Talis Consultants **Paul Gioia** DBCA Science and Conservation **Stephen Van Leeuwen** DBCA Science and Conservation **Kaylene Carter** DWER EPA Services **Mike Young** DWER **Adrian Wiley** DWER Regulatory Services (Environment) **Kathryn Schell** DWER	**Tim Ipkendanz** DoEE QLD **Matthew Grant** OCG Coordinated Policy Delivery **Philip Rowland** DEHP Impact Assessment and Operational Support **Chris Loveday** DEHP Impact Assessment and Operational Support **Emma Ross** OCG	**Ron Avery** OEH Science Division **Jane Gibbs** OEH **Kate Gowland** DoEE NSW **Michelle Kirkland** OEH **Tim Kirby** DPE Planning Services Division **Nathalie O'Toole** DPE Planning Services Division

[Please note: Individuals' names have been included to facilitate the review process and will be removed in the published version of this report].

EIA and post approval monitoring process diagrams- explanatory notes

EIA processes have been mapped for Victoria, Western Australia, Queensland and New South Wales.

The diagrams in this section provide an overview of the activities undertaken, decisions made, legislation which informs the activities, data developed or submitted, outcomes achieved and the key actors involved in each jurisdiction.

The guide below indicates what information is contained in each diagram and how they work.

Symbols

Activities

- Process
- Decision
- Outcome

Regulatory Environment

- Legislation

Actors

- Proponent
- Public
- Decision maker

Information generated

- Document
- Data

Colours

Planning process

Proponent

Environmental assessment

Post-approval monitoring

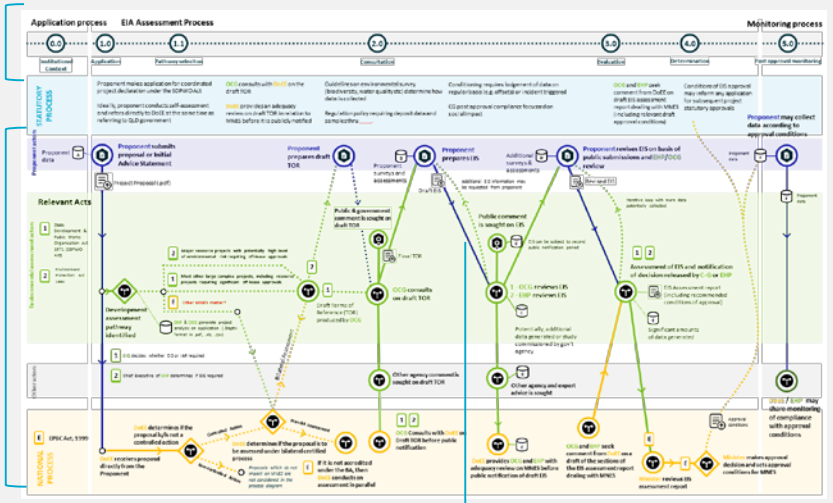
EPBC Act

Other

Structure

This area indicates the process steps for EPBC Act Assessments

These colour blocks indicate location/domain of responsibility for process activities *(ie proponent, jurisdiction, other, DoEE)*



Lines show direction of activities
Colours of lines indicate who is transferring information
Dotted lines show optional process

EIA Process for controlled actions under EPBC Act - Victoria

Department of Environment, Land, Water and Planning (DELWP)
Department of Environment and Energy (DoEE)
Matters of National Environmental Significance (MNES)

Process | Decision | Legislation | Document | Data | Outcome | Proponent | Public | Decision maker

Planning process – Proponent – Environmental assessment – Post-approval monitoring – EPBC Act – Other

CSIRO

Application process | **EIA Assessment Process** | **Monitoring process**

0.0 Institutional context | 1.0 Application | 2.0 Consultation | 3.0 Evaluation | 4.0 Determination (inc. condition setting) | 5.0 Post approval monitoring

STATUTORY PROCESS

Planning Minister is the only decision making authority under EE Act & EPBC Bilateral

4 Planning minister makes decision on assessment method

E State planning permit process accredited where EPBC assessment required

Relevant agencies, Acts and policies e.g. Victorian Planning Provisions inform scoping requirements

Public comments are sought on draft EES scoping requirements

All other application decisions are suspended until the Planning minister makes EES decision

TRG reviews draft EES and sends revision comments to proponent. This is an iterative process and continues until DELWP and TRG is satisfied that proponent material is suitable for public exhibition.

Proponent / consultant also supplies information to DoEE

1 Planning minister's decision informs all other decision makers' application assessments under relevant legislation

As part of approval conditions, secondary consent may be required under other legislation.

3 4 5 6 9

Statutory requirement to lodge data to VBA

Under BA, DoEE may ask DELWP to check compliance issues.

All Acts have guidelines that will influence data collection, depending on relevant legislation.

Proponent actors

Project Proposal

A Proponent does due diligence to collect relevant surveys and assessments data (typically in PDF or Word report formats)

Proponent consult with DELWP Planning Impact Assessment when drafting referral documents

Proponent prepares draft EES or assessment documentation, and supplies relevant information

New proponent data may be generated C

Draft EES submitted for TRG review

D Further data may be generated

Finalised EES exhibited for public comment

Proponent is required to respond to public comments on EES or further revise assessment documentation / environmental report

E Further data may be generated

Proponent collects data according to conditions

Environmental assessment actors

Relevant Acts

1 Planning and Environment Act 1978
2 Environment Effects Act 1978
3 Flora and Fauna Guarantee Act (FFG) 1988
4 Wildlife Act 1975
5 Catchment and Land Protection Act 1994
6 Water Act 1989
7 Major Transport Projects Facilitation Act 2009
8 Mineral Resources (Sustainable Development) Act 1990
9 Environment Protection Act 1978

2 **Requirement for EES** is triggered by environmental risk of a development, transport or other works proposal.

