Northern Territory Government
Department of Infrastructure, Planning and Environment

PART B

CONTENTS OF THE EIS

GUIDELINES FOR PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE GLYDE POINT DEVELOPMENT PROPOSAL IN THE NORTHERN TERRITORY

MAY 2004

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The Draft Environmental Impact Statement (EIS) should include the following sections, but need not be limited to theses sections or inferred structure:

1 EXECUTIVE SUMMARY

The Executive Summary should include a brief outline of the project and each chapter of the draft EIS, allowing the reader to obtain a clear understanding of the proposed project, its environmental implications and management objectives. The Executive Summary should be written as a stand-alone document, able to be reproduced on request by interested parties who may not wish to read or purchase the draft EIS as a whole.

2 THE PROPOSAL

2.1 General Information

The EIS must provide detail of the proposed industrial estate, road and services corridor, port facilities, residential estate and surrounding environment. As a minimum, it should:

1. Identify and describe the key characteristics and phases of the proposal, and the nature and extent of proposed works likely or with the potential to impact on the environment. An explanation of the objectives, benefits and justifications for the project should also be included. The purpose of this is to place the proposal in the local and regional context.

2. For all aspects and components of the project, the proposal description should consider, as a minimum, the following:

    - Comprehensive map(s) showing topography and all project components including shipping corridors, land tenure and width of coastal zone (including how this is to be measured);

    - Project schedule;

    - Location and design criteria for each component of the project including design limitations imposed by site characteristics;

    - Land requirements, land tenure, acquisition requirements (permits, rezoning and Native Title), and the tenures under which the project would be held including details of relevant legislative processes required to grant proposed tenure;

    - Infrastructure requirements and specifications (permanent & temporary) and ancillary activities (eg storage/laydown areas etc);

- Transport systems, location, methods and routes for delivering construction and maintenance materials (land, marine, temporary or permanent), including consideration of any interruption to other land/sea activities.

- Employment and business opportunities (direct and indirect) including sources of workforce, skill levels required and opportunities for aboriginal people and businesses;

- Construction timing, methods, equipment and materials (types, sources & quantities) used and shift patterns;

- Methods for storage, handling, containment and emergency management of chemicals and other hazardous substances (including fuel);

- Anticipated energy usage for each site;

- Proposed environmental, safety and emergency management arrangements including risk assessments, contingency and response plans;

- Rehabilitation commitments and timetables (for both temporary and permanent facilities) including waste management, pollution control and stabilisation and rehabilitation plans for 'dredged spoil', storage facilities and land reclamation;

- Ongoing management, maintenance and administrative requirements.

3 ALTERNATIVES

Alternative proposals, which may still allow the objectives of the project to be met, should be discussed, detailing reasons for the selection and rejection of particular options. The short, medium and long-term potential beneficial and adverse impacts of each of the options should be considered.

Alternatives to be discussed should include:

1. not proceeding with the proposal;
2. alternative locations for components of the proposal;
3. alternative scenarios for development of port facilities;
4. alternatives to foreshore reclamation; and
5. alternative environmental management techniques.

4 EXISTING ENVIRONMENT, POTENTIAL ENVIRONMENTAL IMPACTS & MANAGEMENT

4.1 Preliminary

Studies to describe the existing environment should be of a scope and standard sufficient to serve as a benchmark against which the impacts of the project may be assessed over an extended period. Control areas not impacted by the project should be included in proposed studies, and long-term monitoring locations should be established.

This section of the draft EIS should include an in-depth description of the areas with the potential to or expected to be impacted by the project or any feasible alternatives and clearly identify, qualify and quantify, where appropriate, those potential environmental impacts. The section should also include an assessment of the level of significance of the impact, be it global, regional or local (eg. global and national implications of greenhouse gases and the localised impact of service roads or artificial water bodies). The possibility of remediation should also be discussed. Performance indicators for all potential impacts and remediation efforts should be identified. Environmental Management Plans will be need to be developed in order to minimise and manage impacts associated with the project.

Cumulative impacts should also be discussed including the extent to which the environment is already affected by existing developments. The reliability and validity of forecasts and predictions, confidence limits and margins of error should be indicated as appropriate. Each criterion should be addressed for each aspect of the project.

