ACCESS ECONOMICS

Cost benefit analysis of EPBC strategic assessments

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Report by Access Economics Pty Limited for

Department of Sustainability, Environment, Water, Population, and Communities

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Glossary

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
APPEA	Australian Petroleum Production and Exploration Association
CA	controlled action
CBA	cost benefit analysis
COAG	Council of Australian Governments
CPW	Cumberland Plain Woodland
DSEWPAC	Department of Sustainability, Environment, Water, Population, and Communities
EPBC	Environment Protection and Biodiversity Conservation
FTE	full time equivalent
LNG	liquefied natural gas
NCA	not controlled action
NES	national environmental significance
NPV	net present value
NSW	New South Wales
NT	Northern Territory
OBPR	Office of Best Practice Regulation
PIM	project inception meeting
PM	action to be taken in a particular manner
QLD	Queensland
SA	South Australia
TAS	Tasmania
WA	Western Australia

Executive Summary

The former Department of the Environment, Water, Heritage and the Arts commissioned Access Economics in June 2010 to provide a cost benefit analysis (CBA) of strategic assessments made under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act). In January 2010 the (renamed) Department of Sustainability, Environment, Water, Population, and Communities commissioned additional analysis in relation to the CBA. This report presents the final methods, data and findings from the CBA.

The EPBC Act enables the Commonwealth Minister for the Environment to 'globally approve' developments under an endorsed strategic assessment. The Hawke (2009) Review found that strategic assessments avoid 'project-by-project' approvals, deliver up-front planning certainty, cut red tape, and avoid the need for duplicative state/Commonwealth approvals. Although the Hawke review also argued that strategic assessments may provide greater protection for the environment, such benefits are beyond the scope of consideration in this CBA. The environmental impacts from a strategic assessment approach are thus assumed at least equivalent to the impacts of project by project assessment.

The analysis is based on net present values (NPVs) over a 30 year period (2010-11 to 2039-40), comparing two options:

- the **base case** (business as usual) **scenario** of continuation of project by project assessments; compared to
- the alternative **strategic assessment scenario** of replacing project by project assessments with strategic assessments.

Seven strategic assessments currently underway are included in the alternative scenario, comprising:

1. Melbourne Urban Growth Expansion, Victoria (VIC)
2. Western Sydney Growth Centres, New South Wales (NSW)
3. Mt Peter Planned Area, Queensland (QLD)
4. Kimberley LNG precinct, Western Australia (WA)
5. Molonglo Valley, Australian Capital Territory (ACT)
6. Fire Policy, South Australia (SA)
7. Midlands Water Scheme, Tasmania (TAS)

Base Case: Unit costs 'per project' were estimated from the average cost of referrals and the average cost of 'controlled actions' (CA), which comprise assessment and approval. Costs to the Australian Government were based on DSEWPAC information in relation to calculations from the Melbourne Urban Growth Expansion Strategic Assessment, which is already completed. These were converted to full time equivalent (FTE) project officers and spread over 20 years of projects (except Sydney, which was 30 years). Australian Government costs were estimated using this method as $280,000 per annum ($196,000 to $392,000) for Melbourne, with costs for the other six programs estimated based on relative size (e.g. relative number of dwellings, relative program cost), and on jurisdictional rates of CAs relative to referrals. State and local government costs were assessed by stakeholders to be approximately equivalent to Australian Government costs. Costs to the private sector/developers/proponents were estimated as 11.4% of the value of the program, based on

calculations from the Productivity Commission and from the Australian Petroleum Production and Exploration Association (APPEA), except SA, which was 1%. **In total, costs for the project by project approach were estimated as $5.93 billion over the period 2010-2039, being $3.27 billion for Melbourne, $1.63 billion for Sydney, down to $18.3 million in SA.**

Strategic assessments: Unit costs 'per assessment' for the Australian Government were based on DSEWPAC information for the Melbourne assessment, estimated as 4 FTE working full time for 18 months - 12 months to complete the strategic assessment and a further 6 months for the approvals. For the other six strategic assessments, costs to the Australian Government were estimated based on relative size of each assessment and the time for each assessment. State and local government costs were modelled based on each State's assessment of their own investment in the strategic assessment, which ranged from 100% to 200% of base case costs in the early years. Private sector costs were zero except for WA, due to a business partnership arrangement with the WA government to share the costs of the strategic assessment. **In total, costs of strategic assessments were estimated as $7.5 million over the period 2010-2039, being $3.2 million for Melbourne, $2.0 million for Tasmania, down to $0.1 million in each of SA, ACT and Queensland**.

Findings

- The Australian Government experiences net costs in 2010 and across some locations in 2011, although the NPV overall is positive - $4.5 million net benefit across all seven programs.
- State Governments experience net costs in all years and overall, although the NPV of the net cost over all seven programs across all jurisdictions is estimated as only $0.57 million.
- In contrast, the private sector/developers/proponents are strong beneficiaries, realising an estimated $5.92 billion over all seven programs, reflecting the commercial benefits from reducing uncertainty, risk and delays.

> Across all entities, the NPV of the net benefit for the seven programs was estimated as $5.93 billion.

Sensitivity analysis was completed around the following variables:

- the lower bound of the Australian Government costs project by project i.e. $196,000 compared to $280,000;
- a 110% rather than 25% administrative loading for FTE;
- other jurisdictions' costs modelled at the same %CA as Melbourne (67%).
- the proportion of project value lost by business due to green tape risk, project delays and uncertainty in project assessments at 1% lower bound for all jurisdictions, not just SA (compared to 11.4%); and
- the discount rate at 3% and 11% compared to the 7% base case.

A summary of the results is illustrated in Table i, showing the impact on the overall NPV in each case. Reducing the private benefit from 11.4% to 1% produces the greatest difference, with a 91% reduction in private and overall net benefits. However, even in this case the overall

net benefit is still $539.9 million over the period 2010-2039, and there is no scenario where there is an overall net cost in the long term.

Table i: Sensitivity analysis findings

	Aust'n gov't	State/ local gov't	Private/ proponents*	Total
	Net benefit ($m NPV)			
Base case	**4.5**	**-0.6**	**5,922.4**	**5,926.3**
Av CW Govt Melb cost $192,000	2.8	-0.4	5,922.4	5,924.8
110% admin loading	4.5	-0.6	5,922.4	5,926.3
CA% referrals same as Melb 67%	4.5	-0.6	5,922.4	5,926.3
Private benefit 1% cf 11.4%	4.5	-0.6	536.0	539.9
Discount rate 3%	6.7	-0.7	11,236.0	11,242.0
Discount rate 11%	3.2	-0.5	3,535.9	3,538.7
	% change from base case			
Av CW Govt Melb cost $192,000	-38%	-30.0%	0%	0%
110% admin loading	0%	0%	0%	0%
CA% referrals same as Melb 67%	0%	0%	0.0%	0%
Private benefit 1% cf 11.4%	0%	0%	-91%	-91%
Discount rate 3%	47%	23%	90%	90%
Discount rate 11%	-28%	-15%	-40%	-40%

* Proponents may be quasi-public bodies or joint public/private ventures.

The findings are driven primarily by the deferral of benefits if there are project assessment delays, while costs are not deferred, reflecting the substantial upfront components of costs. Some parameters estimated by jurisdictional stakeholders may have greater associated uncertainty than other parameters in the cost benefit analysis. However, such uncertainty does not affect the general consensus (including from the Office of Best Practice Regulation) that, regardless of the parameters used, the analysis demonstrates there are overall benefits to the Commonwealth, some costs to the states, and major benefits to the private sector/proponents, including through greater certainty for business. However, the finding of net cost to the states does not take account potential second round gains for states, who would benefit from higher tax revenues collected as a result of the gains to businesses in their jurisdictions.

Access Economics

1 Background

The former Department of the Environment, Water, Heritage and the Arts commissioned Access Economics in June 2010 to provide a cost benefit analysis (CBA) of strategic assessments made under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act). In January 2010 the (renamed) Department of Sustainability, Environment, Water, Population, and Communities commissioned additional analysis in relation to the CBA, which Access Economics conducted in cooperation with the Office of Best Practice Regulation (OBPR).

1.1 Structure of this report

This report is structured as follows.

- The remainder of this initial chapter provides contextual background and an outline of the overarching problem, that project by project assessments may be less efficient than strategic assessments for achieving the same level of environmental benefit.
- Chapter 2 provides a description of data and methods used in the analysis, including stakeholders consulted and information and literature drawn upon in the CBA, in particular for each of seven planned strategic assessments over the forecast horizon.
- Chapter 3 provides a summary of the calculations in and findings from the CBA.