Relevant Acts, policies and government data B

Public comment

Scoping requirements for draft EES

1 2 5 **Guidelines and Scope of requirements is set by Minister for Planning, informed by Technical Reference Group (TRG)** TRG is for EES only

Proponent informally engages community according to TRG / DELWP approved consultation plan

Proponent iteratively revises EES or other assessment documentation to satisfaction of DELWP Planning

Public comment is sought and provided back to proponent

Approval conditions

Assessment report

F Proponent environment data. Some proponents/ consultants lodge data with VBA

Proponent lodges EE Act referral with Minister for Planning 2

DoEE informs DELWP (IA team) about direct referrals and *vice versa* with monthly communications.

Other project development proposals are submitted another decision maker, under other legislation e.g. 1 6 8 9

2 **Minister for Planning determines EIA/EES requirement**

1. EES required
2. No EES with conditions (e.g. Environment report)
3. No EES

AND/OR accredited EPBC Bilateral process:
a) EES
b) Environmental report
c) Planning Permit
d) Advisory Committee

DoEE and DELWP determine assessment and approval pathway in consultation with proponent

DELWP Planning and TRG iteratively reviews draft(s) EES and provides feedback to proponent.

Inquiry Panel or DELWP considers EES / assess. doc., public comments and suppl. EES, and provide advice to minister

Minister appoints inquiry to consider EES & submissions: Types:
1. By document
2. By submitted conference
3. Formal hearing

2 **Minister issues an Assessment Report prepared by DELWP Planning**
On the basis of written advice from Inquiry Panel (EES)
Assessment Report and conditions sent to decision makers (including DoEE)

If written into conditions, Env. Management Framework includes conditions for monitoring to be done to satisfaction of relevant agency e.g. EPA

Other actors

NATIONAL PROCESS

E EPBC Act, 1999

Referral submission under the EPBC Act

Proponent typically self refers proposal to DoEE

Controlled Action

Minister decides if controlled action

Controlled action: assessment under bilateral agreement

E Environmental Impact Assessment required.
Under bilateral agreement this is equivalent to:
EES, Environment Report, Accredited planning permit process or Advisory Committee

Approval by both DoEE and DELWP

Monitoring of conditions by DoEE

Victoria – Notes about the data

What/when/where of data generation	Proponent typically does their due diligence prior to referral submission, contracting a consultancy to survey and gather data (mostly flora/fauna assessments) (**A**). This is the first significant data collection and of high value to DELWP Proponents work with DELWP Planning and regional staff for developing and applying appropriate methodologies for data collection to support their proposal (**A & C**). Proponent collects / augments baseline data (**C**) when responding to scoping requirements (**B**) (for EES, Environmental Report, etc) in order undertake impact assessments for identified matters/ risks. This is typically the most significant data collection of environmental conditions and the first formal point of review of that data/ information by agencies on the TRG. EES/EIA scoping requirements determined by DELWP Planning (Minister) will set focus / matters for which proponent data will be generated and the nature of those data (**B**) TRG review may cause more data to be generated, depending on scoping requirements and level of detail supplied in draft EES (**D**) Some data collected for EIA/EES will also be used to address requirements of approval conditions at post-approval monitoring stage, usually where a secondary consent is required (e.g. permit for public land under FFG or the Wildlife Act; CALP Act consents like the Port Phillip dredging) (**F**) There are no standards for data collection in relation to post-construction monitoring (**F**), although there are standards for other survey data collection (**A, C, D & E**) Post-approval monitoring data collection determined by relevant legislation (**F**)
Data flow	DELWP usually receives this data locked in report format (i.e. non machine readable, non-structured data – TBL 1 star data only) (**A**) Policy makers do not necessarily require data that are reuseable, and instead prefer data aggregated. Only for EES is there usually extra scrutiny of submitted information / data. (**A & C**) In rare cases raw data may be lodged with the Victorian Biodiversity Atlas, which in turn flows into the Atlas of Living Australia (excluding sensitive records) (**A-F**) In most EES / EIA, e.g. channel deepening project, monitoring baseline data is collected during project assessment process (**A-E**). These data may be shared with relevant organisation, e.g. penguin data to Phillip Island Nature Park. This will be done under a data sharing agreement Data from certain secondary consents, e.g. channel dredging under the CALP Act, may be reviewed by the relevant agency e.g. EPA, but is not lodged with DELWP (**F**) Data lodged with the VBA may flow into NVIM. Data collected under the Heritage Act 1995 (now 2017) is required to be lodged with the Victorian Heritage registry. Data collected during post-approval monitoring is rarely lodged with DELWP (**F**)
Key issues around data	Most data are not required to be lodged Review of reports and data therein is not a statutory requirement, but DELWP would like that to change Proponents and/or their consultants typically own the data; licensing rests with the proponent Data reuse value is currently greatest for consultants, who can use previous proponent data to successfully tender for future projects (evidence or knowledge and experience) DELWP and Panels Victoria would like access to data for other assessment and decision making processe

EIA Process for controlled actions under EPBC Act - Western Australia

Department of Water and Environmental Regulation (DWER)
Environmental Protection Authority (EPA)
Department of Environment and Energy (DoEE)

Process | Decision | 1 Legislation | Document | Data | Outcome | Proponent | Public | Decision maker

Planning process – Proponent – Environmental assessment – Post-approval monitoring – EPBC Act – Other

CSIRO

Application process | **EIA Assessment Process** | **Monitoring process**

0.0 Institutional context

STATUTORY PROCESS

Proponent obligated to refer proposal to DoEE, which can happen at any time. DWER may also advise proponent to refer to DoEE.

Proponent is responsible for deciding whether Bilateral Assessment should be applied.

