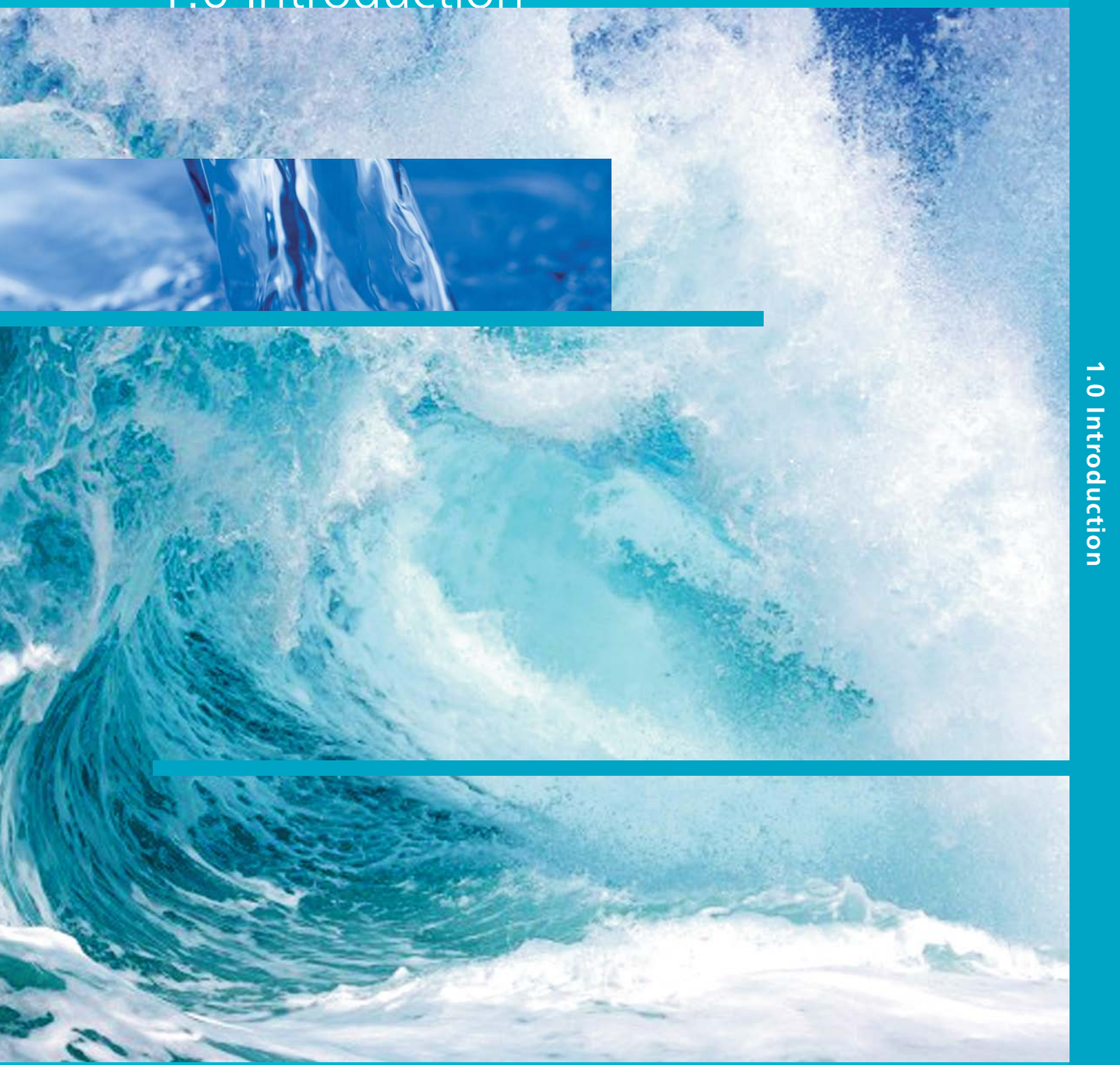
1.0 Introduction



1 Introduction

This chapter provides the background to the Victorian Desalination Project and summarises the Project, its Public Private Partnership delivery mode and the approach taken to the Environment Effects Statement (EES). It also explains the key approvals required for the Project.

1.1 Background to the Project

For more than a decade, large parts of southern and eastern Australia have suffered from drought conditions that are without historical precedent. Record low levels of rainfall have had significant implications for those Australian urban centres and communities that rely on surface water resources for urban water supply.

