



**Australian Government**

**Department of the Environment, Water, Heritage and the Arts**

***Environment Protection and Biodiversity Conservation Act 1999***

**GUIDELINES FOR AN ENVIRONMENTAL IMPACT  
STATEMENT FOR THE PROPOSED DEVELOPMENT OF THE  
BROWSE BASIN GAS FIELDS IN  
WESTERN AUSTRALIA**

**WOODSIDE ENERGY LTD  
(EPBC 2008/4111)**

**July 2008**

# 1 PREAMBLE

Woodside Energy Ltd (hereafter referred to as Woodside) proposes to develop the Torosa, Brecknock, and Calliance Gas Fields within the Browse Basin in Western Australia. The gas fields are approximately 290 km off the Kimberley coast, approximately 425 km north-northwest of Broome, in petroleum retention leases and permits WA-R-2, WA-TR/5, WA-28-R, WA-29-R, WA-30-R, WA-31-R, WA-32-R and WA-275-P. Torosa, Calliance and Brecknock, are located in water depths between 400 and 700 m. Approximately 50% of the Torosa gas field lies below Scott Reef, which consists of two emergent shelf atolls called North Reef and South Reef. Reservoirs within these fields are estimated to contain resources of up to 18 trillion cubic feet of gas and 300 million barrels of condensate. The operating life of the proposed facilities is expected to be greater than 40 years.

The various components of the Browse Upstream Development will be located within seven 'Notional Development Areas/Zones' as illustrated in **Figure 1 and 2**. Within these areas, the exact positioning and type of associated infrastructure will be defined subject to environmental considerations, and technical and economic constraints. Infrastructure associated with the downstream processing (i.e. within the 3 nautical mile limit) and export of gas (LNG) is not included in this document. Development of these facilities will be subject to separate Commonwealth and State approval processes.

The major components of the Browse Upstream Development are proposed to include:

- Well and subsea infrastructure;
- Floating production facilities;
- Offshore processing facilities;
- Condensate storage and off-take facilities;
- Gas transmission pipelines and associated compression facilities;
- Carbon dioxide geo-sequestration infrastructure.

The delegate of the Minister has determined that the proposal is a controlled action and an Environmental Impact Statement (EIS) is required. The controlling provisions for the action under the EPBC Act are:

- Sections 18 and 18A (Listed threatened species and communities);
- Sections 20 and 20A (Listed migratory species); and
- Sections 23 and 24A (Commonwealth Marine environment).

Under section 98 of the EPBC Act, Woodside will be required to publish a draft EIS for public comment. Any comments received will need to be taken into account by Woodside in finalising the EIS. The EIS will form the basis of the Assessment Report that the Department of Environment, Water, Heritage and the Arts prepares for the Minister, who will consider the Report, and other information in the decision regarding approval of the action.

## 2 INFORMATION AND ADVICE RELATED TO THE PREPARATION OF THE ENVIRONMENTAL IMPACT STATEMENT

### 2.1 THE OBJECTIVES OF AN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Environmental impact assessment depends on defining adequately those elements of the environment that may be affected by a proposed development, and on identifying the significance, risks and consequences of the potential impacts of the proposal at a local, regional and national level. The EIS will be the primary source of information on which the public and government decision makers will assess the potential environmental impacts of the proposal.

It is expected that additional ecological work may have to be undertaken to provide sufficient information for the EIS. The nature and level of investigations should be related to the likely extent and gravity of potential impacts (including worse case scenarios). All potentially significant impacts of the proposal on the environment are to be investigated and analysed, and commitments to mitigate any adverse impacts are to be detailed in the EIS.

The objectives of the EPBC Act and principles of ecological sustainable development contained within the Act are provided at **Attachment 1**. In short, the EPBC Act provides for the protection of the environment. One means of meeting this objective is to require that actions that will, or are likely to have, a significant impact on the environment are not taken without the approval of the Minister for the Environment, Heritage and the Arts. Such an approval is not given without an assessment of environmental impact having been conducted and the outcomes of the assessment having been taken into account.

This document provides guidelines (or terms of reference) for the drafting of the EIS based on the formal requirements for the contents of an EIS provided in Section 97 of the EPBC Act and Schedule 4 of the EPBC Act Regulations 2000 (**Attachment 1**).

In preparing the EIS the proponent should bear in mind the following aims of the EIS and public review process:

- To provide a source of information from which interested individuals and groups may gain an understanding of the proposal, the need for the proposal, the alternatives, the environment which it could potentially affect, the impacts that may occur and the measures proposed be taken to minimise and avoid these impacts;
- To provide a forum for public consultation and informed comment on the proposal, and;
- To provide a framework in which decision-makers can consider the environmental aspects of the proposal in parallel with economic, technical and other factors.

The proponent should ensure that the EIS discusses compliance with the objectives of the EPBC Act and the principles of Ecologically Sustainable Development as set out in the EPBC Act (**Attachment 2**).

It is the responsibility of the proponent preparing the EIS to identify and address, as fully as possible, all matters relevant to this proposal and its potential impacts.

The EIS should provide a description of the existing environment in the area and of the proposed operations. All potential impacts of the proposal on the environment are to be investigated and analysed. The EIS should present an evaluation of the potential environmental impacts using a thorough risk-based methodology and describe proposed measures to avoid or minimise the expected, likely, or potential impacts. Particular attention should be paid to potential impacts on listed threatened species and communities, listed migratory species and the Commonwealth Marine environment under the EPBC Act. Any prudent and feasible alternatives should be discussed in detail and the reasons for selection of the preferred option should be clearly given.

These guidelines are not necessarily exhaustive and should not be interpreted as excluding from consideration matters deemed to be significant, but not incorporated in them, or matters (currently unforeseen) that emerge as important from environmental studies or otherwise during the course of preparation of the EIS. As noted above, infrastructure associated with the downstream processing and export of gas (LNG) is not included in the scope of this document. Development of these facilities will be subject to separate Commonwealth and State approval processes.

## **2.2 GENERAL ADVICE**

The EIS should be a stand-alone document. It should contain sufficient information from any studies or investigations undertaken to avoid the need to search out previous or supplementary reports.