1.2 Contextual background

This section draws on and summarises the discussion, conclusions and recommendations of the independent review of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), known as the Hawke Review (Hawke, 2009).

1.2.1 'Strategic assessments': definitions and process

'Landscape-scale' assessments cover ideas associated with strategic and bio-regional approaches, as opposed to 'species-by-species' protections or 'project-by-project' assessment. Strategic assessments are a form of landscape-scale assessments, as are bio-regional plans and conservation agreements.

> Landscape-scale approaches often involve an assessment of broader policies and plans and are undertaken within the context of a landscape or region. Compared to project-specific assessment, these approaches have the capacity to address multiple impacts on matters of national environmental significance (NES) by different parties or projects, and consider impacts over longer temporal or larger spatial scales. The other significant difference between landscape-scale assessments and project-specific assessments is that landscape-scale assessments generally take place ahead of a proposed development, whereas project-specific assessment occurs in response to an existing proposal. (Hawke, 2009:162)

The Minister can, under Part 10 of the EPBC Act, conduct a strategic assessment of the impacts on protected matters of potential actions taken under a policy, program or plan, including:

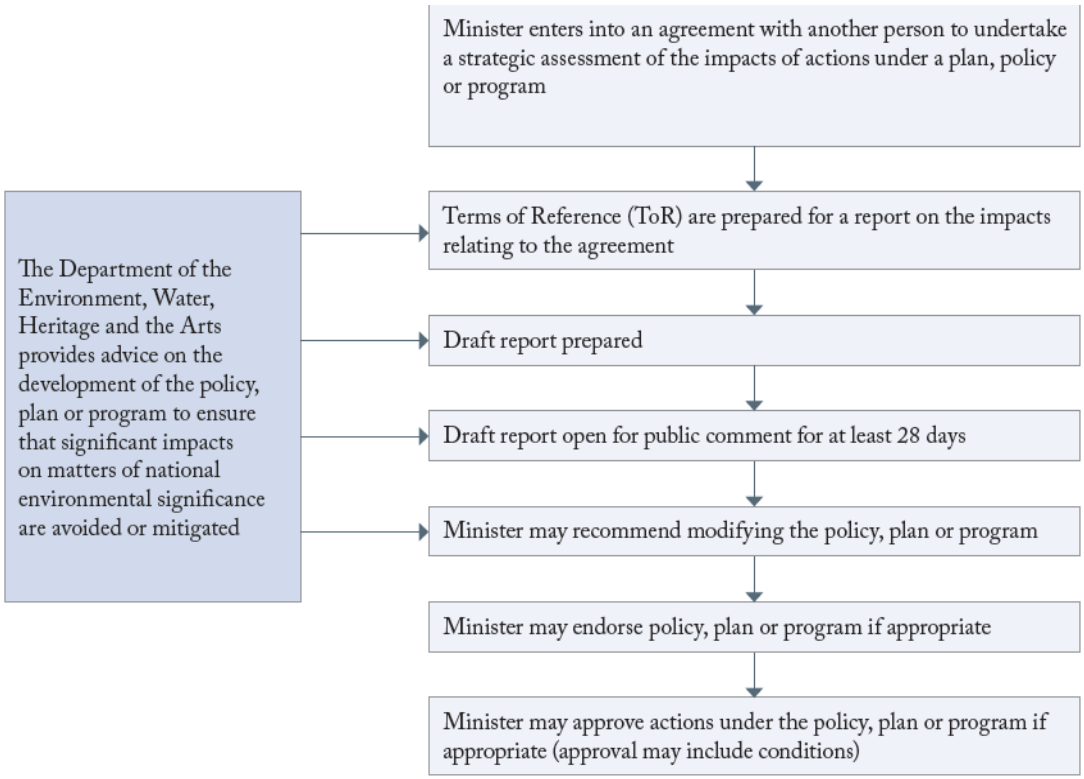
- district structure plans and planning instruments;
- large-scale industrial developments;
- vegetation or pest management policies, plans or programs;
- water extraction/use policies; and/or
- infrastructure plans and policies.

'Protected matters' are defined as:

- 'matters of national environmental significance'[1];
- the environment on Commonwealth land; and
- the environment generally where the action is carried out on Commonwealth land or is taken by the Commonwealth or a Commonwealth agency.

The process for a strategic assessment is illustrated diagrammatically in Figure 1.1.

Figure 1.1: Strategic assessment process



Source: Hawke (2009:163).

[1] For example: world heritage values of declared World Heritage properties: ecological character of declared Ramsar wetlands; listed threatened species (other than 'extinct' and 'conservation dependent' species) and ecological communities (other than 'vulnerable' ecological communities), migratory species listed under the Act; 'nuclear actions' that are likely to have a significant impact on the environment; and the Commonwealth marine environment.

1.2.2 History of strategic assessments

The Hawke Review (Hawke, 2009:163-4) notes that:

> *'The EPBC Act has provided for strategic assessments since its inception; however, strategic assessments in their original form were of little benefit to proponents and as such were rarely undertaken. The Senate Committee report notes that 'prior to 2006, strategic assessments were only undertaken in the area of fisheries, as these were mandatory under the legislation'. When the EPBC Act was enacted, the outcomes of a strategic assessment would only be taken into account in deciding the appropriate assessment approach for individual actions under the policy, plan or program. This then required both strategic and project-level assessments and approvals, which may have increased the timeframes involved.*
>
> *As part of the 2006 amendments, the incentives to undertake strategic assessments were enhanced. When endorsing a policy, plan or program the Minister may now approve actions, or a class of actions, taken in accordance with the endorsed plan, policy or program, thereby removing the need for such actions to also undergo case-by-case approval under the Act. This streamlining creates an incentive for governments, the Minister and proponents to engage in strategic assessments.'*

Two types of strategic assessments are available under the EPBC Act – regular (terrestrial) strategic assessments (which are the focus of this CBA) and fisheries strategic assessments. At the time of the Hawke Review, 18 strategic assessments of Commonwealth-managed fisheries had been completed, and three terrestrial strategic assessments had commenced:

- the common-user liquefied natural gas hub and heritage assessment in the West Kimberley (Western Australia);
- the Molonglo and North Weston Structure Plan (ACT); and
- Melbourne's Urban Growth Boundary Expansion (Victoria).

Other strategic assessments currently in negotiation are described in Section 2.2.[2]

1.2.3 Strengths and weaknesses of strategic assessments

The Hawke review draws on evidence from a variety of submissions to conclude that strategic assessments are widely supported as a mechanism to improve environmental outcomes and produce regulatory efficiencies. Some of the benefits of strategic assessments listed in the review are summarised below.

- **Potential environmental benefits**: Strategic assessments enable early consideration of matters of NES in the planning process, as well as the assessment of the cumulative impacts of activities taken under a relevant policy, plan or program – which is a weakness of project by project assessments.

[2] In addition, two strategic assessments were commenced prior to the 2006 amendments but have since been discontinued: onshore oil and gas exploration; and the conduct of major military training exercises.

- **Efficiencies and greater certainty for community proponents:** For people undertaking activities, strategic assessments provide the opportunity for EPBC assessment and approval to be streamlined. For example, if an assessment results in Ministerial endorsement of a policy, individual activities under that policy which require approval may be assessed in a less onerous way. Because strategic assessments approve classes of development, rather than individual approvals, they provide certainty for development proponents, avoid unnecessary delays in development approval processes and reduce duplication.
- **Efficiencies for government:** Strategic assessments generate efficiencies in environmental management and in harmonising Commonwealth and State and Territory processes, which are widely recognised and supported by various government bodies as they reduce the administrative burden for government entities. In its submissions to the Hawke review, the Council of the Australian Federation stated that appropriate increased use of strategic assessments could potentially (Hawke, 2009:83):
  - increase confidence in State/Territory and local government land use planning, environmental constraints and the development potential of land;
  - 'bring forward' the EPBC Act assessment, reducing the likelihood of later referrals/approvals required, with associated time and cost benefits;
  - reduce piecemeal assessments, and improve cumulative impact assessments;
  - allow for improved integration of State/Territory planning with Commonwealth assessments; and
  - reduce the potential for major project delays.
- **Indigenous capacity-building**: Strategic assessments present good opportunities to build Indigenous consultation strategies that are meaningful and capable of facilitating Indigenous interests in long-term decision-making (Hawke, 2009:25).

Although strategic assessments are seen as a beneficial tool for developing regional approaches, they do carry some risks, and issues to manage, some of which have emerged from the strategic assessments commenced to date. Particular concerns expressed in submissions to the Hawke review (Hawke, 2009:98-105) were in relation to:

- the information requirements for strategic assessments;
- the provision for public participation in strategic assessments; and
- discretion available to the decision-maker when strategic assessment approval decisions are made.