For example, inflows into the four major harvesting reservoirs for Melbourne during 2006 were the lowest in almost 100 years of recorded history, being in the order of 165 gigalitres as opposed to the long-term annual average of 590 gigalitres. The ten-year period from 1997 to 2006 saw three major drought years in total and no year in which annual inflow was higher than the long-term average. Combined with inflows during 2007 and 2008 to date, this has resulted in storage levels declining from almost full capacity in 1996 to about 30 per cent of capacity in July 2008. Low storage levels create a significant risk that the Melbourne water supply system will be unable to satisfactorily meet demand in the event that another year of extremely low inflows occurs, such as that observed in 2006.

In 2004, the Victorian Government put in place a long-term plan for water – *Our Water Our Future: Securing Our Water Future Together*. In accordance with this Plan, a comprehensive strategy for the sustainable use of water resources in central Victoria was developed and released in 2006 – the *Central Region Sustainable Water Strategy*. This Strategy highlighted the importance of being prepared for the possibility that the low inflows to storages experienced over the past ten years may continue. The Strategy therefore identified that rainfall-independent sources of water may be necessary to meet the future water needs of Melbourne, and committed to the completion of a feasibility study for seawater desalination options for Melbourne.

The confirmation of unprecedented low inflows in the calendar year of 2006 intensified the need for rainfall independant augmentations for the Melbourne water supply system. In response to the risk that Victoria's worst drought will continue, the Victorian Government released the next stage of its plan for water in June 2007 – *Our Water Our Future: the Next Stage of the Government's Water Plan*. This Plan provides long-term solutions to secure Victoria's water supplies by:

- diversifying and boosting water supplies in Melbourne
- networking water resources across the State through the Water Grid
- enabling a rapid and flexible response to changing water needs.

The 2007 Water Plan provides the biggest boost to Victoria's water supplies in 25 years and includes the development of a new seawater desalination plant on the Bass Coast, modernising irrigation infrastructure in northern Victoria, expanding the Water Grid and extending water conservation and recycling programs.

Chapter 2 of this EES provides further details on the policy context and the rationale for the Project.

1.2 The Proponent

The Secretary to the Department of Sustainability and Environment (DSE) is the Proponent for the Victorian Desalination Project (the Project), as the 'facilitating agency' nominated by Order in Council dated 18 December 2007 under the *Project Development and Construction Management Act 1994* (Vic). Under this Act, the responsible Minister (the Minister for Water) and the Secretary (as the facilitating agency) have powers to govern, co-ordinate and implement the Project. Under the direction of the Secretary, the Capital Projects Division of DSE is responsible for the development of the Project and the preparation of this EES. The Government has indicated that a State Owned Enterprise is likely to be established to manage the delivery of the Project.

1.3 Project Objectives

The overarching objective of the *Our Water Our Future – The Next Stage of the Government's Water Plan* — under which the Project is being progressed — is to provide water security for Victoria's growing population and economy in the face of drought and the challenge of climate change. The State's objectives for the Project are shown in Table 1-1.

Table 1-1 State objectives for the Victorian Desalination Project

Project Objectives
Time objectives
▪ To commence delivery of desalinated water from the Project to Victoria's water supply system by the end of 2011
Scope objectives
▪ To provide Victoria with a non-rainfall dependant supply of initially up to 150 GL of desalinated water per year
▪ To allow for the efficient future expansion of the Project to supply up to 200 GL of desalinated water per year
▪ To ensure desalinated water delivered meets the State's water quality requirements
▪ To retain the flexibility to vary supplies over time to support optimisation of Victoria's water supply system
▪ To deliver the Project in a manner consistent with the State's policy of retaining ownership and management of water resources in public hands
Value for money objectives
▪ To deliver innovative solutions and overall value for money to the State through a whole of life approach to service delivery, risk management and the design, construction, operation and maintenance of the Project

Project Objectives

Environmental objectives

- To minimise the environmental impact of the Project through design and appropriate risk management and mitigation measures and in particular, to minimise adverse impacts on the coastal and marine environment from construction activity, visual intrusion, noise and waste discharge and disposal
- To protect the beneficial uses of the coastal and marine environment, including the landscape and recreational values of the adjacent coastal reserve
- To optimise energy efficiency and ensure that 100 per cent of the electricity used in operating both the Plant and the Transfer Pipeline will be offset by the purchase of renewable energy credits. This will be in addition to the State's current renewable energy targets

Social objectives

- To maximise benefits to the local community and wider economy within relevant State Government policy frameworks
- To establish and maintain the highest levels of health and safety throughout the delivery and operation of the Project
- To minimise disruption to the surrounding area during construction

1.4 Requirement for an EES

The Secretary to DSE submitted a referral to the Minister for Planning in November 2007 to determine whether the Project required assessment under the *Environment Effects Act 1978* (Vic) (EE Act). The Minister decided on 28 December 2007 that an EES would be required. An EES is an advisory process intended to inform the decision-makers responsible under Victorian law for determining the Project's approvals. The EES has been prepared by DSE with the assistance of specialist consultants and feedback from community consultation in response to the Scoping Requirements for the EES, issued by the Minister for Planning in May 2008.