The EIS should enable interested stakeholders and the assessing agency to understand the environmental consequences of the proposed development. Information provided in the EIS should be objective, clear, succinct and, where appropriate, be supported by maps, plans, diagrams or other descriptive detail. The body of the EIS is to be written in a style that is easily understood by the general reader. Technical jargon should be avoided wherever possible and a full glossary included. Cross-referencing should be used to avoid unnecessary duplication of text.

Detailed technical information studies or investigations necessary to support the main text should be included as appendices issued with the EIS. Any additional supporting documentation and relevant studies, reports or literature not normally available to the public from which information has been extracted should be made available at appropriate locations during the period of public display of the EIS.

If there is a necessity to make use of material that is considered to be of a confidential nature, for instance information obtained in regard to traditional use or of a commercial nature, the proponent may request that such information remain confidential and not be included in any publicly available document.

An executive summary should be provided in the EIS and made available separately for public information.

The EIS should state the criteria adopted in assessing the proposal and its potential impacts, such as: compliance with relevant legislation, policies and standards; community acceptance; maximisation of environmental benefits (if any); and minimisation of risks and harm.

Any and all unknown variables or assumptions made in the assessment must be clearly stated and discussed. The extent to which the limitations, if any, of available information may influence the conclusions of the environmental assessment should be discussed.

The EIS should be written so that any conclusions reached can be independently assessed. To this end all sources must be appropriately referenced.

The EIS should comprise three elements:

- The executive summary;
- The main text of the document, which should be written in a clear and concise manner so as to be readily understood by general readers; and
- Appendices containing:
  - a) A copy of these guidelines;
  - b) Detailed technical information or other sensitive commercial or cultural information.

The specific requirements to be addressed in the EIS are provided in Section 5 and has been set out in a manner that may be adopted as the format for the EIS. This format need not be followed where the required information can be more effectively presented in an alternative way. However, all requirements set out in the EPBC Act and Regulations must still be addressed.

### 3 SPECIFIC CONTENT REQUIREMENTS

Schedule 4 of the EPBC Act Regulations 2000, which sets out the matters that must be addressed in an EIS, is provided at **Attachment 1**. The following content requirements are based on these matters with the addition of directions specific to the proposed action and the receiving environment; and additional advice on presentation and consultation that have proven valuable in communicating with members of the public and specific interest groups.

#### 3.1 EXECUTIVE SUMMARY

An executive summary that outlines the key findings of the EIS should be provided. The executive summary should briefly:

1. State the background and the need for the proposal;
2. Discuss alternatives to the proposal and the reasons for selecting the preferred option and rejecting the alternatives;
3. Summarise the pre-operational, operational and post-operational activities associated with putting the proposal into practice;
4. State the proposed schedule for key activities and the expected duration of the proposal;
5. Provide an overview of the existing regional and local environments, summarising the features of the physical, biological, social and economic environment relating to the proposal and associated activities;
6. Describe the expected, likely and potential impacts of the proposal on the environment during pre-operational, operational and post-operational phases;
7. Summarise the environmental protection measures and safeguards, monitoring and decommissioning procedures to be implemented for the proposal;
8. Provide an outline of the environmental record of Woodside.

#### 3.2 GENERAL INFORMATION

A description of the background of the proposal (or action) including:

1. The title of the action;
2. The full name and postal address of the designated proponent;
3. A clear outline of the objectives of the action;
4. The location of the action;
5. The background to the development of the action;
6. How the action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action;
7. The current status of the action;
8. The consequences of not proceeding with the action;
9. A brief explanation of the scope, structure and legislative basis of the EIS;
10. The specific EPBC matters affected by the action, and any additional approvals needed under the EPBC Act; and
11. A description of government planning policies and statutory controls which will influence the Project. All applicable jurisdictions and areas of responsible authorities within the area should be listed and shown on maps at appropriate scales.

### **3.3 CONSULTATION**

Provide details of any consultation about the action, including:

1. Consultation that has already taken place;
2. If there has been consultation about the proposed action — any documented response to, or result of, the consultation; and
3. Any further proposed consultation about potential impacts of the action

Identify and consult with affected parties and communities, including any native title claimants and relevant indigenous stakeholders (including traditional Indonesian fishers), and describe their views. Describe consultation methodologies adopted and skills and techniques used to ensure effective communication of the nature and detail of the proposal. This should include the means used to identify concerns and to gauge and negotiate mitigation strategies. It is recommended that an open community consultation process be carried out, in addition to the legislated environmental impact assessment process.

### **3.4 ALTERNATIVES TO THE PROPOSAL**

This section should describe, to the extent reasonably practicable, any prudent and feasible alternatives to the action, including:

1. If relevant, the alternative of taking no action;
2. A comparative description of the adverse and beneficial impacts of each alternative infrastructure and location on the matters protected by the controlling provisions for the action;
3. Sufficient detail should be provided to make clear why any alternative is preferred to another;
4. The reasons for choice of the preferred location and option should be explained, including a comparison of the adverse and beneficial effects used as a basis for selection, and compliance with the objectives of the EPBC Act (including ESD principles);
5. The advantages and disadvantages of alternatives when considered against relevant matters protected under the EPBC Act must be specifically addressed;
6. Short, medium and long-term advantages and disadvantages of the options should be considered.

### **3.5 THE PROPOSAL DESCRIPTION**

This section should describe the proposal in sufficient detail to allow an understanding of all stages and components, and assist in determining potential environmental impacts associated with the proposal. Those elements with potential implications for matters protected under Part 3 of the EPBC Act must be highlighted.

The description should include the use of aerial photographs, maps, figures and diagrams, where appropriate. A general location map should be provided that illustrates the distances of the Notional Development Areas and proposed Browse Upstream production facilities from the shoreline of the Kimberley and Broome. The map should include the location of known potential future expansions or new developments by Woodside and other proponents in the vicinity, such as the Inpex Ichthys Development. Reference should be made to detailed technical information in appendices where relevant.