> 'In relation to strategic assessment, it is noted while it is strongly advocated in several submissions, there remains considerable uncertainty as to appropriate methodologies and circumstances for its application, the scale at which it might operate, the extent to which it can reasonably substitute for project-by-project assessment, how it can deal with mitigation strategies including offsets, and its capacity to address intractable land use conflicts. There is limited experience in use by both Commonwealth and states and territories.' Government of Western Australia (WA) submission (Hawke, 2009:98)

1.2.4 Recommendations for implementation of strategic assessments

To manage the risks outlined in the previous section, the Hawke review made some general conclusions about how strategic assessments should ideally be implemented (Hawke, 2009:99).

- The strategic assessment process should commence early in the formulation of a plan, policy or program to achieve maximum benefits.
- A strategic assessment should deal with alternative scenarios.
- Strategic assessment should have meaningful public engagement.
- The process should put in place a rigorous, information-based process to develop objective, quantitative procedures for assessing the adequacy of plans, policies and programs seeking approval.
- The approach should add value to existing plans, by ensuring they satisfy the requirements of the Act.

The Hawke Review also made a number of fairly specific recommendations in relation to process issues with implementation of strategic assessments, including that the Government consider a requirement to consider cost-effective climate change mitigation opportunities in strategic assessments (Hawke, 2009:27). Two other examples are provided below.

- Example 1 (Hawke, 2009:100): The Act currently specifies form and content requirements for project assessment referrals. Referrals which do not meet these requirements are considered invalid and are not accepted. Similarly, form and content requirements for strategic assessments should be inserted into the Act. Specific requirements should be contained within the Regulations.
- Example 2 (Hawke, 2009:105): The current strategic assessment process requires the person or agency responsible for a plan, policy or program to enter an agreement to undertake the assessment. The effect of this is that the Australian Government is unable to assess a plan unless invited to by the person or agency responsible for the plan. This places the Australian Government in an invidious position – it can be accused of causing regulatory inefficiencies but is powerless to initiate the early planning interventions that will solve the problem. The Act should be amended to include a 'call in' power where a plan, policy or program is to be made that is likely to have a significant impact on protected matters. The power could be activated by failure of the person or agency responsible for the plan, policy or program to engage in a collaborative strategic assessment.

Since most terrestrial strategic assessments, so far at least, have been spatial plans, the Hawke Review suggested **minimum requirements for spatial plans** as follows (Hawke, 2009:100-101):

a) collation of reasonably available information, identifying and filling critical knowledge gaps:

- information should include the spatial extent of threatened species, ecological communities or heritage areas;
- the assessment should present maps of habitat for listed threatened species, ecological communities, heritage areas and other important environmental components; and

- the process should include a call for relevant, existing data from researchers, consultants and others.

b) identification of matters of NES and establishment of outcome objectives for the plan, policy or program;

- the assessment should state the minimum acceptable conservation outcomes for each of the environment and heritage values that the plan considers;

c) examination of development and land-use options with the aim of minimising impacts on protected matters and retaining ecological integrity;

d) an analysis of the consequences of the different options including:

- estimates of impacts;
- how the plan avoids, offsets and mitigates impacts on protected matters; and
- a measure of the uncertainty associated with the analysis;

e) a description of mitigation measures, and quantification of expected benefits including:

- how future conservation 'gains' will be funded, measured and enforced; and
- analysis of the adequacy of the extent of habitat that will exist following the implementation of the plan, policy or program; and

f) a description of adaptive management approaches in the plan, policy or program – these should:

- indicate what actions will follow, should planned conservation actions not be implemented, or should expected outcomes from conservation actions not be achieved (that is, contingency plans should be clearly documented to account for environmental uncertainties); and
- allow for the unexpected, including new discoveries of species, habitats and/or communities of conservation concern in areas to be impacted by the proposed development.
- As strategic assessment practice develops for the assessment of policies and programs, different minimum information requirements may be appropriate.

Finally, Chapter 17 of the Hawke review drew some **specific conclusions in relation to cost recovery** (Hawke, 2009:348).

- Current cost recovery guidelines outline a process that relies on administrators calculating the private benefits stemming from a particular activity and directly relating that to the costs incurred by the Government. It is relatively simple to identify the person from whom costs can be recovered for project-by-project assessments, as the proponent is clearly the party receiving the private benefit. It is more challenging to identify the beneficiaries of a strategic assessment, as they apply to actions that will occur sometime in the future and may be carried out by as-yet-unknown proponents.
- While it is possible to charge State, Territory or Local governments for the assessments of plans, there is a real chance that introducing cost recovery would be a disincentive to undertaking strategic assessments. If the Australian Government decides that encouraging strategic assessments is a policy objective, **cost recovery may not be appropriate at this stage**.

In summary, in relation to strategic assessments, the Hawke review recommended that:

- the Australian Government expands the role of strategic assessments and bioregional plans so that they are used more often, and strengthens the process for creating these plans and undertaking these assessments, so they are more substantial and robust (Recommendation 6.1);
- the Act be amended to provide for strategic assessments to (Recommendation 6.2):

i specify mandatory required information for strategic assessments;

ii insert an 'improve or maintain' test for the approval of a class of actions in accordance with an endorsed plan, policy or program;

iii enhance provision for public engagement; and

iv create a 'call in' power for plans, policies and programs likely to have a significant impact on matters of National Environmental Significance, and amending the term 'action' to incorporate these plans, policies or programs.

- water plans that authorise actions that have, will have or are likely to have a significant impact on a protected matter undergo strategic assessments (Recommendation 9);
- the Act be amended to insert a requirement to consider cost-effective climate change mitigation opportunities as part of strategic assessments (Recommendation 10);
- the Act be amended so that the fishery provisions are streamlined into a single strategic assessment framework (Recommendation 40); and
- DSEWPAC strengthens processes for early engagement with Indigenous groups in strategic assessment and regional planning (Recommendation 45).

2 Methodological approach

The methodological approach has been guided by the information from the Hawke review in relation to the likely nature of benefits from strategic assessments. This has been particularly relevant in consideration and costing of financial aspects caused by postulated efficiencies, quicker processes and reduction in duplication.

However, although the Hawke review argued that strategic assessments may provide greater protection for the environment (e.g. Hawke, 2009:14 stated that 'real efficiency and environmental benefits could be gained by moving to greater use of strategic assessments and regional planning tools'), such benefits are beyond the scope of consideration in this CBA. The environmental impacts from a strategic assessment approach are thus assumed at least equivalent to the impacts of project by project assessment. In both cases environmental impacts are required to be 'not unacceptable or unsustainable'.

The analysis is based on net present values (NPVs) over a 30 year period (2010-11 to 2039-40), comparing two options:

- the **base case** (business as usual) **scenario** of continuation of project by project assessments; compared to
- the alternative **strategic assessment scenario** of replacing project by project assessments with strategic assessments.

The CBA uses parameters that comply with the Council of Australian Governments (COAG) Best Practice Regulation guidelines (October 2007). The base case discount rate is thus 7% (real), with sensitivity analysis at 3% and 11%.

2.1 Consultation processes

Cost estimates for the base case and strategic assessment scenario were derived from existing DSEWPAC data sources supplemented by consultation process with key government and industry stakeholders. Stakeholders consulted included:

- the Victorian Department of Planning and Community, State Strategy Directorate regarding the Melbourne Urban Growth Centres;[3]
- the NSW Department of Planning, Land Release Directorate, regarding the Western Sydney Growth Centres;
- the WA Department of State Development, State Initiatives area, Woodside, and the Australian Petroleum Production and Exploration Association (APPEA), regarding the Kimberley LNG precinct and APPEA's claim in the Hawke review about the costs of delays for LNG projects and hence commensurate savings from reducing delays for projects;
- the Manager of Land Policy at the ACT Planning & Land Authority, regarding the Molonglo Valley development;

[3] Victorian Department of Sustainability and Environment, Biodiversity & Ecosystem Services Division was contacted, but unable to schedule an interview in the timeframes.

- the SA Department for Environment and Heritage's Statutory Planning and Assessment Unit, regarding the Fire Policy assessment;
- the Manager of Major Projects at the Tasmanian Department of Primary Industries and Water, regarding the Midlands Water Scheme;
- the QLD Department of Infrastructure and Planning senior policy officer, regarding the Mt Peter Planned Area; and
- the Urban Development Institute of Australia (WA Division), regarding strategic assessments generally and for WA in particular.

Consultation was conducted using teleconferencing outside of Canberra, Sydney and Melbourne. The purpose of the consultations was to estimate and triangulate the costs and phasing of a project-by-project approach historically, and of each strategic assessment and the reductions in project-by-project assessments associated with each.