The EES is exhibited for public comment from 20 August to 30 September 2008. The Minister for Planning has established an Inquiry process to assess the EES and any public submissions, and then provide a report to inform the Minister's Assessment under the EE Act.

1.5 Commonwealth assessment

The Project was also referred to the Commonwealth Minister for the Environment, Heritage and the Arts to determine whether it is a controlled action requiring approval under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). On 4 February 2008, the Project was determined to be a controlled action subject to:

- Sections 16 and 17B (wetlands of international importance)
- Sections 18 and 18A (listed threatened species and communities).

On the same date, it was determined to accredit the Victorian EES process as the assessment approach. The Victorian Minister for Planning will provide his Assessment to the Commonwealth Minister for his decision.

1.6 Project development

In September 2007, the Victorian Premier and Minister for Water announced that the Project would be delivered as a PPP in accordance with the Government's *Partnerships Victoria* policy framework (Victorian Government, June 2000).

The delivery of the Project involves the private sector finance, design, construction, commissioning, operation, repair, maintenance and handover of the Desalination Plant and associated infrastructure to facilitate the production and supply of desalinated water to Melbourne, and potentially, via separate connections, parts of Western Port and the South Gippsland regions. In this capacity, the State is seeking to contract with a single purpose privately owned vehicle (Project Company) to deliver the Project over the full Project term.

In accordance with *Partnerships Victoria*, 'value for money' is assessed through the comparison of the cost to the State of private sector proposals against the Public Sector Comparator (PSC) (together with consideration of non-quantifiable factors). The PSC is developed on a fully-costed, risk-adjusted and whole-of-lifecycle basis, so the State must determine the form in which it would most likely design, construct, commission, operate, repair and maintain the Project as a fully publicly-funded capital project. This reflects factors such as the asset life sought for the infrastructure, and the expenditure that the State considers appropriate to achieve the output required from the Project.

Whilst this process results in development of a detailed PSC Reference Design (effectively a preliminary hypothetical design solution for the Project), the Reference Design is not the form in which the Project will necessarily be designed and built by the Project Company. In fact, the Project as bid and built by the successful bidder will almost certainly differ from the Government's PSC Reference Design.

PPP documentation generally uses the language of 'outputs' (that is, the performance that the Project must achieve) rather than the detailed design or process used to achieve it. The reason for this is at the heart of PPP procurement. Although PPP delivery may be justified on cost effectiveness alone ('value for money' based on an efficient distribution of risk between the private sector and the State), the State is also looking for innovation in design, technology, operations and financial structuring.

The benefit of a PPP approach is that it encourages people to think about outputs and outcomes, rather than inputs. This is recognition that there can be more than one way to achieve an outcome. Being too prescriptive limits innovation opportunities and scope for delivering 'value for money' solutions. By focusing on desired outcomes, better emphasis can be placed on achieving this goal for the Project.

To foster this innovation, the State develops a detailed set of outputs which form the contractual basis within which bidders must frame their competitive bids. The PPP procurement focuses on the outputs that the Project must meet, but is not prescriptive about how they must be met, except in areas of particular significance for instance to the environment, where constraints may apply.

1.7 The Partnerships Victoria tender process

The Project represents a significant asset for Victoria, and the State seeks to select the most appropriate party to deliver this element of the plan to secure Victoria's long-term water supplies.

The tender process for the Project will run in parallel with the environmental assessment processes. The State environmental assessment and Commonwealth approval under the EPBC Act are anticipated to inform the tender process for the Project.

The tender process involves two phases. The invitation for Expression of Interest (EOI) is this first phase of the tender process. The EOI was released on 4 June 2008 and closed to submissions on 24 July 2008. The second phase of the tender process will involve the release of a Request for Proposal (RFP) to short listed bidders. The RFP is due to be released in September 2008 and is intended to close in March 2009. Based on responses to the RFP, a bidder may be selected to execute the Project for the State.