#### **3.5.1 PROJECT DETAILS**

The description of the action should cover:

1. The environmental principles on which the action will be managed;

2. All the components of the action including:
  - a. Site selection;
  - b. Site preparation (including any action that may result in the modification of the natural surface of the sea-bed);
  - c. Development options;
  - d. Construction;
  - e. Commissioning;
  - f. Operation, and;
  - g. Decommissioning.
3. The location of works to be undertaken, structures to be built or other elements of the action that may have relevant impacts. This should include (as appropriate):
  - a. Production wells and any water or gas disposal wells;
  - b. Sub-sea well-head completions and sub-sea pipelines;
  - c. Processing platforms or facilities and/or accommodation platforms;
  - d. Location of any facility for vessel based supply of offshore facilities; and offloading facilities.
4. How the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts. This should include:
  - a. An explanation of the anticipated timetable for the construction, commissioning, operation and decommissioning;
  - b. Details of the construction, commissioning, operational and decommissioning equipment to be used;
  - c. Details of the operations of the proposal throughout its lifespan, including details of anticipated exclusion zones required for the project;
5. Origin and nature of solid, liquid and gaseous waste produced during the construction, commissioning, operations and decommissioning phases, including;
  - a. Volumes of all anticipated solid, liquid and gaseous waste produced including produced formation water and atmospheric emissions of pollutants, such as oxides of nitrogen, sulphur dioxide and volatile organic compounds throughout the life cycle of the project. The proponent should quantify all anticipated emissions throughout the life cycle of the project. All emissions sources (combustion, process, fugitive etc) should be discussed;
  - b. Estimates of the maximum annual emissions of greenhouse gases resulting from the proposal as specified in **Attachment 3**;
  - c. As far as predictable, proposals for waste reduction, treatment, reuse and disposal;
6. Information on other potentially hazardous materials to be used throughout the proposal life, including methods of transport, storage and disposal; and
7. Number and source of staff and training for staff involved for all phases of the project.

### 3.5.2 DECOMMISSIONING

This section should outline the planned decommissioning of the proposal and address the decommissioning objectives and goals.

The discussion on decommissioning may be best addressed in table form, identifying the original environment, procedures for decommissioning and rehabilitation, time frame and planned final environment. This section should also identify the time scale for determination of compliance with, and progressive or final release from requirements of the appropriate authorities. Information which should also be addressed includes:

1. Integration of the decommissioning and rehabilitation program with design, construction and operation;
2. The environmental, economic and social viability of removal options, including removal of any ballast and rock armourment;

3. Rehabilitation program (include consideration of species life spans where relevant); and
4. Final use for the project area, taking into account environmental and economic regime of the region.

### **3.6 THE EXISTING ENVIRONMENT**

This section should provide a description of the project area including its marine physiography, flora and fauna, and relevant socio-economic characteristics. It should link the existing environment to the proposal's requirements, potential impacts, as well as proposed mitigation measures throughout construction, operation and decommissioning.

#### **3.6.1 PHYSICAL ENVIRONMENT**

This section should describe the following elements of the environment within all Notional Development Areas and Zones:

1. Climate and atmospheric characteristics (air quality, seasonal temperatures, humidity, wind, evaporation and rainfall);
2. Oceanographic conditions, especially those which may have a bearing on the proposal. Include information on seasonal variation, waves, tides, currents, water salinity, clarity, temperature and depths. Discuss frequency and severity of extreme weather conditions, such as storms and cyclones, for the 2, 10 and 100 year conditions;
3. Bathymetric and geotechnical information, any proposed flowline routes, and any other affected areas. Discuss the geomorphic and topographic features and seismic stability of these areas;
4. Flora and fauna, including baseline information/maps on communities and individual species types and population genetics/stock structure in the immediate and surrounding areas that may be subject to likely or potential impacts, as determined by literature search, survey and sampling programs as required.

The EIS should provide an overall evaluation of the flora and fauna communities identified above with reference to:

1. Habitat values in a local, regional and national context;
2. Presence of endemic species;
3. Local and regional representation;
4. Conservation and biodiversity values;
5. Economic and cultural values of species;
6. Migratory species, and
7. Unique habitats.

Particular attention should be given to the ecological values within North and South Scott Reef and their importance in a local, regional and national context.

The likely presence of any unique, rare, threatened, endangered or vulnerable flora and fauna species and communities or listed migratory species, listed marine species (under Part 4 of the EPBC Act) as well as whales and other cetaceans in the project area, should be discussed. This should include an evaluation of the significance of their occurrence (including conservation status, distribution, population viability and habitat requirements). Particular reference should be made to species and ecological communities listed as threatened under the EPBC Act (but should not be limited to such species and communities) that (through analysis) may potentially be disturbed by the project.



Species to be addressed in the EIS must include, but not be limited to;

Humpback whale	<i>Megaptera novaengliae</i>
Whale shark	<i>Rhincodon typus</i>
Green sawfish	<i>Pristis zijsron</i>
Australian Snubfin (Irrawaddy) Dolphin	<i>Orcaella heinsohni/brevirostris</i>
Indo Pacific Humpback Dolphin	<i>Sousa chinensis</i>
Leathery turtle	<i>Dermochelys coriacea</i>
Green turtle	<i>Chelonia mydas</i>
Hawksbill turtle	<i>Eretmochelys imbricata</i>
Loggerhead turtle	<i>Caretta caretta</i>
Flatback turtle	<i>Natator depressus / Chelonia depressus</i>
Dugong	<i>Dugong dugon</i>

All other listed migratory species and relevant listed threatened species should also be addressed.

A broader description of the biodiversity and biogeography of the receiving environment must be included. Sensitive environments should be identified along with key ecological relationships and interdependencies (eg coral spawning, fish spawning aggregations, flora and fauna relationships etc) with particular attention to the environment within Scott Reef and Surrounds.

The extent of existing disturbance to flora and fauna, and the incidence of introduced pest species should be discussed.

Identification of any existing or proposed reserves in, or neighbouring, the project and their status. Include the reserve characteristics, status, IUCN category, and values and relevant management strategies.