1.0 Application

EPA may assess a significant proposal referral under the EP Act and issue a Ministerial statement.

DoEE Minister informs WA Environment Minister about whether an action is a controlled action. WA Env. Minister notifies DoEE Minister whether the significant proposal will undergo an accredited assessment.

DWER will not consider a clearing permit action (Part V) until the decision on an controlled action has been made. This should occur prior to lodgement of the application.

2.0 Consultation

If the EPA decides to the assess the proposal, a scoping document is prepared to determine information required for an Environmental Review Document (ERD). An ERD is synonymous with an EIS.

If EPA decides not to assess the proposal, a 14 day appeals period opens. This process is conducted by an Independent Appeals Convenor who produces an appeals outcome report for the Minister. Additional data may be generated during the appeals process.

WA Env. Minister notifies DoEE Minister whether the application will undergo an accredited assessment.

3.0 Evaluation

Any Decision Making Authority (DMA) referral processes may run in parallel. However, regulator cannot make a final decision until the WA Env. Minister has made a decision under the EP Act.

Until all related approvals have been obtained DWER/DMIRS may not make a decision on the Clearing Permit Application.

Under Part IV, EPA undertakes the assessment and makes a recommendation to the minister.
Under Part V, DWER/DMIRS is the regulatory authority and undertakes the assessment. The CEO (or delegate) makes the final decision.

4.0 Determination (inc. condition setting)

EPA prepares recommendations report, based on public comment and proponent response, and submits to the Minister. The Minister causes the report to be published.

Anyone can appeal the EPA assessment report (Part IV), a significant proposal assessment decision, significant proposal assessment conditions (Part IV), and / or decision on permit application and permit conditions (Part V). Appeals may generate additional proponent data.

The CEO's decision under the EP Act Part V, the decision report, supporting documents and, where relevant, a plan and clearing permit with any attached conditions are provided to DoEE

5.0 Post approval monitoring

Proponent collects data according to monitoring conditions (Part VI and V)

Proponent prepares application under Parts IV or V

Proponent data are usually spatial data including impact area and any other survey information completed/available. Documents usually provided as PDFs
DWER may also generate spatial data here to accompany Part V applications

Proponent prepares Environmental Review Document (ERD) based on scoping requirements

Proponent data collected according to scoping requirements

Proponent prepares response to public review

Relevant Acts

1 Environmental Protection Act 1986

1 Part IV covers significant proposals

1 Part V covers clearing permits

E EPBC Act, 1999

NATIONAL PROCESS

Referral of significant proposal to the EPA

1 EP Act, Part IV

EPA decides whether to assess proposal and level of assessment. Includes public comment period

DoEE advises EPA in writing about referrals they have received. In turn, EPA advises DoEE if same referrals have been received and are being assessed

EPA and/or proponent prepares scoping document

Scoping document

Public comment sought on ERD

EPA releases ERD for public review

EPA report submitted to the WA Env. minister

EPA Assessment Report

WA Env. Minister makes decision on basis of Appeals Convenor report & recommendations

Appeals Convenor Report

WA Env. Minister seeks agreement on implementation and conditions from DMAs

Ministerial statement with conditions is issued and published on the EPA website

Ministerial statement and approval conditions, including monitoring requirements

Submission of clearing permit application to DWER/DMIRS (after CA decision made)

1 EP Act, Part V

DWER/DMIRS decides on adequacy of permit application, whether to assess application and level of assessment

Clearing permit application

If permit application is inadequate, it may be rejected ("decline to deal")

Clearing permit applications are advertised and public submissions may be made

DWER/DMIRS may seek further information from proponent on application

DWER/DMIRS assessment report

CEO or delegate makes approval decision and sets conditions for clearing permits

DWER/DMIRS Decision Report published

DWER and DoEE separately monitor compliance with conditions

Proponent may refer proposal to DoEE

Referral submission under the EPBC Act

Controlled Action: accredited assessment under bilateral agreement

Minister decides if controlled action.
This occurs prior to Part V application submission

EPA and DWER/DMIRS Assessment reports shared with the commonwealth

DoEE Minister makes separate approval decision and sets conditions for significant proposals

Western Australia – Notes about the data

What/when/where of data generation	Biodiversity data are commonly generated, but are not the only kind of data generated. Other types include for example, groundwater and geological data Department of Biodiversity, Conservation and Attractions (DBCA) plays a large role in the data collection and sharing Data can be generated at any point in the EIA process (**A - D**), including the start of the Commonwealth's assessment, the start of WA's assessment and / or during WA's assessment process. These data are typically in what 1 star format (e.g. in PDF reports submitted to DWER –"raw data" are almost always supplied only through permit licence conditions, although on rare occasions a proponent may supply these data with reports) Most data are generated for Environmental Review Documents (ERD) **(B).** DWER may liaise with agencies and proponent to obtain missing data / information. The scoping document is usually very clear about the data required for assessment, this ensuring that ERD are fairly complete DWER may request additional information from proponents for clearing permit applications (**D**) The appeals process (typically run independently from EIA processes) may also generate additional data The proponent may collect data in relation to monitoring conditions as part of a clearing permit requirement as well as a Part IV decision (**C**)
Data flow	Information, usually in PDF format, is lodged with EPA to enable decision making in relation to applications / proposals (**A & B**) Licences are required for flora collection or animal trappings, as part of any EIA and post-approval monitoring process. Part of DBCA licence conditions information required to be returned to them (**C**) Once DWER has implemented its data sharing initiative on behalf of DWER, the EPA and DMIRS, then raw data submissions will become standard supplements to the written reports. The raw data submissions will be prepared according to a data standard, to be published in future (**A - D**). New Biodiversity Conservation Act coming which will change regulations for obtaining and managing data Typically the Commonwealth will only receive data along with the initial referral. DWER/DMIRS do not usually provide additional data obtained through the assessment to the Commonwealth unless requested. Only the decision report is provided for comment.
Key issues around data	Data are not currently required to be lodged so are not available for reuse by anyone except the consultant that collected them Proponents' consultants often rely on government databases to get existing information, which may be very costly to access and may not necessarily be sufficient (**A & B**) There are time lags between collection of flora samples during monitoring and return of identification information from the Herbarium, which delays completion of surveys and adds significant costs to consultancies to keep and maintain voucher specimens for future reference A lot of survey data are collected by consultants but often never get used or shared beyond immediate project needs, due to data management and storage costs High data reuse value in terms of EPA condition monitoring and detecting change, but data reuse value not important for the approvals process so not usually a government priority to make these data available for reuse New system for collecting and lodging data to be implemented in April 2018 and phased in over a 2 year period. This process called "Land Environmental Approvals Data" (LEAD) will introduce a statutory requirement for proponents to lodge data collected during the environmental impact assessment and approvals process. LEAD technical guidance will set standards for data and will aim to link to GBIF in the longer term. However, the program is currently un-funded beyond its conception and initial implementation