4.2 Regional Setting

Describe the project area, in terms of broad climatic zones, land terrain types, regional population centres, land use, land sensitivities and Aboriginal relationships to the land including cultural values.

Existing Environment, Potential Impacts & Environmental Management

Provide detailed information on the following for each aspect of the project:

Element	**Baseline** ***Describe each element as outlined below:***	**Impacts** ***Describe how the project will or has the potential to impact on each element with particular consideration given to the following:***	**Management** ***Detail the safegaurds, management & monitoring strategies that will be used to minimise impacts of construction and operation for each element.***
Landform	• Detailed maps showing topography, bathometry, geology, soil and land capability. • Geotechnical survey/information (soils & marine sediments considering acid sulfate soils, background contaminants and physical characteristics. • Geological/Geomorphological characteristics including seismic stability, existing levels of erosion, soil & marine sediments. • Discuss features of economic/social/ heritage/other significance.	• Detail possible impacts of development to landform including impact of artificial structures • Discuss limiting properties of landform considering erosion, rehabilitation, acid generation etc. • Impacts of dredging	• Measures to avoid/mininmise impacts. • Provide management plan to address landform limitations, specifically uplands, foreshores, wetlands, erosion and sediment control and acid sulfate soils.
Water	• Description of natural/artificial, permanent/ephemeral waterways including catchment system(s), wetland habitats and ground water systems. • Hydrology/hydrogeology including drainage patterns, flow/discharge rates, likelihood of flooding, etc. • Local & regional tidal information including current patterns and wave action. • Water quality – marine & freshwater including temporal and local variations. • Hydrodynamics adjacent to Gunn Point Peninsular, including modelling of the area between Melville Island & Gunn Point and Cape Don & Soldier Point considering risk of an oil spill, scouring effects, accretion rates, erosion & dispersion.	• Impacts on Surface/ground/marine waters. • Impacts of dredging, land reclamation, port operation etc on water quality, mangrove habitats, aquatic flora & fauna, drainage systems etc. • Risk assessment of development on aquatic system. • Impacts of waste water including introduction of non-endemic aquatic flora & fauna. • Impacts of ocean outfall on water quality	• Treatment & disposal of wastewater (eg ballast water, sewage etc) including preferred option and selection criteria. • Alternatives to ocean outfalls • Protection of beds & banks of watercourses (including marine beds & banks). Include preferred methodologies of relevant Advisory Agencies. • Water Quality protection including acid sulphate soil & wetland crossing management. • Quantity and sources of water for the project.

Air Quality & Noise	• Background dust, air quality, noise and dispersion levels.	• Noise including levels, timing & duration and comparison to current levels. • Impact of noise on adjacent activities • Odour & gaseous emissions.	• Dust suppression & monitoring. • Gaseous emissions/leakages. • Planning for future climatic changes.
Ecology	• Specify the extent of clearing according to land unit classes, and with consideration given to cumulative effects of land clearing and to the extent that the land unit to be cleared has representation within existing conservation reserves; • Survey flora & fauna species (including exotic species) and biological communities (including benthic). • Survey methodology should: ⇒ follow best practice & advice from relevant agencies; ⇒ consider seasonality, species rarity, potential for occurrence of significant species & sensitivity of species to disturbance; ⇒ be included in appendices; ⇒ Identify rare, threatened, endangered species against NT & Commonwealth legislation, and species with indigenous conservation values and evaluate the extent and significance of any populations of such listed species; ⇒ Identify listed migratory species under international agreements and evaluate the extent and significance of any populations of such listed species; • Special consideration should be given to the following: ⇒ Ecologically outstanding areas including marine environments; ⇒ Vegetation that is the habitat of rare/threatened/endangered species or has	• Impact on species/ communities/habitats of local/regional/national significance, including turtle, marine snake, cetaceans, and dugong species, rare vegetation types, coral reefs and the Vernon Islands. • Impacts of clearing. • Resilience of identified stands of vegetation & fauna to increased environmental pressure. • Identify pest species/noxious weeds (including in the marine environment) that are likely to result from project activity. • Impact of infrastructure corridor on Antilopine Walleroo strategic pathway. • Impact of development on Van Diemen Gulf as a shallow nursery area. • Impact of possibly contaminated water from Beagle Gulf entering into Van Diemen Gulf.	• Minimisation of disturbance. • Rehabilitation methods including revegetation strategies, surface stabilities & aquatic monitoring. • Methods to manage/minimise exotic fauna species (including marine species) • Collaboration with Commonwealth & NT wildlife agencies to minimise wildlife mortality. • Weed management plan to be included in EMP and to follow best practice and advice from advisory agencies (*NT Weeds Management Act 2001*). • Vegetation Clearing Plan to be developed as part of EMP. • Management of Antilopine walleroos. • Methods to manage/minimise impact of development on Van Diemen Gulf as a shallow nursery area.