Some stakeholders also took the opportunity to provide comments on the strategic assessment process as they perceived it. Strategic assessments were universally welcomed by stakeholders and were perceived as having advantages for the environment as well as in terms of overall cost savings, although they were not seen as a 'magic bullet' and had their own set of challenges in implementation. For example, for the seven strategic assessments reviewed in this study, there was a reported learning curve to master, as well as supply constraint issues – such as finding consultants skilled in strategic as opposed to project assessments. State government stakeholders highlighted that the assessments involved shifting costs from the Australian Government to state and territory governments and, although this was worth it since there were social benefits overall, there was mention of additional Australian Government funding to help compensate for this.

2.1 Base case scenario - costs

2.1.1 Overview

The base case scenario entails costs to the Australian Government and other sectors of continuing to carry out project by project assessments. These cost estimates are based on the operation of the EPBC Act over the last 10 years, projected forward.

Historical cost estimates for the base case have been derived from data provided by and discussions with DSEWPAC, regarding parameters such as:

- number of project referrals per annum by jurisdiction and industry;
- number of controlled actions arising from referrals; and
- average cost per referral.

Access Economics derived forward projections, based on historical trends from these data together with agreed assumptions about future growth parameters (e.g. inflation, demographic growth etc). Cost information was gathered from the perspectives of:

- the Australian Government;
- businesses/industry; and
- state/territory governments and other entities.

2.1.2 Findings from the data

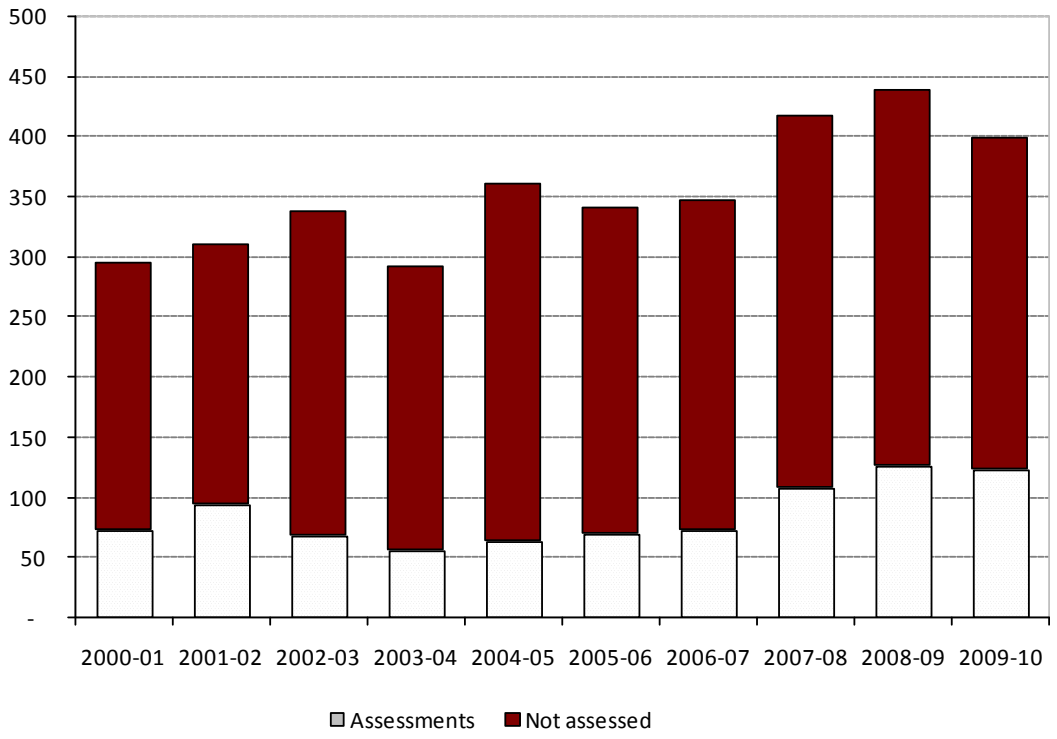
Data provided by DSEWPAC on referrals and assessments by financial year from 2000-01 to 2009-10 were analysed. In total there were 3,532 referrals over the decade with 849 (24%) of these assessed on average, although the average percentage assessed increased from 22% in the first five years to 25% in the second five years (Table 2.1). The average annual growth rate of referrals was 4.1% per annum – substantially higher than growth in population or in national income (Chart 2.1).

Table 2.1: Referrals and assessments by financial year, 2000-01 to 2009-10

	Referrals	Assessments	Not assessed	% assessed	% growth in referrals
2000-01	294	72	222	24%	
2001-02	309	94	215	30%	5.1%
2002-03	337	68	269	20%	9.1%
2003-04	291	55	236	19%	-13.6%
2004-05	360	63	297	18%	23.7%
2005-06	340	69	271	20%	-5.6%
2006-07	347	72	275	21%	2.1%
2007-08	417	107	310	26%	20.2%
2008-09	438	126	312	29%	5.0%
2009-10	399	123	276	31%	-8.9%
Total	**3,532**	**849**	**2,683**	**24%**	**4.1%**

Source: Access Economics analysis of DSEWPAC data.

Chart 2.1: Referrals and assessments by financial year, 2000-01 to 2009-10



Source: Access Economics analysis of DSEWPAC data.

Queensland had the most referrals (843 or 23.9%) followed by Victoria (648 or 18.3%) and then NSW (628 or 17.8%). Assessment rates were highest in the Northern Territory (NT) at 40%, followed by Queensland with 32% and WA with 31% (Table 2.2). ACT had the lowest assessment rate at 10%.

Table 2.2: Referrals and assessments by jurisdiction, 2000-01 to 2009-10

Jurisdiction	Referrals	Assessments	% assessed	% total referrals	% total assessments
ACT	149	15	10%	4.2%	1.8%
NSW	628	135	21%	17.8%	15.9%
NT	94	38	40%	2.7%	4.5%
Qld	843	271	32%	23.9%	31.9%
SA	209	50	24%	5.9%	5.9%
Tas	143	31	22%	4.0%	3.7%
Vic	648	111	17%	18.3%	13.1%
WA	487	150	31%	13.8%	17.7%
Other territories*	331	48	15%	9.4%	5.7%
Total	**3,532**	**849**	**24%**	**100%**	**100%**

Source: Access Economics analysis of DSEWPAC data. * 'Other territories' comprise the Australian Antarctic territory, Christmas Island, Cocos and-Keeling Islands, the Commonwealth Marine area, Jervis Bay, Norfolk Island, and other Australian Territories.

By category, residential development comprised most referrals (15.1%), followed by mining (11.6%) and land transport (9.4%). The percentage assessed was highest in mining (47%) and in manufacturing (44%) (Table 2.3).

Table 2.3: Referrals and assessments by category, 2000-01 to 2009-10

Category	Refer-rals	Assess-ments	% assessed	% total referrals	% total assessments
Agriculture and forestry	65	16	25%	1.8%	1.9%
Aquaculture	63	22	35%	1.8%	2.6%
Commercial development	296	51	17%	8.4%	6.0%
Commonwealth	97	20	21%	2.7%	2.4%
Energy generation and supply (non-renewable)	214	60	28%	6.1%	7.1%
Energy generation and supply (renewable)	135	22	16%	3.8%	2.6%
Exploration (mineral, oil and gas - marine)	326	13	4%	9.2%	1.5%
Exploration (mineral, oil and gas - non-marine)	25	3	12%	0.7%	0.4%
Manufacturing	59	26	44%	1.7%	3.1%
Mining	408	191	47%	11.6%	22.5%
Natural resources management	119	17	14%	3.4%	2.0%
Private	8	3	38%	0.2%	0.4%
Residential development	534	150	28%	15.1%	17.7%
Science and research	61	2	3%	1.7%	0.2%
Telecommunications	63	6	10%	1.8%	0.7%
Tourism and recreation	242	54	22%	6.9%	6.4%
Transport - air and space	26	13	50%	0.7%	1.5%
Transport - land	332	72	22%	9.4%	8.5%
Transport - water	108	37	34%	3.1%	4.4%
Waste management (non-sewerage)	42	6	14%	1.2%	0.7%
Waste management (sewerage)	88	10	11%	2.5%	1.2%
Water management and use	221	55	25%	6.3%	6.5%
Total	**3,532**	**849**	**24%**	**100%**	**100%**

Source: Access Economics analysis of DSEWPAC data.

In terms of the assessment approach, preliminary documentation was highest (355 of the 849 assessments), with bilateral agreements next (169), with 121 not stated (Table 2.4).