EIA process for controlled actions under EPBC Act - Queensland

Department of Environment and Heritage Protection (EHP) *now Dept. Environment and Science (DES)*
Office of the Coordinator General (OCG)
Environmental Authority (EA)

Process | Legislation | Data | Proponent
Decision | Document | Outcome | Public | Decision maker

Planning process – Proponent – Environmental assessment – Post-approval monitoring – EPBC Act – Other

Mandatory pathway | Optional pathway

CSIRO

Application process | **EIA Assessment Process** | **Monitoring process**

0.0 Institutional Context | 1.0 Application | 1.1 Pathway selection | 2.0 Consultation | 3.0 Evaluation | 4.0 Determination | 5.0 Post approval monitoring

STATUTORY PROCESS

Proponent makes application for coordinated project declaration under the SDPWO Act and / or for minerals and energy resource projects on applications for EA under the EP Act

Ideally, proponent conducts self-assessment and refers directly to DoEE at the same time as referring to QLD government

OCG / DES consults with DoEE on the draft TOR

DoEE provides an adequacy review on draft TOR in relation to MNES before it is publicly notified

Guidelines on environmental survey (biodiversity, water quality etc) determine how data is collected

OCG and DES seek comment from DoEE on draft EIS assessment report dealing with MNES (including relevant draft approval conditions)

Conditions of EIS approval may inform any application for subsequent project statutory approvals

Post –approval conditions require lodgement of data with DES on regular basis (e.g. offsets) or incident triggered.

CG post-approval compliance focussed on social impact

Proponent actors

Proponent data A

Proponent submits proposal or Initial Advice Statement

Project Proposal (.pdf)

Proponent prepares draft TOR

Proponent prepares draft EIS

Proponent surveys and assessments B

Additional EIS information may be requested from proponent

Draft EIS

Proponent revises EIS on basis of public submissions and EHP/OCG review

Additional surveys & assessments D

Revised EIS

Proponent may collect data according to approval conditions

Proponent data F

Environmental assessment actors

Relevant Acts

1 State Development & Public Works Organisation Act 1971 (SDPWO Act)

2 Environment Protection Act 1994

Development assessment pathway identified

2 **Resource projects with potentially high level of environmental risk**

1 **Most large complex projects, including resource projects requiring significant off-lease approvals**

E **Other MNES matter**

A OCG generate project analysis on application (.Daptiv format in .pdf, .xls, .csv)

Draft Terms of Reference (TOR) produced by OCG

Public & government comment is sought on draft TOR

Final TOR

OCG consults on draft TOR

Public comment sought on draft EIS

C EIS can be subject to second public notification period

1 - OCG reviews EIS
2 - DES reviews EIS

C Potentially, additional data generated or study commissioned by gov't agency

Iterative loop with more data potentially collected

1 2 **Assessment of EIS and notification of decision released by C-G or EHP**

EIS Assessment report (including recommended conditions of approval)

E Additional data may be generated

1 C-G decides whether EIS or IAR required

2 Chief Executive of DES determines if EIS required

Bilateral Assessment

Other actors

Other agency comment is sought on draft TOR

C **Other agency and expert advice is sought**

1 2 **OCG and DES consult with DoEE on Draft TOR before public notification**

C **DoEE provides OCG and DES with adequacy review on MNES before public notification of draft EIS**

OCG and DES seek comment from DoEE on a draft of the sections of the EIS assessment report dealing with MNES

E **Minister reviews EIS assessment report**

E Approval conditions

Minister makes approval decision and sets approval conditions for MNES

DoEE / DES may share monitoring of compliance with approval conditions

NATIONAL PROCESS

E EPBC Act, 1999

DoEE receives proposal from the Proponent

DoEE determines if the proposal is/is not a controlled action

Controlled Action

Non-controlled Action

Non-BA assessment

DoEE determines if the proposal is to be assessed under bilateral certified process

Proposals which do not impact on MNES are not considered in the process diagram

E **If it is not accredited under the BA, then DoEE conducts an assessment in parallel**

Queensland – Notes about the data

What/when/where of data generation

The Department of Environment and Science (DES) and other Queensland government agencies have publicly-available guidelines on field survey, data collection methods (**A**).

Proponents typically use a consultant to survey and gather data (e.g. flora and fauna surveys) before referral of a project **(A).** Data collection may occur at any time prior to the referral. Proponents typically do their due diligence to ensure their applications/referrals contain adequate information.

DES and OCG generate project analysis information at the project application stage, some of it in Excel format (**A**). OCG also uses Daptiv©. This is a 'software as a service' project portfolio management system readable in html that can export data and reports in PDF, Excel and .csv formats.

Most public submissions on the draft terms of reference (TOR) for the EIS do not produce new data.