1.8 Effect of delivery mode on EES

Conventional approaches to an EES often describe a project under assessment in its intended, final form. In the case of the Victorian Desalination Project, the State wishes to benefit from comparing different solutions developed by the bidders to meet the Project Objectives and outputs expressed as Performance Requirements.

As the EES and tender process are being implemented in parallel, the EES accommodates possible solutions put forward through the PPP process. For this reason, the environmental Performance Requirements of the Project (which are to form the basis for the contractual obligations for private sector delivery) are included in this EES.

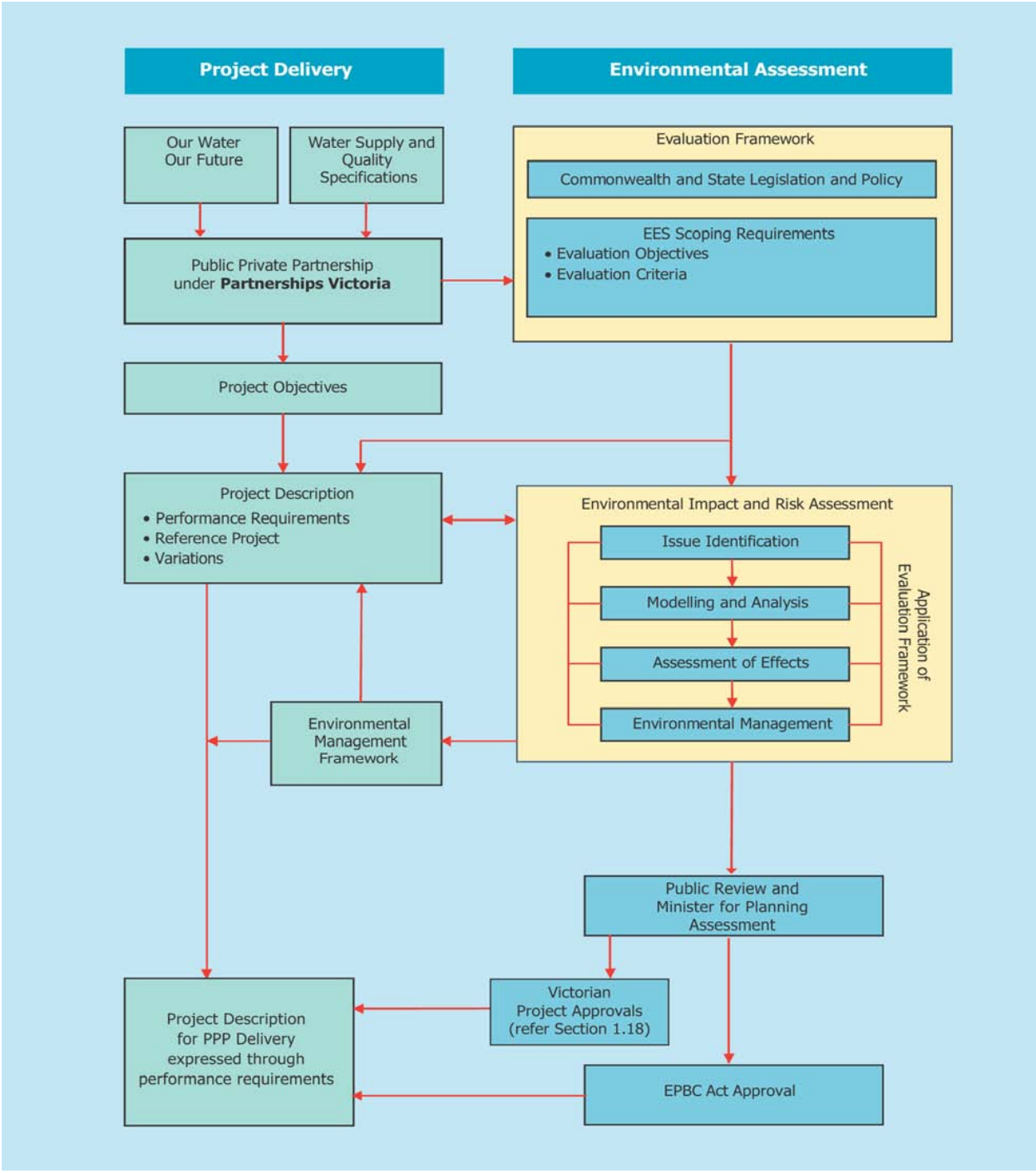
New South Wales addressed the requirement for flexibility for its desalination project using provisions under its new Part 3A of the *Environmental Planning and Assessment Act 1979* (NSW). These provisions enable the assessment to be conducted on a 'Concept Plan' coupled with a 'Statement of Commitments' (made by the proponent) that embodies the environmental performance outcomes intended to be achieved by the finalised design. This process resulted in the Minister determining that the proponent could begin construction on some components of the project whilst others required secondary approvals.
The approach demonstrates a process of being able to incorporate flexibility in the approved outcomes for a complex project when the detailed configuration is yet to be resolved through a commercial process.