	outstanding diversity; ⇒ Communities that are exceptional examples of their type; and ⇒ Vegetation outside its normal distribution or of other biogeographical significance. • Timeline to obtain permits and meet other Statutory obligations under NT legislation (IDCO No12. – *Planning Act 1999* & *s.38 Pastoral Land Act 1992*) for vegetation clearing.		
Socio-Economic	• Map showing jurisdictions & regulatory regime of responsible authorities. • Identify zoning and land/sea uses; • Land/Sea titles and rights eg those granted under *Native Title Act 1993*.	• Impact of developments on current and potential land uses & land users.	• Assessment of any land acquisition and compensation requirements including alternatives and implications of using alternate sites.
Historic & Cultural Heritage Values	Identify all indigenous/non-indigenous cultural heritage places and their significance including: • areas of significance to the local Aboriginal people including sacred sites within the meaning of the *Aboriginal Land Rights (Northern Territory) Act 1976* and the *Northern Territory Aboriginal Scared Sites Act 2000* • places listed on the The Australian Heritage Database established under the *The Australian Heritage Council Act 2003*; • nominated proposed or declared heritage places listed on the Northern Territory Heritage Register established under the *Northern Territory of Australia Heritage Conservation Act 1991*; • prescribed archaeological places and objects (Aboriginal archaeological sites) as defined and protected under the *Northern Territory of Australia Heritage Conservation Act 1991*;	Describe the potential impacts on these places and their values.	Develop cultural resource management strategies to mitigate the loss of places or their values. These should include: ⇒ procedures to avoid potential impacts upon cultural heritage values of Hope Inlet. ⇒ Procedures to avoid significant areas eg Murrujumuk sacred site; ⇒ encourage ongoing protection; and ⇒ Procedures for undiscovered sub-surface materials.
Social	• Identify key stakeholders, regional	• Discuss impact on Tree Point community and	• Development of a cultural awareness program.

Environment	community structures and community vitality. • Assess skills and potential of local communities to meet workforce demands.	Native Title claimants.	
Regional Economics	• Discuss regional economic viability past present and future activities.	• Summary of project's impact on the regional/territory/national economies & direct/indirect effects on employment & production. • Consideration of effects of disturbance on existing land on current & future commercial activities.	• Describe opportunities available to regional centres based on the activity generated by the project.
Infrastructure & Transport	• Provide map showing existing infrastructure & transport networks. • Provide details of new infrastructure including any upgrades.	• Potential impacts of transport operations on public amenity (eg impact of infrastructure corridor/road directly passing proposed housing estate).	• Management of impacts of project on current infrastructure. • Ongoing maintenance program.
Biting Insects		• Impact of biting insects on workforce & residents. • Impacts of developments on biting insect populations/habitats.	• Outline measures to prevent increase in biting insect habitats/populations, particularly in tidal areas.
Greenhouse Gas Emissions		• Demonstrate due consideration of the risk of climate change impacts. Risk assessment to include sea-level rise and increase cyclone associated storm surge.	• Greenhouse gas emissions inventory to be produced in accordance with the methodology set out by the Greenhouse Challenge Program.
Waste Management		• Identify & describe all sources of waste including chemical/mechanical processes. • Impact of ocean outfall on marine environment.	• Environmental & Safety management programs including: ⇒ contingency/response plans; ⇒ spills & containment; and ⇒ hazardous materials MSDS & storage requirements • Waste management program including reduction, reuse, storage, transport & disposal. • Waste Water (see *water* section).
Fire		• Identify activities that pose a risk of wildfire.	• Develop fire management plan outlining fire response plans, wildfire prevention methods etc.