When the proponent submits a draft EIS, the CG or DES determines if that draft satisfactorily addresses the TOR (which generates more data). If the draft EIS does not adequately address the TOR, it is returned to the proponent for further development (which usually necessitates the generation of more data) (**B**).

Significant amounts of data are generated by proponent surveys and assessments (**B**)

Public and agency submissions on the draft EIS generate considerable information (**C**), which is held by OCG and DES. OCG manages much of that information in Excel format.

Following the review of submissions on the draft EIS, OCG and/or DES may request additional EIS information from the proponent. Depending on the extent and nature of that information, the additional EIS is commonly subject to a second public notification period (generating more data) (**D**)

Some proposals may require a field assessment by an agency or independent technical expert (e.g. flood modelling on railway proposals servicing the Galilee Basin). This information is lodged with state government repositories.

The SDPWO Act includes a provision for the CG to commission independent studies on an aspect of a coordinated project (usually funded by the proponent). This provision is used for a minority of projects. Depending on agreements between the CG, the study contractor and the proponent about such studies, some of the generated information may be owned by OCG. Some of that information may be in .csv or GIS formats). The preparation of the EIS assessment report by OCG or DES may create a new data source. (**E**)

Substantial new biodiversity data are typically generated post-approval (**F**)

Queensland – Notes about the data (cont.)

Data flow	Data generated are generally required to be lodged. Different data types go to different agencies, e.g. post-approval ecological data goes to DES; groundwater data goes to Department of Natural Resources, Mines and Energy. Data held by OCG and DES is subject to Commonwealth and Queensland: • privacy legislation, protecting personal and commercial-in-confidence information that must be withheld from shared data systems; and • freedom of information legislation providing case-by-case access to individual requesters for most EIS information that is not subject to confidentiality protections.
Key issues around data	A lot of information is generated that is not necessarily being used again or being made available beyond its original use Post-EIS monitoring of actual, rather than predicted impacts is common (e.g. the presence of threatened species not identified during the EIS process sometimes occurs). Some EIS 'proponent data' are generated and / or held by the proponent and some by the EIS consultant(s) or sub-contractor(s). Proponent and consultant data is governed by a wide variety of agreements which may establish intellectual property and commercial confidentiality rights. OCG assumes that, if the data chain project proceeds to Service stage 3, those considerations will be further examined and the data owners separately identified.

EIA process for controlled actions under EPBC Act - New South Wales

Office of Environment and Heritage (OEH)
Department of Planning and Environment (DPE)
Matters of National Environmental Significance (MNES)

Process | Legislation | Data | Proponent
Decision | Document | Outcome | Public | Decision maker

Planning process – Proponent – Environmental assessment – Post-approval monitoring – EPBC Act – Other

Mandatory pathway | Optional pathway

CSIRO

Application process | **EIA Assessment Process** | **Monitoring process**

0.0 Institutional Context | 1.0 Application | 1.1 Pathway selection | 2.0 Consultation | 3.0 Evaluation | 4.0 Determination | 5.0 Post approval monitoring

STATUTORY PROCESS

Planning pathway including State Significant Development (SSD), State Significant Infrastructure (SSI) **plus** Exempt Developments, Complying Developments, Local Developments, Regional Developments, Part 3A Developments, Development without Consent and Designated Fishing Activities

Proponents generally know which assessment process is relevant to them and will refer to the relevant lead agency, based on the State Environment Planning Policies (SEPPs).

While the shape of the process is largely the same at a high level, there will be nuances to the process based on the requirements for the EIS. Different pathways will have different lead agencies and interact with different systems.

Proponent may collect data according to approval conditions

Proponent actors

Proponent data A

Proponent submits proposal

Proponent surveys and assessments C

Proponent prepares EIS

Potentially additional surveys and assessments D

Proponent responds to commends from public and agency reviews

Potentially additional surveys E

Project Proposal
Typically the scope is mature and due diligence has been done before the Proponent lodges a proposal.

Proponent species survey and sample data are lodged with OEH Bionet Atlas (a,c,d,e)

(Draft) EIS

Public comment is sought on EIS

Response to submission, and potential additions to the EIS.

Proponent survey data lodged with BioNet. Reports submitted to EPA F

Relevant Acts

Environmental actors

1. Environmental Planning & Assessment Act 1979
2. Biodiversity Conservation Act 2017
3. Fisheries Management Act 1994
4. Mining Act 1992
5. Protection of the Environment Operations Act 1977
6. Local Land Services Amendment Act 2016

Preliminary Environmental Assessment B

1 State Significant Developments (SSD) (under EPA Part 4)
1 State Significant Infrastructure (SSI) (under EPA Part 5.1)
1 Small government development (excluding self assessment) (EPA Part 4)

Smaller private development — Delegate to LGA

Development assessment pathway identified
Based on thresholds in State Environment Planning Policies (SEPPs)

Director-General decides matters that apply, what needs to be assessed and which agencies to consult.
Matters may be air quality, odour, noise, soil and water contamination, greenhouse gas emissions, transport of chemicals to the site, handling of waste, along with other site specific issues (e.g. flora and fauna, aboriginal heritage) 2 3

Guidelines for assessment

D-G/DPE determines if EIS is required. Guidelines developed for EIS (or PER equivalent actions)
SSD and SSI are the most common proposals requiring EIS under BA with DoEE

D-G/DPE receives the draft EIS and seeks input from the public and other agencies/experts

Minister of Planning and Environment makes assessment decision and sends reports and conditions to DoEE
Draft may be sent to DoEE for comment

Approval conditions
Assessment Report
Inquiry Report (for public statutory inquiries)