By incorporating flexibility into the outcomes of the EES through Performance Requirements, rather than a finely detailed project, this can ensure that the eventual configuration of the Project achieves the State's Project Objectives for innovation whilst at the same time meeting relevant environmental objectives.

Unless innovation is overwhelmingly beneficial to its cost structure, a bidder may not innovate in a direction that will require further assessment or approvals processes, for fear of frustration and delay to the Project. To secure the benefits of innovation, therefore, this EES assessment strives to encompass a spectrum of design solutions in the Reference Project.

The relationship between the commercial PPP process and the EES process is schematically represented in Figure 1-1. It shows the process by which the Project Description has evolved, and will continue to evolve.

Figure 1-1 Project Evaluation Framework



1.9 Project components

The Project adopts the conclusions of earlier feasibility studies (GHD Pty Ltd and Melbourne Water Corporation, June 2007 *Melbourne Augmentation Program: Seawater Desalination, Feasibility Study*), which identifies the site near Wonthaggi (in preference to three other short-listed assessed locations) and selects reverse osmosis (rather than thermal evaporation) as the appropriate desalination technology. It also reflects the requirement that the Desalination Plant is ultimately capable of delivering up to 200 GL per year. The Project has four components:

- Marine Structures consisting of the seawater intake and the saline concentrate outlet structures
- Desalination Plant with reverse osmosis desalination technology
- Transfer Pipeline (approximately 85 kilometres) connecting the Desalination Plant to the Melbourne water supply network
- Power Supply to the Desalination Plant and Transfer Pipeline.

The Project is described in more detail in Volume 1 Chapter 3, and Volumes 2 to 5 are dedicated to each of these Project components. Figure 1-2 shows the Project site and Project components in a regional context.

Figure 1-2 The Desalination Project in a regional context

1.10 Project Description for the EES

The Project Description and subject matter of this EES is:

- the Performance Requirements
- the Reference Project
- Variations.

The Performance Requirements govern the Project for EES purposes, and in their final form are intended to be the basis of any contract with the Project Company. The Performance Requirements set the environmental parameters for the Project.

The Reference Project (discussed in section 1.12) is an integrated response to the Performance Requirements developed by the State. It is used in this EES to demonstrate the Project's feasibility and ability to achieve acceptable environmental outcomes.

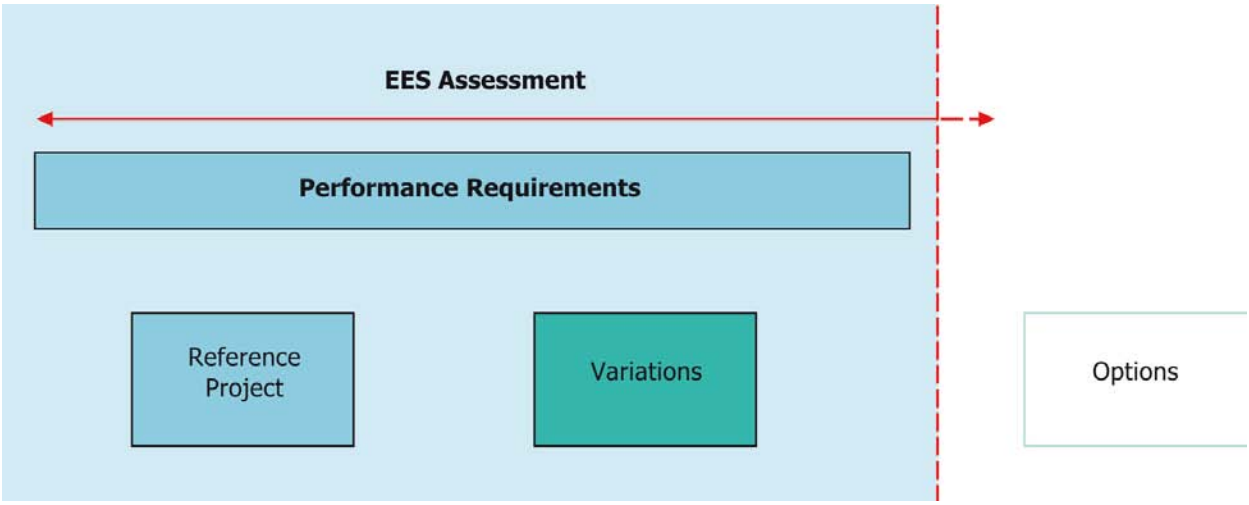
Variations (also discussed in section 1.12) contemplate other design and management solutions which also meet the Performance Requirements and are within the scope of this EES assessment.