Table 2.4: Referrals and assessments by approach and year, 2000-01 to 2009-10

Year	Accredited Process	Assessment Under Bilateral Agreement	Environmental Impact Statement	Preliminary Documen-tation	Public Environment Report	Referral Infor-mation	Not stated	Total
2000-01	7		6	22	3	-	-	38
2001-02	25	3	8	28	4	-	-	68
2002-03	15	4		21	2	-	-	42
2003-04	10	2	2	21	4	-	-	39
2004-05	7	14	4	25	2	-	-	52
2005-06	5	25	2	20	4	-	-	56
2006-07	1	25	1	45	6	1	-	79
2007-08	7	37	6	55	6	4	-	115
2008-09	4	30	17	61	7	3	-	122
2009-10	8	29	4	57	10	9	-	117
Not stated	-	-	-	-	-	-	121	121
Total	**89**	**169**	**50**	**355**	**48**	**17**	**121**	**849**

Source: Access Economics analysis of DSEWPAC data.

2.1.3 Unit costs per project

Costs 'per project' were estimated from the average cost of referrals and the average cost of 'controlled actions' (CA), which comprise assessment and approval.

Australian Government costs were based on DSEWPAC information in relation to calculations from the Melbourne Urban Growth Expansion Strategic Assessment, which is already completed (see Section 2.2.2). In that process, data were analysed which identified matters of NES for nearly half of the existing 28 precincts captured by the Newest Sustainable Communities Program. Using this information, an average of 2-3 referrals were normally expected for each precinct, of which two would be expected to be CA based on current decision-making processes. The existing precincts cover about one third of the total Program area implying around 84 precincts in total (i.e. 28 X 3). This equates to about 210 (168-252) referrals of which two thirds or 140 (112-168) are likely to be CA, over a project horizon of 20 years (2010-2030). The parameter of two thirds was substantially higher than the Victorian average rate of 17% CA, but stakeholders confirmed the higher rate based on the latest region-specific information.

DSEWPAC provided advice, based on referrals' experience, about how many referrals one full time equivalent (FTE) officer can action per year, including processing and management of referrals leading to a s75 decision i.e. whether the referral is CA, not controlled action (NCA) or PM (action to be taken in a particular manner). The average number of CA projects per FTE officer is 3-4 per annum, comprising 12-18 weeks full time to complete a project (based on 4-6 weeks for assessment, 4-6 weeks for approval and 4-6 weeks for project management). This assumes that major projects will be managed by a dedicated taskforce at critical stages. Additional support staff are required for management, to cover absences and staff turnover,

averaging 1 FTE for 4 FTE of project staff (i.e. a 25% administrative loading)[4]. In total there were an estimated 56 (39.2-78.4) FTE, spread over 20 years of projects at an average cost (estimated and confirmed by DSEWPAC) of $100,000 per FTE project officer.

A base case, low and high case are presented in Table 2.5, showing total costs estimated using this method as $280,000 per annum in the base case, ranging from $196,000 to $392,000 in the low and high sensitivities, respectively.

Table 2.5: Cost estimates for project by project costing - Australian government

	Base	Low	High
FTE pa for Referrals	6.0	4.2	8.4
CA/FTE pa	3.5	4	3
FTE pa for CA	40	28	56
FTE (admin loaded)	50	35	70
Total FTE over 20 years	56	39.2	78.4
Total FTE pa	2.8	1.96	3.92
Cost pa ($)	280,000	196,000	392,000

State and local government and private sector costs per project were estimated from consultation processes.

- State and local government costs project by project were estimated based on relativities to Australian Government costs. In the base case, the relevant State and Commonwealth stakeholders interviewed considered that state and local government costs would be similar to those for the Commonwealth Government, so they were modelled at parity.
- Private sector costs were based on modelling undertaken by the Productivity Commission (2009) in relation to approval delays from regulation and the cost of uncertainty for business using case studies from the oil and gas sector.

  "The Commission estimates that expediting the regulatory approval process for a major project by one year could increase the NPV of returns by 10–20% simply by bringing forward income streams (the approach used is summarised in Box 1). Estimates of the benefits from reducing delays obviously are sensitive to the number of projects being delayed unnecessarily and the additional costs incurred as well as other parameters (such as the discount rate). But given the size of individual projects and the pervasiveness of regulatory delays, the potential benefits will be significant."

[4] This loading was considered conservative by some stakeholders consulted. One stakeholder provided information suggesting that the loading may more appropriately be 110%, so this was modelled in one sensitivity.

Box 1 Estimating the economic cost of approval delay

The Commission applied cash-flow discounting techniques to estimate the economic cost associated with approval delay. A delay was represented by a backward shift in the time distribution of cash flows from petroleum projects. The economic cost of delay was calculated as the difference between the net present value estimates obtained for a delay scenario and the base case (without the simulated delay).

The distribution of cash flows over the project life was estimated using aggregate data for all economic petroleum fields discovered in Australia up to 1987. By drawing on a comprehensive database, the model captures the 'average' characteristics of all petroleum operations in Australia — particularly their project sizes, cost structures and hydrocarbon prospectivities.

A discount rate of 10 per cent was used in calculating the present value of a stream of cash flows. This represents the weighted average cost of capital for the sector, comprising a risk-free rate and an equity risk premium commensurate with non-diversifiable project risks.

- In line with this Productivity Commission range of 10-20% of project costs, APPEA has modelled that, for a project with an NPV of $2.7 billion, a 1 year delay would result in ~11.4% of NPV therefore around $300 million in cost to the project proponents.[5]
- The 11.4% parameter was considered a reasonable parameter estimate by most stakeholders, although South Australia estimated in relation to their strategic assessment that 1% was a more appropriate parameter (which was thus used), as the benefits to the private sector in SA were more indirect and limited to benefits for adjacent landowners, reduction of fuel and fire risk. One other stakeholder suggested that 11.4% may be substantially too high overall. As such, a sensitivity analysis was conducted on this parameter for all jurisdictions at 1%, to estimate a potential lower bound.

2.2 Strategic assessment scenario - costs

2.2.1 Overview

The strategic assessment alternative scenario essentially involves:

- project by project assessments continuing until strategic assessments are phased in; and
- the cost of strategic assessments themselves.

In terms of timing, DSEWPAC's historical experience was that there was an initial period of cost overlap while strategic assessments were being developed but while project by project assessments were continuing. Over the longer term, however, it was considered likely from the Hawke review evidence that project by project costs would be lower than in the base case.

[5] DSEWPAC referenced this to by APPEA's *Upstream Oil & Gas Industry Strategy – Platform for Prosperity*, for a 'typical' LNG project based on key parameters (p34), and APPEA is confirming this citation at the time of this draft report. http://www.appea.com.au/images/stories/Policy_-_Industry_Strategy/Strategic_Leaders_Report.pdf

2.2.2 Strategic assessments included in the CBA

Seven current strategic assessments under the EPBC Act were in scope for the CBA, as agreed with DSEWPAC. Information on the phasing, nature, scope and scale of the strategic assessments is summarised below, which draws on information provided by DSEWPAC and from the consultation process as well as the terms of reference for strategic assessments from http://environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=strategic;limit=7;text_search

Melbourne Urban Growth Expansion, Victoria (VIC)

The program, delivering Melbourne' s Newest Sustainable Communities, has been strategically assessed and was endorsed by the Commonwealth on 2 February 2010. The Program allows for 284,000 new homes within new urban growth areas and major public infrastructure (Regional Rail Link and Outer Metropolitan Ring Road) and will establish 15,000ha of new reserves of protected native vegetation. Developments undertaken in accordance with the Program will not need EPBC Act consideration or approvals.

Western Sydney Growth Centres, New South Wales (NSW)

On 11 November 2009 the Commonwealth and NSW governments signed an agreement to undertake a strategic assessment of the Western Sydney Growth Centres, with strategic assessment reports expected by mid-2010. These new growth centres are expected to provide 181,000 new homes and the strategic assessment will examine NSW Government proposals to manage and protect matters of national environmental significance as part of development planning and implementation. If approved, further approvals for individual developments under the EPBC Act will not be needed.

Mt Peter Planned Area, Queensland (QLD)

On 28 February 2010 the Commonwealth and Queensland governments signed an agreement to undertake a strategic assessment of the Mt Peter Master Plan Area. The plan provides for a new growth centre, 15km south of Cairns, to cater for 45,000 people over 25 years. If approved, further approvals for individual developments under the EPBC Act will not be needed.

Kimberley LNG precinct, Western Australia (WA)

In 2008, the Australian and Western Australian governments agreed to a strategic assessment of a proposed common-user Browse basin liquefied natural gas (LNG) precinct. The use of a single, common-user LNG precinct is proposed as it will create economic synergies for those industry groups interested in processing gas resources from the Browse basin. At the same time it intends to prevent piecemeal development by individual companies and the cumulative impact that would arise if there was widespread industrialisation of the Kimberley coastline. If approved, further approvals for individual developments under the EPBC Act will not be needed.