DPE may refer to DoEE at any point in this process

Other actors

DoEE advses on matters affected

Other agency and expert advice is sought
e.g. biodiversity -OEH

NATIONAL PROCESS

E **EPBC Act, 1999**

DoEE usually receives proposal directly from the Proponent

E

Controlled Action

Non-controlled Action

Proposals which do not impact on MNES are not considered by DoEE

Assessment undertaken using certified BA approach

Non-BA assessment

DoEE determines if the proposal could be assessed under the Bilateral Accredited (BA) process

E **If it is not accredited under the BA, then DoEE conducts an assessment in parallel**

E

Additional conditions may imposed by DoEE

Commonwealth Environment Minister approves EIS under bilateral agreement

DPE, EPA and DoEE monitor compliance with approval conditions

New South Wales – Notes about the data

What/when/where of data generation	Data is collected at pre-referral, in support of draft and final EIS submission, evaluation stage in response to public consultation and DPE requirements and in post approval monitoring Proponent typically organises a consultancy to survey and gather data before referral submission (a) flora and fauna surveys targeting threatened species, and occasionally Plant Community Type and vegetation mapping *Proponents tend to use their own field survey data capture apps. Survey guideline are not well coordinated & implemented*. OEH provides advice as to whether or not results of assessment are adequate
Data flow	Proponent species observation data is lodged in Bionet as Environmental survey and sampling requires a NSW Scientific Licence administered by NPWS. Under licence terms (for survey and collecting) data must be uploaded to BioNet Atlas using the most recent version of the BioNet Atlas spreadsheet (XLS 2.7MB). It does not currently require the supply of systematic survey data just observations. Timing of the data supply to Bionet is independent of the planning process and may occur at any time. Monitoring data provided to EPA, most often locked in a PDF format
Key issues around data	In general there is not a good sense of who holds the data and where it goes. This limits potential use for OEH who wants to do a strategic analysis and re-use this data to improve the quality of existing information products (species distribution and vegetation community maps) to improve the quality of subsequent assessment processes. Data in Bionet is not identified / linked to assessments, nor to proponent. The only link is to the consultant surveyor (i.e. the species observer / licensee).
Opportunities	NSW EPA is currently reviewing regulation and licencing that establish a requirement for industry to conduct ongoing monitoring following development approval, based on real-time data services rather than periodic pdf reports. NSW government agencies are actively exploring opportunities to: • strengthen the requirements for industry to supply environmental data to NSW Government; and • remove barriers to data flow by reducing transaction costs of data supply, through improved information systems (with a focus SEED).

Insights from service 2 assessment

People

- **Effective interactions between organisations and process steps are reliant on relationships between individuals**
- Government 'corporate knowledge' of processes is fragile due to staff turnover
- Reuse value of data – compliance assessment process managers don't need data they need information products - data is a cost to them! However if submission do not even contain references to data it is not possible to verify the existence let alone the quality or accuracy of data underpinning reports

Process

- **Process step silos - complexity of processes (& institutions) means that typically no single government person has comprehensive understanding of processes and legislative requirements**
- Upfront informal discussion between proponents and environmental assessment agencies eases downstream pathways – clarification of expectation – but some government agencies discourage this
- Proponents and/or their agents regularly navigate processes end to end and understand the full extent of their complexity
- Planning Departments tend to drive processes and interact with environment agencies in different ways

Institutions

- **Multiple agencies are typically involved in (and may lead) different aspects of environmental assessment**
- There are many assessment pathways informed by (complex legislation) and dependent on the nature of development (scale, type), the proponents, and environmental matters affected
- Duplicative and onerous reporting requirements with lots of data wrangling to produce a PDF. This represents a regulatory burden on proponents - to re-package the same data for different reports. Despite this burden on proponents, data is still not provided.
- In some jurisdictions, proponents may self-refer to DoEE rather than going via jurisdiction as this may speed up assessment process

Data and Systems

- **Data trickles rather than flows** - low rates of lodging data with government
- Data is typically collected by proponent's environmental consultants and is typically not shared with government unless this is regulated
- Data rights in procurement process – data may be 'owned by proponent or consultants
- It is hard to trace data sources from documents – data is poorly referenced
- Disincentive for proponents to lodge data with government as they are sometimes required to pay for access (VIC-DELWP - VBA, WA-DBCA - Nature Map)
- There is often little reuse value for consultants and proponents in data and this is exacerbated by high cost of data storage and management