In addition, the EES identifies Options that may potentially be of interest to the Project but which have not been considered further for technical or commercial reasons or because they did not appear to offer significant advantage over the Reference Project. While these Options have not been fully assessed in this EES, they are matters upon which comment is invited. Any further process for the Options will be determined by the Minister for Planning prior to any endorsement by the State for utilisation in the Project.

The EES submits for assessment a Reference Project (with Variations). However, no decision has been made by the State as to the final form of the Project. As a Partnerships Victoria Project it is expected that a range of energy solutions could be brought forward by proponents. For example, power supply could be provided by any one of the Power Supply Options outlined in this EES.

The use of these terms and the scope of the EES Assessment is shown diagrammatically in Figure 1-3.

Figure 1-3 Conceptual representation of the EES Assessment and Approvals



1.11 Significance of the Performance Requirements

In assessing the environmental effects of the Project, reliance should ultimately be placed on the Performance Requirements (PRs) rather than the Reference Project. Whilst a specific finding on the acceptability of the Reference Project and Variations is sought, the PRs are the Project outputs, which will apply regardless of the specific design solutions adopted.

The PRs will be used contractually to ensure the highest commitment by the Project Company to mitigation and avoidance strategies. These commitments will be embodied in the Project Agreement and will be implemented as part of the construction and operation of the Project. The proposed PRs are incorporated into the Environment Management Framework, and are set out in Chapter 10 of this EES Volume

The establishment of the final PRs under the Project Agreement gives the State a contractual mechanism for ensuring the Project delivers acceptable and required environmental outcomes. However, the statutory approvals that will be issued for the Project will also provide for the regulation and enforcement of the Project Company's environmental performance under the relevant Acts.

1.12 Reference Project and Variations

The 'Reference Project', comprising each component of the overall project (Marine Structures, Desalination Plant, Transfer Pipeline and Power Supply), was used as the basis for the environmental impact and risk assessment. The Reference Project demonstrates a feasible way that the Project could achieve the State's objectives and the environmental Performance Requirements. It provides an appropriate basis for assessing environmental effects, while recognising that altered or additional impacts may result from configuring the Project differently.

The evolution of the Reference Project is described in detail in Chapter 3. In summary, a broad range of concepts was developed for different aspects of the Project. These were then assessed for technical feasibility and subsequently for compliance with the Project Objectives. This process resulted in a matrix of opportunities from which a combination was selected for the Reference Project. The infrastructure elements of the Marine Structures, Desalination Plant, Transfer Pipeline and Power Supply have been set out in sufficient detail in the EES Volumes 2 to 5 to enable confidence in the risk and impact assessments considered in this EES.

To achieve the flexibility required by the PPP procurement process, concepts that survived the feasibility studies and meet Project Objectives have been included in the scope of the EES assessment and are described as Variations. They represent other technologies and other configurations than those selected for the Reference Project which a bidder might wish to put forward, and for which there is sufficiently reliable information concerning their environmental impacts and general deliverability to warrant their inclusion and assessment in the EES at a similar level of confidence to the Reference Project. Variations are also considered capable of meeting the Project Objectives and the Performance Requirements for the Project.

Additionally, sensitivity analysis was incorporated into the EES studies to verify the scope or circumstances:

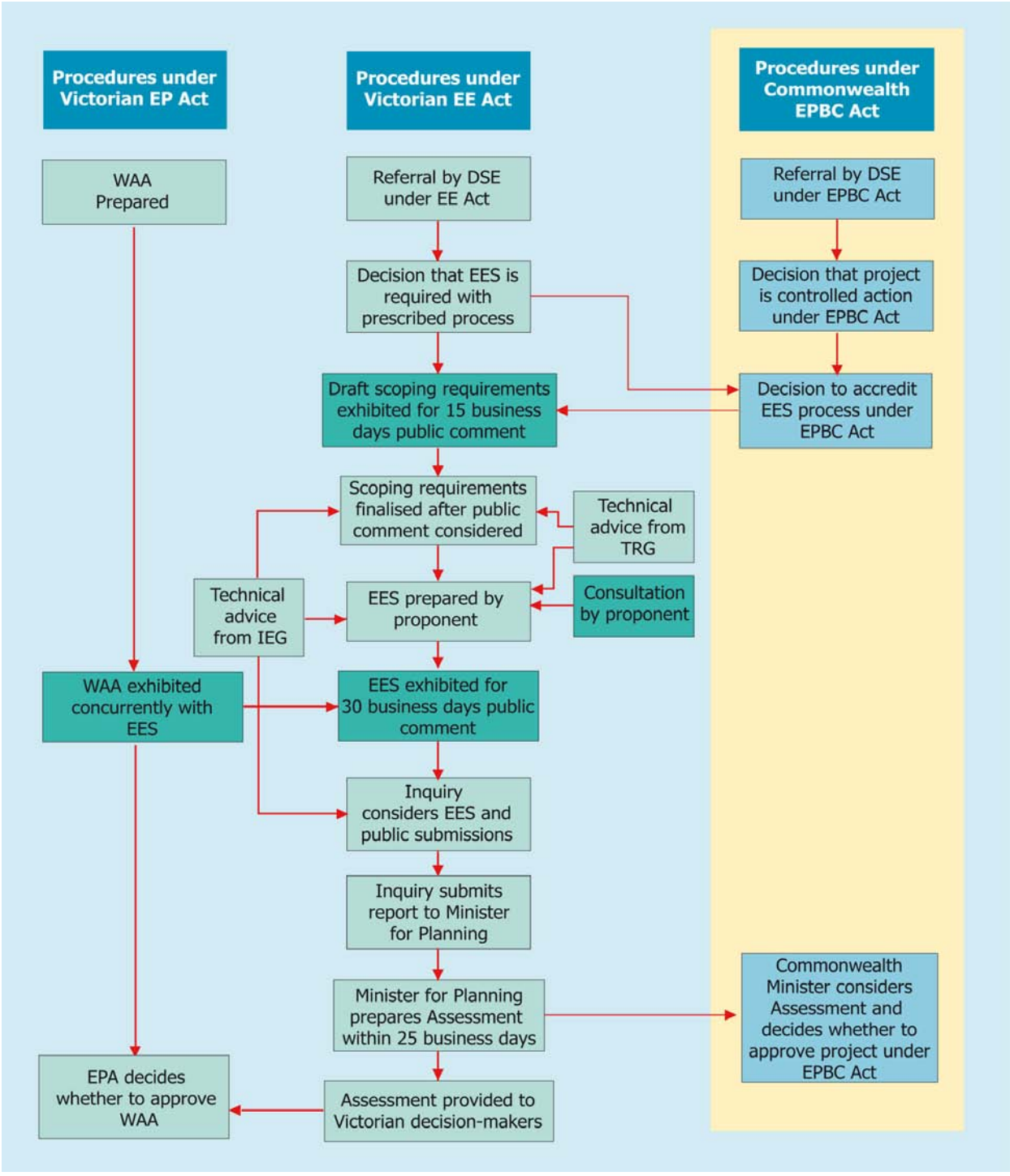
- within which the scientific conclusions reached remain valid
- with a view to providing evidence that design variation within certain parameters is unlikely to disrupt estimates of the impacts of the Project, or it will do so in limited, quantifiable and manageable ways.

1.13 Details of EES process

The EES has been prepared in accordance with the Minister for Planning's *Ministerial Guidelines for Assessment of Environmental Effects under the Environment Effect Act 1978* (2006) and the *Desalination Project Environment Effects Statement Scoping Requirements* (Minister for Planning, 2008). The EES Scoping Requirements have been issued by the Minister to provide guidance on the scope of environmental effects and related matters that should be investigated and documented in the EES. The steps in the EES process are set out in Figure 1-4.

A Works Approval Application (WAA) under the *Environment Protection Act 1970* (Vic) (EP Act) has been prepared by DSE and is exhibited concurrently with the EES.

Figure 1-4 Key stages in the assessment process under the EE Act and the EPBC Act



1.14 Technical Reference Group

At the direction of the Minister of Planning, the Environmental Assessment Unit of the Department of Planning and Community Development (DPCD) convened a Technical Reference Group (TRG) to provide advice on the preparation of EES studies including the technical reports prepared for the EES.