Molonglo Valley, Australian Capital Territory (ACT)

The Commonwealth and ACT governments entered into an agreement on 11 September 2008, to conduct a strategic assessment of the impacts of urban development, broadacre land use and associated infrastructure in the Molonglo Valley and North Weston areas. The Molonglo

Valley will be developed over the next 20-30 years as the next major urban area in the ACT and will house approximately 55,000 people. Both governments are working collaboratively through the assessment process to address potential impacts of the development on matters of national environmental significance. The draft assessment report was released on 17 March 2009. If approved, further approvals for individual developments under the EPBC Act will not be needed.

Fire Policy, South Australia (SA)

On 15 January 2010, the Commonwealth and South Australian governments entered into an agreement to conduct a strategic assessment of fire management policy for lands under the care and control of the South Australian Minister for Environment and Conservation. Through this strategic assessment the Australian Government will work with the South Australian Government to ensure the impacts, on matters of national environmental significance due to fire hazard reductions works, are managed to an acceptable level. Terms of Reference for the assessment were released for public comment, with comments (due to the South Australian Government by 7 April 2010) thereafter reviewed.

Midlands Water Scheme, Tasmania (TAS)

In November 2009 a terms of reference was signed and on 5 February 2010 the Commonwealth and Tasmanian governments signed an agreement to undertake a strategic assessment of the Tasmanian Government's Water Access Program for the Midlands Water Scheme. The Scheme proposes to deliver 47,500 megalitres of water per annum to approximately 15,800 ha of farmland in the Midlands of Tasmania (involving 491 farmers). If approved, further approvals for individual developments under the EPBC Act will not be needed including irrigation water uptake by farmers and subsequent land use changes.

2.2.3 Unit costs per assessment

Of the seven assessments, background cost information on the Melbourne Strategic Assessment was most easily obtained, given that this assessment is now completed. As such, cost detail for this assessment was examined most closely and is summarised in this section.

The Melbourne Strategic Assessment caters for over 50% of Melbourne's projected population growth over the next 20 years, including for 284,000 new homes in four new growth areas (43,645ha) commencing in 2016. This total figure includes nearly 75,000 new homes in 28 new suburban precincts (15,581ha) within Melbourne's current growth boundary and the Regional Rail Link Stage 2 (30km of new rail from west of Werribee to Deer Park). Rail Link Stage 2 is funded through the Building Australia Fund ($3.2 billion of a $4.3 billion project), with the remainder funded by the Victorian Government.

The Victorian Budget papers[6] show the distribution of total project funding as $251 million in 2008-09, $42 million 2009-10, $510 million in 2010-11, $863 million in 2011-12, $1,389 million in 2012-13, and $1,245 million in 2013-14. In total, from a 2010-11 perspective, the NPV of the rail element of the project is $3.84 billion.

[6] www.budget.vic.gov.au/CA2576BD0016DD83/WebObj/BP3AppE/$File/BP3AppE.pdf Appendix E, Table E1, p473.

In addition, the value of the housing component is estimated based on 284,000 homes being built steadily over the 20 years (i.e. 14,200 homes per year to 2030), with no change in the real value of the home (potentially conservative). The average real 2010-11 value of a home in this area was estimated as $310,306, based on the average of mean house and unit prices in Deer Park and Werribee for the 12 months to January 2011.[7] The total NPV of the residential housing is estimated as $46.68 billion.

> In total, the NPV in 2010-11 of the whole Melbourne project is estimated as $50.52 billion.

DSEWPAC provided internal calculation of resources saved from the Melbourne Strategic Assessment Program compared to continuing project by project assessments, estimating the overall cost to the Australian Government of the Melbourne Strategic Assessment as $600,000 over 18 months compared to $6 million over 20 years in 2010 dollars for project-by-project assessments. (DSEWPAC's calculations did not discount future flows.)

The calculations underlying the project by project costing were the basis for Access Economics' costing of Australian Government unit project costs for the base case in Section 2.1.3 (with discounting undertaken in the CBA in the next chapter). The calculations underlying the strategic assessment calculation were based on estimated FTE from a cost recovery exercise, which assumed 4 FTE working full time for 18 months - 12 months to complete the strategic assessment and a further 6 months for the approvals. (The calculation was not discounted, hence the result of $600,000 assuming $100,000 per FTE per annum.)

DSEWPAC's calculations did not include post-approval monitoring resources, although post-approval monitoring and audit may entail more resources for the project-by-project assessment compared to the strategic assessment (e.g. 168 possible projects to be managed versus 1 Program approval). Due to the paucity of data, this element was excluded from the CBA.

[7] http://www.rs.realestate.com.au/cgi-bin/rsearch?a=sp&s=vic&u=deer%20park and http://www.rs.realestate.com.au/cgi-bin/rsearch?a=sp&s=vic&u=werribee

3 Cost benefit analysis – findings

This chapter presents the costs of the strategic assessment scenario relative to the base case, using a model constructed in Microsoft Excel. The purpose of the CBA is to determine if the alternative is cost-neutral, cost-saving or an additional cost in comparison to the base case.

The CBA outcomes hinge on the relative size of the costs under the base case and under the scenario, and their phasing.

The net benefit or net cost is estimated for Government, business and overall. All calculations are estimated in NPV terms.

A summary of data sources and methods for the CBA, as described in much greater detail in Chapter 2, is provided in Table 3.6.

Table 3.6: Summary of information for CBA

Cost/benefit category	Source of data
(1) Project by project assessments (base case): costs	
Costs to Australian government (referrals * average cost/referral)	DSEWPAC
Costs to industry (delays, overhead, expenses)	Literature, consultation
Cost to other entities (e.g. state governments)	Literature, consultation
(2) Strategic assessments (scenario): costs	
Costs to Australian government (assessments * phased cost)	DSEWPAC
Costs to industry (input to the assessment)	Literature, consultation
Costs to other entities (e.g. state governments)	Literature, consultation
(3) Benefits	
Benefits to the environment	Not necessary, assumed equivalent
Net social benefits (costs) of scenario	NPV (1) – NPV(2) by bearer
Benefit:cost ratio	[NPV (1) – NPV(2)] / NPV(2)

3.2 Base case – continuation of the status quo

3.2.1 Costs to Australian government

Costs to the Australian Government were estimated based on the number of referrals and CAs per annum in each area multiplied by the unit cost per referral and per CA estimated in Section 2.1.3.

For each of the other six areas, Australian government costs were modelled based on the size of the projects relative to Victoria.

So, for example, in Sydney where 181,000 dwellings are envisaged compared to 284,000 in Melbourne, referrals were estimated as 63.7% of the number of referrals in Melbourne. However, consultations revealed that the key factors deemed to determine the number of

referrals and controlled actions under the EPBC Act for the Sydney growth centres are the size of the holdings and the threshold to trigger either referral or CA. In the Growth Centres there are 349 patches of Cumberland Plain Woodland (CPW, which is EPBC listed) shared across approximately 6,193 lots. Of these, around 4,850 lots with CPW are less than 0.5ha, some 343 lots are between 0.5 and 2 ha, and about 1,000 lots are greater than 2 ha. These figures include areas to be protected/not subject to development, therefore they would not result in referrals. Depending on what triggers a referral, the number of referrals required could be very high or very low (hence we conducted sensitivity analysis on the %CA parameter). Lots less than 0.5 ha would generally not trigger referrals, so these are excluded. This leaves 1,143 lots, of which NSW Department of Planning felt a range of some 140 to up to 620 referrals would be a useful range for the modelling. Hence the CAs modelled were 29 (potentially ranging up to 90).

In Queensland the share was (45,000/2.5)/284,000=6.3%, reflecting the smaller number of people (45,000) and the average number of people per household (2.5).[8] Similarly, in ACT the share was (55,000/2.5)/284,000=7.7%. Stakeholder comments included that the relativities between jurisdictions are affected by various factors – e.g. the size of the landholdings, but the various other factors tend to counter each other, so relative size of the project was accepted as a reasonable estimate overall.

SA and TAS did not have directly transferrable estimates of the numbers of referrals affected, so estimates were based on consultations in each case.

- In Tasmania, there was estimated to be a higher rate of referrals than in Melbourne as the region was described as a 'biodiversity hotpsot'. Hence the referral rate was based on 50% of the number of farmland properties - or 246 referrals over the 20 years, leading to 53 CAs in that period.
- In SA, from consultation advice, the modelling was based on a similar scale to Queensland in terms of referrals and CAs, with 13 referrals in total and 3 CAs estimated. However, in SA the value of the project was not based on 11.4% but on 1%, in line with assessments from the consultation process (recall Section 2.1.3).