### 3.6.2 SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT

Discussion of the socio-economic and cultural environment should provide:

1. A description of all existing uses and users of the Notional Development Areas and Zones of the sea and the sea floor. Include discussion of scientific research, tourism, commercial, traditional and recreational fishing, military areas and shipping routes (where relevant) and the social and economic importance of these existing uses;
2. A description of government planning policies and statutory controls which will influence the project and surrounding areas of future, planned and current use. All applicable jurisdictions and areas of responsible authorities within the area should be listed and shown on maps at appropriate scales.
3. Any places with known or anticipated heritage, social or cultural values, such that they have been recognised with listing or recording under relevant State or Commonwealth legislation or are anticipated to be listed under such legislation; and
4. A description of any historic shipwrecks within the area pursuant to the *Historic Shipwrecks Act 1976*, including locations.

### 3.7 RELEVANT IMPACTS OF THE ACTION

This section must include:

1. A description of all relevant potential impacts of the action;
2. A detailed assessment of the nature and extent of the potential short term and long term relevant impacts including on: listed threatened species; listed migratory species; listed marine species including whales and other cetaceans; Commonwealth Marine environment; and the listed natural

heritage values of the following places: 'Scott Reef and Surrounds' (CHL #102517 and RNE #17566), 'Browse Island (East) Wreck' (RNE #10175), 'Seringapatam Reef and Surrounds' (CHL #105243), 'Mermaid Reef - Rowley Shoals' (CHL #105480 and RNE #100376, also listed for shipwreck values), 'Imperieuse Reef - Rowley Shoals' (RNE #100378), 'Clerke Reef - Rowley Shoals' (RNE #100378), 'Coulomb Point Nature Reserve' (RNE #10132) and the 'Dampier Archipelago' (RNE #10101).;

3. A statement whether any relevant potential impacts are likely to be unknown, unpredictable or irreversible;
4. Analysis of the significance of the relevant potential impacts; and
5. Any technical data, any sources of authority, and other information used or needed to make a detailed assessment of the relevant potential impacts. Reliability of forecasts and predictions, confidence limits and margins of error should be indicated as appropriate. References included should clearly state whether peer review has taken place or not.

In discussing the potential impacts of the proposal, particular emphasis is to be given to providing details on the potential direct and indirect impacts to the receiving environment's unique flora and fauna as identified and to any protected areas in the vicinity.

### **3.7.1 GENERAL IMPACTS**

1. Discuss the effects of the overall action on the functioning of the marine environment, including effects to the marine environment surrounding the proposed development;
2. Identify the source of potential impacts, e.g. ship-movements, noise (include acoustic volume, noise frequency and noise propagation), artificial lighting such as general illumination, superstructure lighting and flaring;
3. Discuss potential impacts which may arise through the transportation, storage and use of dangerous goods (if any), fuels and chemicals, such as accidental spills;
4. Consider potential impacts caused by the need for waste disposal and management of emissions, refuse, effluent and hazardous waste (if any);
5. In discussing potential impacts, consider how the interaction of extreme environmental events and any related safety response may impact on the environment; and
6. Consider potential impacts throughout the life of the proposal – from construction, commissioning and operation through to decommissioning.
7. Cumulative impacts, where potential project impacts (direct and indirect) are in addition to existing impacts of other activities, (including those known potential future expansions or developments by Woodside and other proponents in the vicinity), should also be identified and addressed. Where relevant to the potential impact, risk assessment should be conducted and documented. The risk evaluation should include known potential future expansions or developments by Woodside and other proponents.

In particular, the EIS should address the matters described in the following paragraphs.

### **3.7.2 PHYSICAL AND BIODIVERSITY IMPACTS**

1. Consider potential impacts to the sea floor through anchoring and direct placement, sediment disturbance, as well as any impacts of removal. The zone of likely seabed disturbance should be identified.
2. Consider potential impacts to fauna and flora species (composition and population densities), considering changes to overall communities, community types, propagation of species and potential barriers.
3. Consider potential impacts to macrobenthic species, fish and larger marine fauna species (composition and population densities), including changes to communities, breeding success, habitat, potential barriers or disturbances to migration or migratory patterns and other wildlife movements.
4. Consider potential impacts, if any, on rare, threatened, or otherwise valuable flora and fauna, communities (particularly listed threatened species and communities, listed marine species including whales and other cetaceans and listed migratory species) and habitat, conservation areas and protected areas, in particular Scott Reef and Surrounds.

5. Consider potential impacts arising from the introduction and/or spread of exotic pest species.
6. Consider potential impacts on the natural heritage values of the following listed places: 'Scott Reef and Surrounds' (CHL #102517 and RNE #17566), 'Browse Island (East) Wreck' (RNE #10175), 'Seringapatam Reef and Surrounds' (CHL #105243), 'Mermaid Reef - Rowley Shoals' (CHL #105480 and RNE #100376, also listed for shipwreck values), 'Imperieuse Reef - Rowley Shoals' (RNE #100378), 'Clerke Reef - Rowley Shoals' (RNE #100378), 'Coulomb Point Nature Reserve' (RNE #10132) and the 'Dampier Archipelago' (RNE #10101).

### **3.7.3 AIR AND WATER POLLUTION IMPACTS**

1. Discuss the potential impact of solid, liquid and gaseous emissions and waste produced by the operation, including greenhouse gas emissions;
2. Include discussion on the eventual fate of the waste;
3. Provide a full evaluation of Produced Formation Water (PFW) discharge. Include anticipated composition of PFW, modelling of the mixing zones and discuss the potential impacts of discharge, including the spatial and temporal impacts of discharged PFW on marine biota. Consider the potential impacts of water clarity, salinity and temperature changes with specific reference to stratification of the water column.
4. Discuss potential impacts related to the discharge of sewage, sillage and other production related discharges from the Proposal.
5. Discuss impacts of potential spillage of hydrocarbons related to construction, production, storage and shipping. Modelling of spills should take into account seasonal variations throughout the year. Modelling should also take into account proximity to sensitive marine areas, in particular Scott Reef and Surrounds. The evaluation of the potential impacts of oil spills is to be carried out using a thorough risk-assessment methodology.