Conclusions

In this section

Overview of key insights

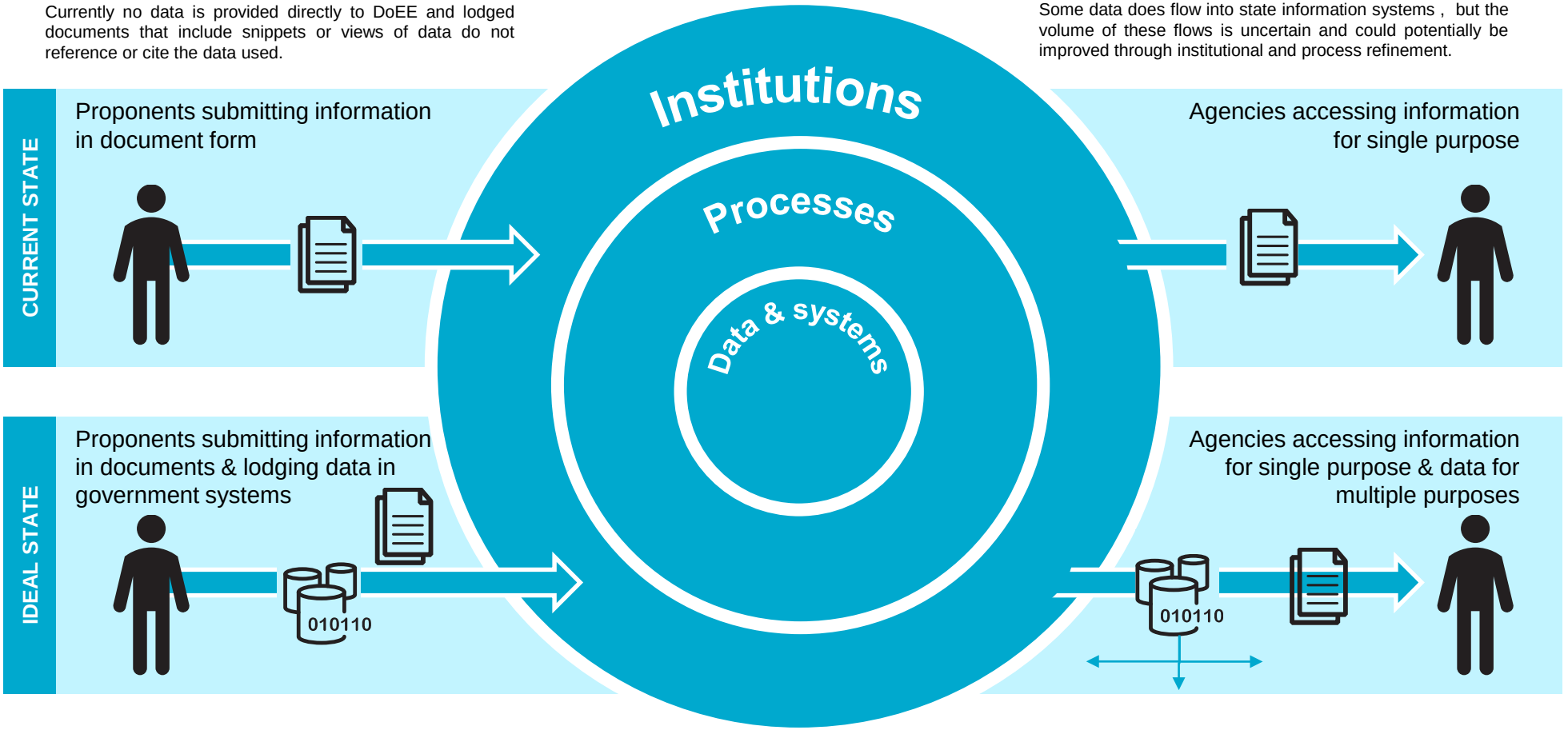
Challenges and limitations

Recommendations

Overall insights from project

Currently no data is provided directly to DoEE and lodged documents that include snippets or views of data do not reference or cite the data used.

Some data does flow into state information systems , but the volume of these flows is uncertain and could potentially be improved through institutional and process refinement.



In order to move from submission of documents with views of data, to submission of data to relevant government systems, a complex data ecosystem with a variety of institutional arrangements (legislative, contractual, normative) wrapped around the data as well as technical challenges (systems and standard for data) must be navigated. Addressing the numerous barriers in the information supply chain will require time and a combination of strategies that address: data ownership arrangements (established in environmental assessment service procurement processes); improvements in government capacity to handle lodged data and strengthening of regulation requiring data lodgement as part of broader bi-lateral assessment processes.

Insights into limited data flows

People and networks

- **Process deficiencies/challenges are ultimately overcome by people**
- Effective interactions between organisations and process steps are reliant on relationships between individuals
- Proponents and/or their agents regularly navigate processes end to end and understand ~~the~~ their complexity and how best to navigate them

Processes

- **Complex process with multiple assessment pathways under differing institutional arrangements (legislation, regulation and responsible organisations) triggered by nature of development, proponent and MNES triggered.**
- Upfront informal discussion between proponents and environmental assessment agencies eases downstream pathways – clarification of expectation – but some government agencies discourage this
- Process steps are siloed- complexity of processes (& institutions) means that typically no single government person has comprehensive understanding of processes and legislative requirements
- In some jurisdictions, proponents may self-refer to DoEE rather than going via jurisdiction as this may speed up assessment process
- Government 'corporate knowledge' of processes is fragile due to staff turnover
- It is hard to trace data sources from documents – data is poorly referenced

Institutional arrangements

- **There are many assessment pathways informed by (complex legislation) and dependent on the nature of development (scale, type), the proponents, and environmental matters affected**
- Consultants typically own the data and there is little value for them in publishing these data or sharing data, particularly with government
- Planning Departments tend to drive processes and interact with environment agencies in different ways
- Multiple agencies are typically involved in (and may lead) different aspects of environmental assessment
- Data rights in procurement process – data may be 'owned' by proponent or consultants

Data and Systems

- **Complex data ecosystem with a variety of institutional arrangements and contractual and ownership arrangements that are wrapped around the data**
- The desktop reviews discovered large numbers of documents, but no data other than 1 star (e.g. PDFs)
- Data is typically collected by a proponent's environmental consultants and is typically not shared with government (unless this is a regulated requirement).
- Data are not necessarily useful for particular process steps within DoEE, but the data have value later in terms of reuse
- Reuse value of data – compliance assessment process managers don't need data, rather they need information products (data is a cost to them)
- There is often little reuse value for consultants and proponents in data and this is exacerbated by high cost of data storage and management
- Data trickles rather than flows - low rates of lodging data with government
- Duplicative and onerous reporting requirements with lots of data wrangling to produce a PDF
- Disincentive for proponents to lodge data with government as they are sometimes required to pay for access

Project challenges and limitations

This project was presented with a number of challenges that ultimately impacted the delivery of the proposed products and outcomes.

- The volume of documents and the time required to fully review was prohibitive, meaning that key data may have been overlooked
- The lack of references to underlying data in lodged documents constrained data assessments
- Deliberative targeted selection of cases limits ability to make inferences about the overall nature, volume and value of data potentially available

Recommendations – short term

In considering options for reconfiguring the current state to deliver improved outcomes for all stakeholders, this report makes several recommendation for consideration by DoEE. The short-term recommendation are pragmatic, low cost activities representing an initial step towards improving the flow of proponent data. The longer term recommendations address more complex challenges in the data procurement supply chain and bi-lateral assessment process improvement.