In WA, the nature of the Kimberley project is very different from the mainly residential projects, so was based on relativities in value, being some 10.7% the size of the expansion of Melbourne in dollar terms (based on two projects at $2.7 billion each, relative to one project at $50.52 billion).

The unit costs per assessment were thus modelled using the parameter estimates summarised in Table 3.7. All projects were modelled based on 20 years of projects from 2010 – except Sydney, where the growth Centres are expected to develop over the next 30 (or more) years – with discounting at 7% per annum.

3.2.2 Cost to state and local governments, the private sector and overall

For the reasons in Section 2.1.3, the State and local government costs were modelled the same as the Australian government costs, while the private (or proponent) costs were estimated as

8 http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/F32FDFD19296EC55CA25773B0017C628?opendocument

11.4% of the value of the projects in each case. Project value defaulted to relativity to Melbourne, when not known. WA was an exception, in that state costs were borne 1/3 by the government and 2/3 by the private sector under a partnership arrangement.

Table 3.7: Key parameters for unit cost modelling – base case (project by project)

	VIC	NSW	QLD	WA	ACT	SA	TAS
Australian government (a)							
Size relative to Melbourne (b)	100%	63.7%	6.3%	10.7%	7.7%	6.3%	6.3%
Referrals (over 20 years) (c) (d)	210	134	13	22	16	13	246
% CA (jurisdiction average) (e)	67%*	21%	32%	31%	10%	24%	22%
CAs (over 20 years) (c)	140	29	4	7	2	3	53
$ per annum for 20 years (f)	280,000	46,998	9,542	15,553	5,248	7,587	130,108
State and local governments							
$ per annum for 20 years (c)(g)	280,000	46,998	9,542	15,553	5,248	7,587	130,108
NPV ($m, 30 years) (k), governments	3.17	0.62	0.11	0.18	0.06	0.09	1.47
Private sector/developer/proponent (h)							
Project value $ m (over 20 years) (i)	50,520	32,198	3,202	5,400	3,914	3,202	3,202
$ m pa cost for 20 years (11.4%) (j) (c)	288.0	122.4	18.3	30.8	22.3	1.6	18.3
NPV ($m, 30 years) (k), private sector	3,264.2	1,624.5	206.9	348.9	252.9	18.1	206.9
NPV ($m, 30 years) (l), Total private sector and governments	**3,270.6**	**1,625.8**	**207.1**	**349.3**	**253.0**	**18.3**	**209.8**

(a) The cost to the Australian government reflects the amount of processing referrals and CAs required currently, based largely on the assessment of jurisdictions regarding the size/value of each project relative to Melbourne, and other factors (e.g. greater biodiversity issues in Tasmania).

(b) NSW=181,000/284,000. QLD = (45,000/2.5)/284,000. WA=5.4/50.52. ACT=(55,000/2.5)/284,000. SA and TAS based on QLD from consultations, given the different nature of these projects (fire and water respectively).

(c) Except NSW, which was 30 years.

(d) Referrals calculated as "Size relative to Melbourne" * 210, except Tasmania where actual referrals were estimated through consultation as 491*50%.

(e) Data based on Table 2.2 jurisdiction average from DSEWPAC data, except for Vic where newer, local data were available for the precise region rather than for the whole jurisdiction.

(f) Calculated based on total referrals, total CA, the years of the project, referrals per FTE, CA/FTE, the FTE loading and the cost per annum per FTE, as explained in Section 2.1.3 and summarised in Table 2.5 for Vic.

(g) States estimates as 100% Commonwealth costs in the base case.

(h) Proponents may be quasi-public bodies or joint public/private ventures.

(i) Calculated as "Size relative to Melbourne" * 50,520 (as derived in Section 2.2.3), except for WA, where the project value was independently estimated by APPEA and, in turn, determined the size relative to Melbourne.

(j) Calculated as "Project value" *11.4% / Years of project except for SA where the parameter is 1% not 11.4%.

(k) Calculated as the NPV over 30 years with a 7% real discount rate for the streams in the row above.

(l) Calculated as the private sector NPV plus twice the government NPV.

For all 7 projects, the NPV of the Commonwealth costs was estimated as $5.7 million, for the State and local governments the cost was also $5.7 million in the base case, while the cost to the private sector/proponent was estimated as $5.92 billion. Total costs of the project by project approach were thus estimated as $5.93 billion over the period 2010-2039, being $3.27 billion for Melbourne, $1.63 billion for Sydney, down to $18.3 million in SA.

The projects in WA, SA and Tasmania are different in nature from those in the other jurisdictions – particularly from Melbourne, on which many of the relativities are based. While the value of the WA project was able to be estimated by APPEA, there is greater uncertainty in relation to the value of the projects in SA and Tasmania, where the total value of the investments has not yet been estimated in practice. Stakeholders in SA and Tasmania approximated the project values as roughly equivalent to the Queensland investment of 18,000 homes for, respectively, ongoing fire risk reduction and for a relatively large scale capital investment in irrigation infrastructure. In SA, the stakeholder consultation led to a base case assessment of using the 1% parameter in costing, rather than 11.4%. For Tasmania, however, 11.4% was used. Sensitivity analysis, however, accounts for any potential over-valuation of proponent costs that might arise for Tasmania and indeed all other jurisdictions, by modelling potential benefits as 1% rather than 11.4%, most importantly, as well as various other downside sensitivity modelling.

3.3 Strategic assessments

3.3.1 Costs to Australian government

Costs to the Australian Government were estimated for Melbourne as outlined in Section 2.2.3, but with discounting. For the other strategic assessments, costs to the Australian Government were estimated based on relative size of each assessment and the time for each assessment. All assessments were estimated to be completed in 18 months, except for WA which was estimated to take 2.5 years.

The unit costs per assessment were thus modelled using the parameter estimates summarised in Table 3.8, with discounting at 7% per annum.

3.3.2 Cost to state and local governments, the private sector and overall

State and local government costs were modelled based on each State's assessment of their own investment in the strategic assessment. Melbourne estimated costs the same and over the same period as for project by project assessments, while other states estimated an additional cost over the years that the strategic assessment was occurring. Tasmania's loading was highest at 200%, with the other jurisdictions at 150%. Tasmania also estimated 125% higher costs for the remainder of the 20-year period due to monitoring requirements. Assessments were generally estimated to last for 1.5 years, except for WA (2.5 years) and Queensland (1.0 year).

Private sector costs were zero except for WA, due to the business partnership arrangement with the WA government to share the costs of the strategic assessment. This is because the private sector would no longer experience delays or uncertainty under the strategic assessment approach.

Some stakeholders noted that the strategic assessment process was turning out more difficult than originally envisaged, in that these early assessments were 'guinea pigs' and that processes may be smoother for future assessments when teething issues improved. For example, difficulties were noted finding personnel experienced in undertaking strategic assessments compared to project assessments but, as more are undertaken, this constraint may be alleviated. The ACT also noted differences between freehold and leasehold arrangements.

Table 3.8: Key parameters for unit cost modelling – scenario (strategic assessment)

	VIC	NSW	QLD	WA	ACT	SA	TAS
Australian government							
FTE per annum (a)	4	2.5	0.2	0.7	0.3	0.3	0.3
Years for assessment (b)	1.5	1.5	1.0	2.5	1.5	1.5	1.5
Start date (b)	2008	Nov-09	Feb-10	2008	Sep-08	Jan-10	Nov-09
Completion expected (b)	2010	Jun-11	Mar-11	mid-11	2010	2011	Apr-11
$ per annum for assessment years (c)	400,000	254,930	16,901	23,753	30,986	25,352	25,352
NPV ($m) Australian government (d)	0.59	0.37	0.02	0.06	0.05	0.04	0.04
State and local governments							
Loading relative to base case (b)	100%	150%	150%	150%	150%	150%	200%
$ per annum for assessment years (e)	280,000	70,496	14,313	23,329	7,873	11,381	260,215
NPV ($m) state/local government (f)	3.17	0.66	0.12	0.19	0.06	0.09	1.97
Private sector/developer/proponent (g)							
$ per annum for assessment years (h)	0	0	0	47,506	0	0	0
NPV ($m) private sector (f)	0	0	0	0.11	0	0	0
Strategic assessment – total NPV ($m, 30 years)	**3.2**	**1.0**	**0.1**	**0.4**	**0.1**	**0.1**	**2.0**

(a) Melbourne based on Section 2.2.3 calculations. Other jurisdictions based on Melbourne * "Size relative to Melbourne" (from Table 3.2) * years for assessment relative to Melbourne.