### **3.7.4 SOCIO-ECONOMIC AND CULTURAL IMPACTS**

Section 528 of the EPBC Act defines the environment as including:

- (a) ecosystems and their constituent parts, including people and communities; and
- (b) natural and physical resources; and
- (c) the qualities and characteristics of locations, places and areas; and
- (d) the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b) or (c).

Discussion of the potential socio-economic and cultural impacts of the proposal as they relate to the above, this should include a description and discussion of potential impacts (both positive and negative):

1. Caused by any short, medium and long-term changes, interruption, alteration or curtailment of activities and uses of the area due to the proposed action, including changes to uses or users as described in Section 3.6.2 (Socio-Economic and Cultural Environment) ;
2. On sites of historical or cultural significance, including places entered in the Commonwealth Heritage List or Register of the National Estate and other significant sites and unknown or unsurveyed sites;
3. On existing industry and commerce affected by the proposal;
4. To employees in terms of workplace health and safety;
5. On shipping and any potential traffic hazards;
6. On visual and aesthetic values, impacts to tourism and access for conservation purposes; and
7. To historic shipwrecks in the area, including potential impacts on, as yet, unknown shipwrecks or those in unsurveyed areas

## **3.8 SAFEGUARDS, MITIGATION MEASURES AND MONITORING**

### **3.8.1 SAFEGUARDS AND MITIGATION MEASURES**

This section should explain the proposed safeguards and mitigation measures to be put in place for every phase of the proposed action to deal with relevant (potential and anticipated) impacts of the action. This must include:

1. A consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or treat the relevant potential impacts of the action (impacts upon matters protected under Part 3 of the EPBC Act and as discussed in Section 6 ), including any mitigation measures proposed to be taken by State governments, local governments or the proponent, and other mechanisms such as decommissioning or environmental clean up insurance;
2. A description, and an assessment of the expected or predicted effectiveness of the mitigation measures;
3. Any statutory or policy basis for the mitigation measures; and
4. The name of the agency responsible for endorsing or approving each mitigation measure or monitoring program.

Particular focus should be given to:

1. Determining factors in the planning of the proposal so as to avoid damage to the environment;
2. Measures to avoid or minimise damage to the marine environment;
3. Measures to avoid or minimise impacts to the listed natural heritage values of the following places: 'Scott Reef and Surrounds' (CHL #102517 and RNE #17566), 'Browse Island (East) Wreck' (RNE #10175), 'Serlingapatam Reef and Surrounds' (CHL #105243), 'Mermaid Reef - Rowley Shoals' (CHL #105480 and RNE #100376, also listed for shipwreck values), 'Imperieuse Reef - Rowley Shoals' (RNE #100378), 'Clerke Reef - Rowley Shoals' (RNE #100378), 'Coulomb Point Nature Reserve' (RNE #10132) and the 'Dampier Archipelago' (RNE #10101).
4. Measures to avoid or minimise disturbance to fauna found around and within the proposal area (particularly listed threatened species and listed migratory species);
5. Measures to avoid or minimise disturbance to the North West Slope Fishery, the Western Tuna and Billfish Fishery, the Skipjack Tuna Fishery, the Southern Bluefin Tuna Fishery, and MoU Box Fisheries which operate within the proposal area.
6. Measures to minimise atmospheric emissions, with particular reference to greenhouse emissions (refer to **Attachment 3** for more detail); and
7. Staff training, including training in relation to environmental issues.

### 3.8.2 MONITORING AND REPORTING

Appropriate baseline data requirements will be identified as part of the EIS to form the basis for baseline measurement and ongoing monitoring of environmental parameters. It must be demonstrated that the proposed methods for baseline measurements and subsequent monitoring are scientifically and statistically sound. This section should identify parameters to be monitored and their response trigger values and response activities.

This section will also identify and describe monitoring programs, procedural and compliance audit programs and reporting requirements, and arrangements which will demonstrate the effectiveness of management and monitoring (linked to EMS/EMP procedures – see below).

The proponent must, in addition to outlining proposed programs, clearly identify what is to be monitored and why. Monitoring programs should be designed to provide objective evidence regarding activities associated with the proposal and if these activities are adversely impacting on the environment in the short, medium and long term.

Monitoring programs should demonstrate consideration of:

1. Ecosystems and habitats, flora and fauna (particularly listed threatened species and listed migratory species and 'Scott Reef and Surrounds' (CHL #102517 and RNE #17566)), and water quality issues;
2. Measures to avoid or minimise impacts to the listed natural heritage values of the following places: 'Scott Reef and Surrounds' (CHL #102517 and RNE #17566), 'Browse Island (East) Wreck' (RNE #10175), 'Serlingapatam Reef and Surrounds' (CHL #105243), 'Mermaid Reef - Rowley Shoals' (CHL #105480 and RNE #100376, also listed for shipwreck values), 'Imperieuse Reef - Rowley Shoals' (RNE #100378), 'Clerke Reef - Rowley Shoals' (RNE #100378), 'Coulomb Point Nature Reserve' (RNE #10132) and the 'Dampier Archipelago' (RNE #10101).
3. Measuring the effectiveness of rehabilitation measures;

4. Management and operation of facilities;
5. Documenting the difference between predicted and actual impacts;
6. Methods for identification of non-predicted impacts and appropriate reporting and remedial measures;
7. Application and effectiveness of emergency and contingency plans; and
8. Review of consultation and management arrangements with regulatory authorities, commercial users, indigenous and traditional users and the wider community.
9. Methods for identifying negative impacts upon existing users as described in Section 3.6.2 Socio-Economic and Cultural Environment.
10. Identification of any negative impacts upon the effectiveness of community infrastructure and services.

### **3.9 ENVIRONMENTAL MANAGEMENT SYSTEM**

The overall environmental management philosophy to be applied to the areas affected by the proposal is to be enunciated. An outline of the proposed Environmental Management System (EMS) is to be contained in the EIS document. It should include summary details of audit protocols and reporting procedures.

Reference should be made within the outline of the EMS to consultation, relevant legislation, standards adopted, safeguards planned, management practices, monitoring programs and emergency contingency plans, including the management of facilities in the event of cyclones and other severe storm weather events.