As shown in Figure 1-4, the TRG has participated in the development of this EES through discussions with the Desalination Project team on relevant issues and methodologies. The TRG includes representatives from:

- Bass Coast Shire, Cardinia City and City of Casey Councils
- Environment Protection Authority (EPA)
- Department of Primary Industries (DPI)
- Aboriginal Affairs Victoria (AAV)
- Department of Human Services (DHS)
- Parks Victoria
- Melbourne Water
- West Gippsland Catchment Management Authority
- Central Coastal Board
- Gippsland Regional Managers Forum (Regional Executive Support Officer, DPCD)
    - Aboriginal Affairs Victoria
    - Baw Baw Shire
    - Bass Coast Shire
    - Department of Education and Early Childhood Development
    - Country Fire Authority
    - Department of Transport
    - Department of Human Services
    - Department of Justice
    - Department of Primary Industry
    - Department of Sustainability and Environment
    - Department of Planning and Community Development
    - East Gippsland Shire

  - Environment Protection Authority
  - Gippsland Area Consultative Committee
  - Gippsland Integrated Natural Resources Forum
  - Gippsland Tourism
  - Latrobe City Council
  - Parks Victoria
  - Regional Development Victoria
  - South Gippsland Shire
  - State Emergency Services
  - Victoria Police
  - VicRoads
  - Wellington Shire
- Department of Planning and Community Development (DPCD)
- Department of Sustainability and Environment (DSE) (in its policy and land management capacities).

1.15 Independent Expert Group

The Independent Expert Group (IEG) — an inter-disciplinary group of specialists — was appointed by the Secretary of DPCD to provide advice to the Secretary during the EES process in relation to the potential effects of the Desalination Plant on the marine environment and its environmental performance. The Secretary may then provide the IEG's advice to the Proponent, as well as to the Inquiry or the Chairman of the EPA.

1.16 Community consultation

DSE implemented a community consultation program to obtain input from the community into the EES. Key features of the program included:

- a project information office at Wonthaggi
- public open days where members of the public could speak directly to the consultants carrying out the studies
- a landowner engagement program for EES investigations

- a series of community forums for environment and recreation, and business and tourism where key groups were invited to provide input and obtain regular feedback on the progress and findings of the EES
- presentations to stakeholder groups such as schools, local service clubs and specific interest groups
- a general awareness campaign consisting of regular newspaper articles, a community newsletter and information packages made available at key community outlets
- briefings to councils and other stakeholder groups.

The details of the consultation activities and discussion of stakeholder issues are presented in Technical Appendix 1.

1.17 Minister's Assessment

Following exhibition of the EES, an Inquiry appointed by the Minister for Planning will consider the EES and public submissions. The Inquiry then reports to the Minister for Planning with recommendations to assist his Assessment under the EE Act.

The Victorian Minister's Assessment will then be forwarded, together with the Inquiry report to relevant Victorian decision-makers including the EPA to inform its decision on the Works Approval process as well as to the Commonwealth Minister for Environment, Heritage and the Arts for a decision on whether to approve the Project under the EPBC Act.

1.18 Victorian approvals required

The Project must also be approved under various parts of Victorian legislation. The decisions made on whether or not to approve the Desalination Project will be informed by the Minister's Assessment under the EE Act. The particular requirements for approval will depend on the final design and siting of Project infrastructure. These approvals may include:

- relevant authorisation under the *Planning and Environment Act 1987* (Vic) (P&E Act) to provide for establishment of project infrastructure

- Works Approval prior to the construction of the Desalination Plant and an ongoing licence for its operation under the *Environment Protection Act 1970* (Vic) (EP Act)
- a Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006* (Vic)
- consent under the *Coastal Management Act 1995* (Vic) for use and development of coastal Crown land.

An application for Works Approval under the EP Act has been advertised and placed on public exhibition concurrently with this EES.

In addition, the other Victorian approvals may include:

- permits for taking native flora and fauna under the *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act)
- permits for waterway crossings under the *Water Act 1989* (Vic)
- consents under a range of Acts to enable access to and use of public land.

1.19 Matters not addressed in the EES

As set out in section 5.5 of the EES Scoping Requirements, in relation to the strategic choice of proposed technology and siting of the Desalination Plant, the EES is not required to examine the following strategic alternatives:

- strategic options for augmenting water supplies to Melbourne
- different technologies for the Desalination Plant (i.e. thermal desalination)
- potential locations for a Desalination Plant outside the Wonthaggi-Kilcunda area.

As set out in section 2.1 of the EES Scoping Requirements, the preliminary works that are not part of the capital works (set out in the same section) are not subject to the requirement for an EES.