(b) From consultations. For Tasmania, the loading is 200% for the assessment years and 125% afterwards.

(c) FTE per annum * $100,000. For WA the Commonwealth share is one third.

(d) Calculated as the NPV over the years of the assessment with a 7% real discount rate for the streams in the row above.

(e) "Loading relative to base case" * $ per annum for state/local government from Table 3.2.

(f) Calculated as the NPV over 30 years with a 7% real discount rate for the streams in the row above.

(g) Proponents may be quasi-public bodies or joint public/private ventures.

(h) For WA the proponent share is two thirds. See note (c) above.

(i) Calculated as the private sector NPV plus the Australian and state/territory government NPVs.

For all 7 projects, the NPV of the Commonwealth costs was estimated as $1.2 million, for the State and local governments the cost was $6.3 million, while the cost to the private sector/proponent was estimated as $0.1 million. Total costs of the project by project approach were thus estimated as $7.5 million over the period 2010-2039, being $3.2 million for Melbourne, $2.0 million for Tasmania, down to $0.1 million in each of SA, ACT and Queensland.

3.4 Conclusions and sensitivity analysis

3.4.1 Summary of net benefits

Net benefits for all entities (Australian Government, State/local governments and the private sector/developers/proponents) are shown in Table 3.9, with net costs displayed as negatives (in red).

- The Australian Government experiences net costs in 2010 and across some locations in 2011, although the NPV overall is positive - $4.5 million net benefit across all seven programs.
- State Governments experience net costs in all years and overall, although the NPV of the net cost over all seven programs across all jurisdictions is estimated as only $0.57 million.
- In contrast, the private sector/developers/proponents are strong beneficiaries, realising an estimated $5.92 billion over all seven programs, reflecting the commercial benefits from reducing uncertainty, risk and delays.

Across all entities, the NPV of the net benefit for the seven programs was estimated as $5.93 billion.

Table 3.9: CBA results – net benefit

	NPV ($m)	2010 $	2011 ($)	2012 ($)	2013-2029 $ pa	2030-39 $ pa
			Australian Government			
Melbourne	2.6	-120,000	80,000	280,000	280,000	-
Sydney	0.2	-207,932	-80,467	46,998	46,998	46,998-
Mt Peter QLD	0.1	-7,359	1,091	9,542	9,542	-
Kimberley WA	0.1	-8,200	-8,200	3,676	15,553	-
Molonglo Valley ACT	0.0	-25,738	-10,245	5,248	5,248	-
Fire Policy SA	0.0	-17,765	-5,089	7,587	7,587	-
Midlands TAS	1.4	104,756	117,432	130,108	130,108	-
Total 7 programs	**4.5**	**-282,239**	**94,522**	**483,159**	**495,036**	**46,998**
			State/local governments			
Melbourne	-	-	-	-	-	-
Sydney	-0.03	-23,499	-11,749	-	-	-
Mt Peter QLD	-0.01	-4,771	-2,386	-	-	-
Kimberley WA	-0.02	-7,776	-7,776	-3,888	-	-
Molonglo Valley ACT	-0.00	-2,624	-1,312	-	-	-
Fire Policy SA	-0.01	-3,794	-1,897	-	-	-
Midlands TAS	-0.50	-130,108	-65,054	-32,527	-32,527	-
Total 7 programs	**-0.57**	**-172,572**	**-90,174**	**-36,415**	**-32,527**	-

	NPV ($m)	2010 $	2011 ($)	2012 ($)	2013-2029 $ pa	2030-39 $ pa
Private sector, developers, proponents*						
Melbourne	3,264.2	287,963,340	287,963,340	287,963,340	287,963,340	
Sydney	1,624.5	122,350,621	122,350,621	122,350,621	122,350,621	122,350,621
Mt Peter QLD	206.9	18,251,198	18,251,198	18,251,198	18,251,198	
Kimberley WA	348.8	30,732,494	30,732,494	30,756,247	30,780,000	
Molonglo Valley ACT	252.9	22,307,019	22,307,019	22,307,019	22,307,019	
Fire Policy SA	18.1	1,600,982	1,600,982	1,600,982	1,600,982	
Midlands TAS	206.9	18,251,198	18,251,198	18,251,198	18,251,198	
Total 7 programs	**5,922.4**	**501,456,852**	**501,456,852**	**501,480,605**	**501,504,358**	**122,350,621**
Total CBA–all entities						
Melbourne	3,266.8	287,843,340	288,043,340	288,243,340	288,243,340	-
Sydney	1,624.7	122,119,190	122,258,404	122,397,619	122,397,619	122,397,619
Mt Peter QLD	207.0	18,239,067	18,249,903	18,260,740	18,260,740	-
Kimberley WA	348.9	30,716,517	30,716,517	30,756,035	30,795,553	-
Molonglo Valley ACT	252.9	22,278,658	22,295,463	22,312,268	22,312,268	-
Fire Policy SA	18.2	1,579,424	1,593,997	1,608,570	1,608,570	-
Midlands TAS	207.8	18,225,845	18,303,575	18,348,778	18,348,778	-
Total 7 programs	**5,926.3**	**501,002,042**	**501,461,200**	**501,927,349**	**501,966,867**	**122,397,619**

* Proponents may be quasi-public bodies or joint public/private ventures.

3.4.2 Sensitivity analysis

As there is uncertainty surrounding some key parameters, sensitivity analysis has been conducted to estimate the effects of alternative parameters and how they might alter the results, using high-low case modelling for a selection of key variables. Sensitivity analysis has been completed around the following variables:

- the lower bound of the Australian Government costs project by project i.e. $196,000 compared to $280,000 (the lower bound of $392,000 was not modelled given the findings);
- a 110% rather than 25% administrative loading for FTE;
- other jurisdictions' costs modelled at the same %CA as Melbourne (67%).
- the 11.4% parameter estimate of the proportion of project value lost by business due to green tape risk, project delays and uncertainty in project assessments – a 1% lower bound was modelled for all jurisdictions as well as SA (SA was 1% in the base case); and
- the discount rate at 3% and 11% compared to the 7% base case.

A summary of the results is illustrated in Table 3.10, showing the impact on the overall NPV in each case. Reducing the private benefit from 11.4% to 1% produces the greatest difference, with a 91% reduction in private and overall net benefits. However, even in this case the overall net benefit is still $539.9 million over the period 2010-2039, and there is no scenario where there is an overall net cost in the long term.

Table 3.10: Sensitivity analysis findings

	Aust'n gov't	State/ local gov't	Private/ proponents*	Total
	Net benefit ($m NPV)			
Base case	**4.5**	**-0.6**	**5,922.4**	**5,926.3**
Av CW Govt Melb cost $196,000	2.8	-0.4	5,922.4	5,924.8
110% admin loading	4.5	-0.6	5,922.4	5,926.3
CA% referrals same as Melb 67%	4.5	-0.6	5,922.4	5,926.3
Private benefit 1% cf 11.4%	4.5	-0.6	536.0	539.9
Discount rate 3%	6.7	-0.7	11,236.0	11,242.0
Discount rate 11%	3.2	-0.5	3,535.9	3,538.7
	$m NPV change from base case			
Av CW Govt Melb cost $196,000	-1.7	0.2	-	-1.5
110% admin loading	-	-	-	-
CA% referrals same as Melb 67%	-	-	-	-
Private benefit 1% cf 11.4%	-	-	-5,386.4	-5,386.4
Discount rate 3%	2.1	-0.1	5,313.7	5,315.7
Discount rate 11%	-1.3	0.1	-2,386.4	-2,387.6
	% change from base case			
Av CW Govt Melb cost $196,000	-38%	-30.0%	0%	0%
110% admin loading	0%	0%	0%	0%
CA% referrals same as Melb 67%	0%	0%	0%	0%
Private benefit 1% cf 11.4%	0%	0%	-91%	-91%
Discount rate 3%	47%	23%	90%	90%
Discount rate 11%	-28%	-15%	-40%	-40%

* Proponents may be quasi-public bodies or joint public/private ventures.

The findings are driven primarily by the deferral of benefits if there are project assessment delays, while costs are not deferred, reflecting the substantial upfront components of costs. Some parameters estimated by jurisdictional stakeholders may have greater associated uncertainty than other parameters in the cost benefit analysis. However, such uncertainty does not affect the general consensus (including from the Office of Best Practice Regulation) that, regardless of the parameters used, the analysis demonstrates there are overall benefits to the Commonwealth, some costs to the states, and major benefits to the private sector/proponents, including through greater certainty for business. However, the finding of net cost to the states does not take account potential second round gains for states, who would benefit from higher tax revenues collected as a result of the gains to businesses in their jurisdictions.

References

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