EMP outlines are to be presented in this section of the EIS. It should, as a minimum, detail:

1. Monitoring arrangements;
2. Reporting arrangements; and
3. Feedback of monitoring results into project management.

Details of requirements for the preparation of Environmental Management Plans under other relevant legislation should be provided. In an effort to minimise duplication, areas of consistency between separate requirements should also be highlighted.

### **3.10 OTHER APPROVALS AND CONDITIONS**

This must include the following:

1. A description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the EPBC Act), including any conditions that apply to the action;
2. A statement identifying any additional approval that is required;
3. A description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.
4. Details of any local or State government planning scheme, or plan or policy under any local or State government planning system (including licensing and permitting requirements) that deals with the proposed action, including:
  - a. What environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan or policy;
  - b. How the scheme provides for the prevention, minimisation and management of any relevant potential impacts.

### **3.11 ENVIRONMENTAL RECORD**

The environmental record of the person proposing to take the action must be provided. This should include details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the person proposing to take the action. If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must be provided.

Information relating to the persons environmental record should also include any accreditations (for example ISO 14001), environmental awards, and other recognition for environmental performance.

### **3.12 CONCLUSION**

An overall conclusion as to the environmental acceptability of the proposal should be provided, including discussion on compliance with the objectives and requirements of the EPBC Act including the principles of ESD (see **Attachment 2**). Reasons justifying undertaking the proposal in the manner proposed should be outlined. The conclusion should highlight measures proposed or required by way of mitigating any unavoidable impacts on the environment.

### **3.13 INFORMATION SOURCES**

This section will describe consultations and studies undertaken in the course of proposal formulation and preparation of the draft EIS, and sources of information and technical data. For information given the section must state:

1. The source of the information; and
2. How recent the information is; and
3. How the reliability of the information was tested (specifically whether the information has been peer reviewed); and
4. What uncertainties (if any) are in the information?

Any further or ongoing consultations or studies should be outlined here.

### **3.14 REFERENCE LIST AND BIBLIOGRAPHY**

This should be accurate and concise and include the address of any internet pages used as data sources.

### **3.15 APPENDICES AND GLOSSARY**

Detailed technical information studies or investigations necessary to support the main text of the EIS, but not suitable for inclusion in the main text should be included as appendices; for example, detailed technical or statistical information, maps, risk assessment, baseline data, supplementary reports etc. A copy of the Guidelines should also be included. A glossary defining technical terms and abbreviations used in the text should be included to assist the general reader.

### **3.16 ADDITIONAL SOCIAL AND ECONOMIC MATTERS**

Section 136(1)(b) of the EPBC Act requires the Minister for the Environment, Heritage and the Arts to consider economic and social matters when deciding whether to grant approval to the proposed action under Part 9 of the EPBC Act. The requirements under s136(1)(b) encompass a broader range of matters that may be considered than those addressed during the assessment of the potential impacts of a controlled action. Accordingly, information may be provided on the broader social and economic impacts (positive or negative) of the proposals for the purposes of the Part 9 approval decision. Any information provided for this purpose should be in a separately identified section or appendix of the EIS. This information will not be addressed in the preparation of the assessment report by DEWHA, rather the

information will be considered by the Minister alongside other matters under section 136. Such information provided may address:

1. The broader economic benefits of the proposed action going ahead versus alternatives;
2. Any effects on employment that may occur beyond the immediate scope of the proposed action. Any methodology used to calculate multiplier effects associated with employment should be provided;
3. Information on the amount of domestic and/or overseas investment for capital infrastructure; and
4. Any other social or economic issues that may relate directly or indirectly to the proposed action (eg effects on fishery activities).

As the matters protected by the controlling provisions for this action include "the environment", there is the potential for an overlap between the information provided in response to this appendix and the information requested in the main body of the guidelines in relation to social, economic and cultural aspects within the definition of the environment. The latter set of information need not be repeated if it will be contained in the body of the EIS and should be cross-referenced accordingly.