Both short and longer term recommendations: aim to leverage:

- and build on existing DoEE leverage points to drive change in data supply arrangements; and
- articulated appetite for and existing activities underway in states, focused on improving environmental (particularly biodiversity species observation) data flows.

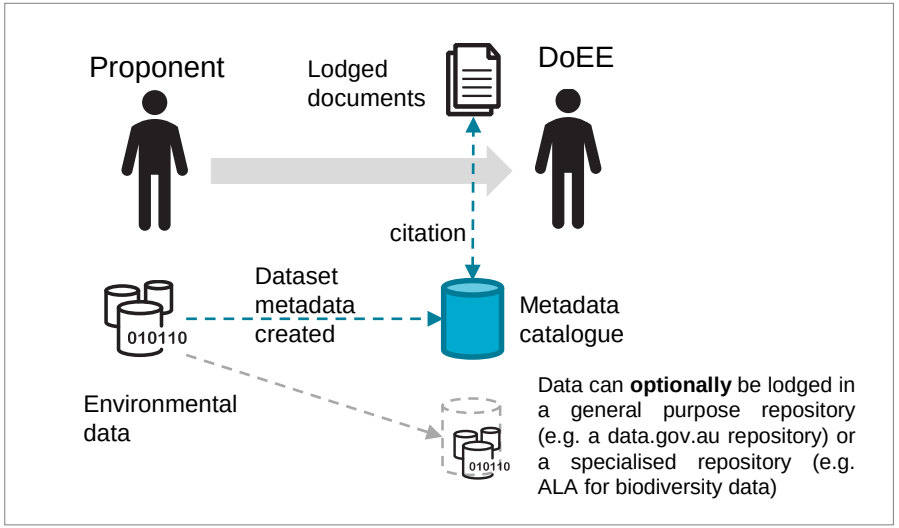
Recommendations

1. Require the provision of a standardised citation for data used in documents lodged with the DoEE as part of formal submissions.
2. Encourage the deposition of data in appropriate government repositories.

Metadata for data used in lodged documents should provide sufficient detail to enable DoEE and others to identify, potentially assess and if required, request access to data. Metadata should include: title, description, collection methods, spatial and temporal extent, storage location and data licensing. Existing metadata standards should be used.

Advantages

- Requiring proponents to register data (i.e. create a metadata record without having to share the actual dataset) is considered to be a sufficiently low transaction cost, initial step for proponents
- Builds on existing requirements for sound information management practice
- Will enable DoEE officers to identify and request data if required
- Enables an assessment of volume of data generated and submitted
- Can be implemented rapidly using existing tools



Recommendations – Longer term

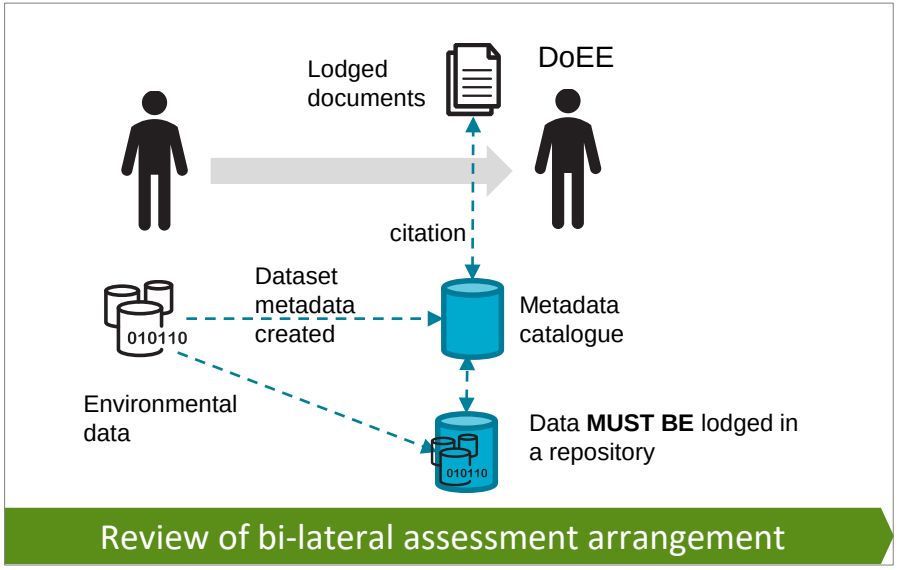
The longer term recommendations reflect the need for a realistic, iterative approach to addressing a complex set of institutional challenges encompassing contractual law, norms and regulations that act as barriers to obtaining data from proponents. Approaches to addressing these challenges should focus both addressing data supply blockers as well as in improving the coherence of state and Commonwealth approaches to environmental data management and sharing and as part of broader bi-lateral assessment review processes.

Recommendations

1. Regulation – develop and/or strengthen requirements (regulation) to lodge data with state agencies
2. Data standards and guidelines - development and iterative introduction of data lodgement standards for data formats and structures, standardised semantics (species classifications etc)
3. Process – explore opportunities to address duplicative reporting requirements between state and Commonwealth government as part of the broader bi-lateral assessment review process
4. Co-design all of the above with data generators - proponents and their environmental consultants as well as with state agencies

Issues and notes

- Mandating the lodgement of data will require some changed behaviour around environmental survey procurement and the treatment of data i.e. its ownership and licensing that represent real barriers to data lodgement.
- A solution that enables proponents to register and lodge data once associated with the ability to reliably cite data in different reporting contexts
- Regulatory change to mandate requirements around data sharing as part of bi-laterals is complex and will take time to achieve



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