**Figure 1: Location of Proposed Browse Upstream Notional Development Areas**

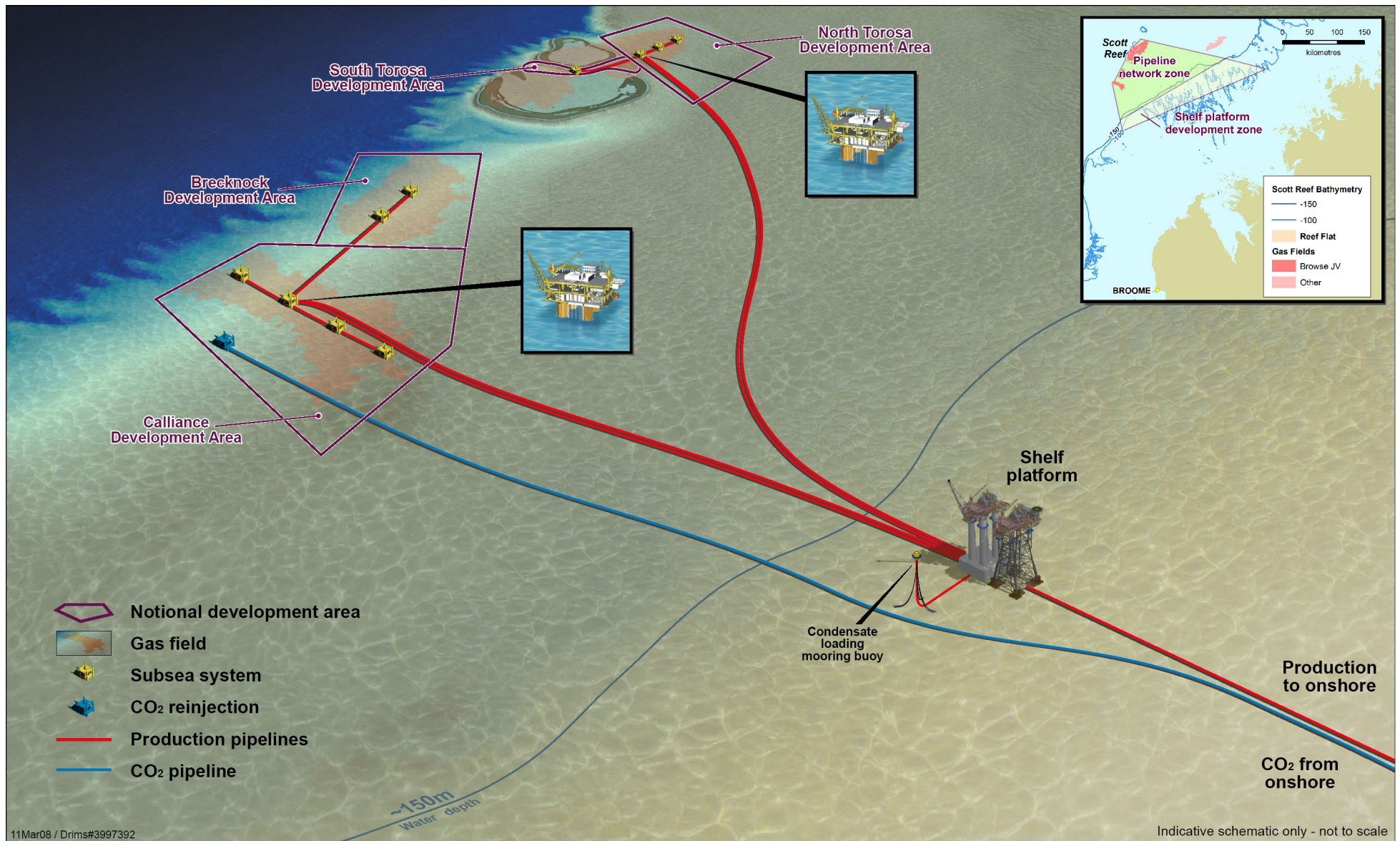
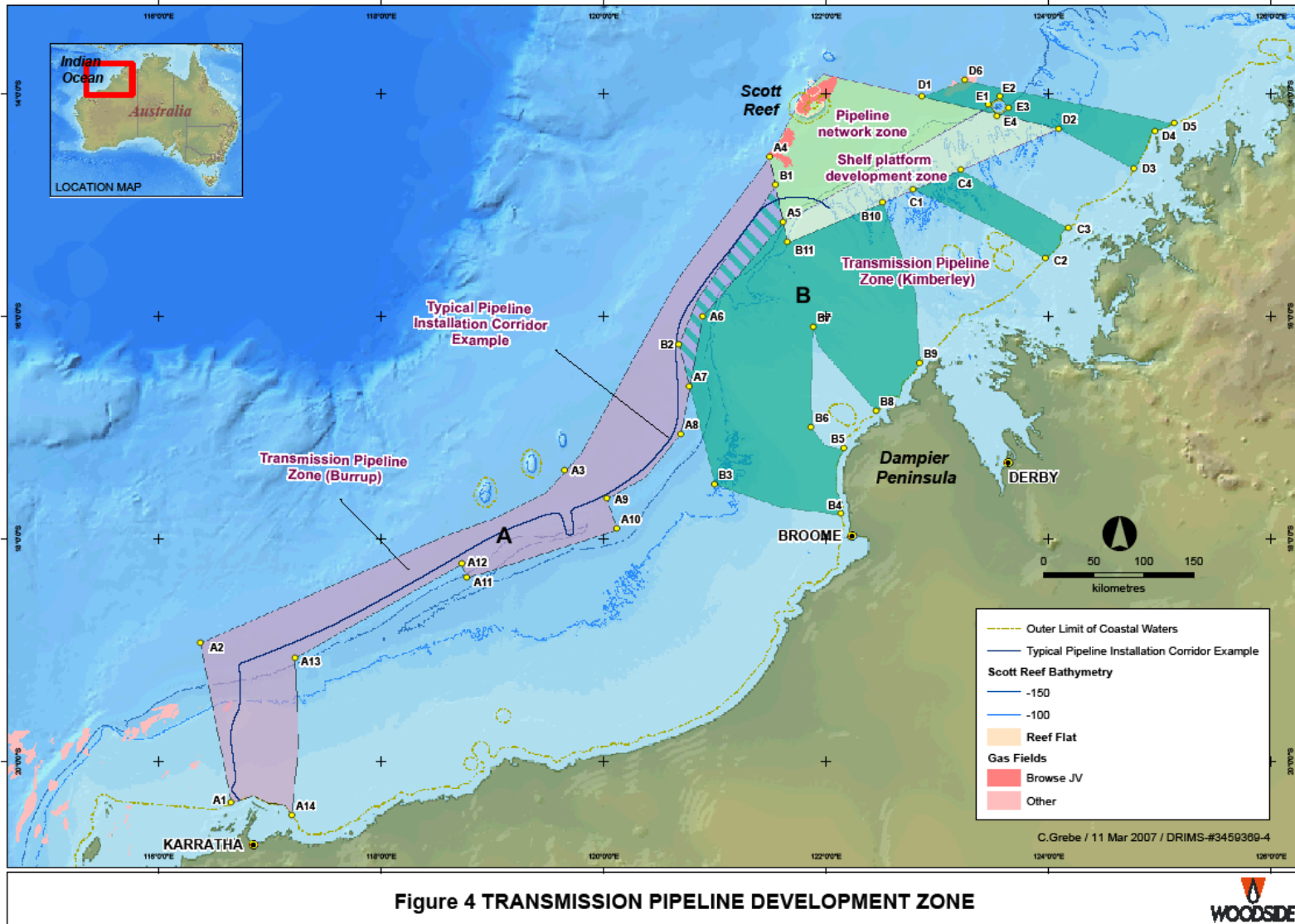




Figure 2: Proposed Browse Upstream Notional Development Areas and Zones



# ATTACHMENT 1: MATTERS THAT MUST BE ADDRESSED IN AN EIS (SCHEDULE 4 OF THE EPBC ACT REGULATIONS 2000)

## 1. General information

1.01 The background of the action including:

- (a) the title of the action;
- (b) the full name and postal address of the designated proponent;
- (c) a clear outline of the objective of the action;
- (d) the location of the action;
- (e) the background to the development of the action;
- (f) how the action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action;
- (g) the current status of the action;
- (h) the consequences of not proceeding with the action.

## 2. Description

2.01 A description of the action, including:

- (a) all the components of the action;
- (b) the precise location of any works to be undertaken, structures to be built or elements of the action that may have relevant impacts;
- (c) how the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts;
- (d) relevant impacts of the action;
- (e) proposed safeguards and mitigation measures to deal with relevant impacts of the action;
- (f) any other requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action;
- (g) to the extent reasonably practicable, any feasible alternatives to the action, including:
  - (i) if relevant, the alternative of taking no action;
  - (ii) a comparative description of the impacts of each alternative on the matters protected by the controlling provisions for the action;
  - (iii) sufficient detail to make clear why any alternative is preferred to another;
- (h) any consultation about the action, including:
  - (i) any consultation that has already taken place;
  - (ii) proposed consultation about relevant impacts of the action;
  - (iii) if there has been consultation about the proposed action — any documented response to, or result of, the consultation;
- (i) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

## 3. Relevant impacts

3.01 Information given under paragraph 2.01 (d) must include

- (a) a description of the relevant impacts of the action;
- (b) a detailed assessment of the nature and extent of the likely short term and long term relevant impacts;
- (c) a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;

- (d) analysis of the significance of the relevant impacts;
- (e) any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

#### **4. Proposed safeguards and mitigation measures**

4.01 Information given under paragraph 2.01 (e) must include:

- (a) a description, and an assessment of the expected or predicted effectiveness of, the mitigation measures;
- (b) any statutory or policy basis for the mitigation measures;
- (c) the cost of the mitigation measures;
- (d) an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing;
- (e) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program;
- (f) a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including mitigation measures proposed to be taken by State governments, local governments or the proponent.

#### **5. Other Approvals and Conditions**

5.01 Information given under paragraph 2.01 (f) must include:

- (a) details of any local or State government planning scheme, or plan or policy under any local or State government planning system that deals with the proposed action, including:
  - (i) what environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan or policy;
  - (ii) how the scheme provides for the prevention, minimisation and management of any relevant impacts;
- (b) a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the Act), including any conditions that apply to the action;
- (c) a statement identifying any additional approval that is required;
- (d) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

#### **6. Environmental record of person proposing to take the action**

6.01 Details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

- (a) the person proposing to take the action; and
- (b) for an action for which a person has applied for a permit, the person making the application.

6.02 If the person proposing to take the action is a corporation — details of the corporation's environmental policy and planning framework.

#### **7. Information sources**

7.01 For information given the EIS must state:

- (a) the source of the information; and
- (b) how recent the information is; and

- (c) how the reliability of the information was tested; and
- (d) what uncertainties (if any) are in the information.

## ATTACHMENT 2: THE OBJECTS OF THE ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999 ACT

### 3. Objects of the Act

- (a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance
- (b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources
- (c) to promote the conservation of biodiversity
- (d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples
- (e) to assist in the co-operative implementation of Australia's international environmental responsibilities
- (f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
- (g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

### 3A. Principles of Ecologically Sustainable Development

The following principles are principles of ecologically sustainable development:

- (a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
- (b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- (c) the principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- (d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;
- (e) improved valuation, pricing and incentive mechanisms should be promoted.

## ATTACHMENT 3: GUIDELINES FOR GREENHOUSE GAS EMISSIONS

The Commonwealth seeks transparent and accurate information to support decision making. This framework is provided to assist proponents in detailing the greenhouse implications of development proposals. To aid assessment of greenhouse gas emissions resulting from the proposed Woodside Energy development, the following information is required:

### 1. Inventory of annual emissions

The proponent must provide data on maximum annual emissions of the six greenhouse gases listed in the Kyoto Protocol (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride). This includes both emissions on-site and upstream, such as from the production and supply of natural gas to the proposed development. The inventory should include:

- (a) an estimate of emissions on a gas by gas basis,
- (b) a summary table of emissions on a gas by gas basis;
- (c) a summary table listing emissions on a carbon dioxide equivalent basis; and
- (d) a table which includes gross emissions, emission reduction due to both offsets and mitigation, and net emissions.

As far as is practicable an inventory of cumulative emissions should be included (with regards to known potential future expansions or developments by Woodside and other proponents in the vicinity of the development).

### 2. Mitigation

The proponent must include a full description of mitigation measures, including analysis of a full range of alternatives to the proposed project. This should include methods by which greenhouse gas emissions could be mitigated, including:

- (a) analysis of the likely greenhouse gas reductions as a result of mitigation efforts (to the same level of detail as described in the section 1.1 above);
- (b) analysis of costs, both financial and output related, of mitigation; and
- (c) identification of any relevant voluntary partnerships between government and the proponent; such as Greenhouse Challenge and their links to mitigation.

### 3. Methodologies

The proponent must identify, in a transparent manner, the methodology used in making the estimate. In preparing estimates:

- (a) the most recent National Greenhouse Gas Inventory (NGGI) methodology should be used (<http://www.greenhouse.gov.au/inventory/index.html>);
- (b) if the relevant industry is not covered by the NGGI methodology, IPCC (Intergovernmental Panel on Climate Change) methodology should be substituted (<http://www.ipcc.ch/pub/guide.htm>); or
- (c) if no methodology exists in either format, a methodology reflecting the principles of the NGGI and IPCC will be developed and agreed by the proponent and the Australian Greenhouse Office.

### 4. Supporting Data

The following supporting data must be provided:

- (a) the proponent must provide details on the emission factors used, and an explanation where a proponent chooses to use alternative emission factors to that provided in the methodology.
- (b) the project's emission factors need to be compared with similar projects, including both Australian and international best practice. This analysis should include projects that use alternative fuel sources, processes, and technologies.

## **5. Offsets**

The proponent should provide information on the range of offsets (eg sinks or off-site energy efficiency measures) that may be pursued. The following information should be provided:

- (a) likely greenhouse gas reductions as a result of the offsets (to the same level of detail as described in the inventory section above);
- (b) description of proposed offsets and a qualitative assessment of their impact on other matters of environmental, economic, or social significance; and
- (c) analysis of costs, both financial and other related to offsets.