5 PROJECT ENVIRONMENTAL MANAGEMENT

Specific safeguards and controls, which would be employed to minimise or remedy environmental impacts, are to be outlined. These are to be covered in detail in the Environmental Management Plans (EMPs).

5.1 Environmental Management System (EMS)

1. It is recommended that the proponent develops and implements an Environmental Management System (EMS) for the project. The EMS should incorporate all facilities and operations associated with the project to an accepted standard commensurate with the risk of environmental harm. Accepted EMS standards are specified in:
   - AS/NZS ISO 14000 – Environmental Management System, Guidelines on Principles;
   - AS/NZS ISO 14001 – Environmental Management System, Specifications with guidance for Use; and
   - BS 7750 – Specifications for Environmental Management Systems.

2. The EMS should include an annual program with the objective of verification of compliance with all environmental performance commitments, including permits and licences. The Environmental Management Plan required as part of this EIS should describe a commitment to develop an EMS to one of the above specifications.

3. Discuss the potential use of an Integrated Environmental Management System (EMS) incorporating Environment Management Plans (EMPs), monitoring and reporting arrangements, or equivalent site-based management plans that would assist the determination of appropriate approval conditions for the project.

5.2 Resourcing and Policies

Information is to be provided on strategic matters relating to environmental management and should include:

- staffing arrangements to ensure that the measures described in the report will be carried out effectively;
- procedures and instructions to employees on minimising unnecessary environmental impacts;
- a staff induction and education program to ensure an informed response to construction and operational environmental concerns; and
- development of staff behavioural guidelines and cross-cultural awareness training.

5.3 Environmental Management Plan

It is recommended that all environmental commitments made in the EIS be included and indexed in the Construction and Operational Environmental Management Plans and take into consideration the following:

1. The EMPs should be prepared in consultation with the relevant Commonwealth and Territory advisory agencies.

2. Provide strategic draft EMPs with the draft EIS.

3. Discuss the process for updating the EMPs including periods for regular review.

4. The EMP commitments should include clear timelines for key commitments.

5. When information is not available, it should be described with an indication of how and when the information will be incorporated into the final detailed EMP.

6. The EMPs must be prepared in accordance with recognised standards and, in particular, to standards applicable to the construction and operation of gas, port, housing or infrastructure production facilities and as required by Commonwealth and Territory legislation.

7. The EMPs should also cover any ancillary developments with potential environmental impacts, This should ensure that environmental risk, particularly to regional communities, is minimised.

8. Reference to the standards used is required; relevant standards are referred to in Section 5.1 in relation to Environmental Management Systems. The plan should address, but not be limited to, the following matters:

9. the management objectives;
   - specific strategies to meet the management objectives, such as the preparation and implementation of various management plans, eg. rehabilitation plans, habitat enhancement projects, erosion and sediment control plans, pollution control plans, greenhouse emissions, waste management plans, etc, in consultation with agencies;
   - the quality assurance, monitoring and auditing requirements and programs including the identification of performance indicators and criteria, monitoring and auditing locations and frequency;
   - identification of responsible personnel in the Proponent's organisation; in the contractors' staff and in the government agencies concerned;
   - reporting processes;
   - whole of project and life of project variations to environmental conditions; and
   - linking of EIS findings with environmental authorities and development approvals.

5.4 Monitoring and Reporting Strategies

Specific programs of monitoring or measuring the success of the Project's environmental management are to be outlined. These should be covered in greater detail in the Environmental Management Plan. Matters to be considered should include:

- details of inspections to be undertaken; and
- objectives of rehabilitation, weed infestation, access restrictions, erosion, water quality and biting insect control programs.

Performance indicators and target levels for each aspect to be measured should be outlined. The timing and frequency of monitoring should also be provided. Monitoring programs should:-

- ensure safeguards are being effectively applied;
- be capable of identifying any differences between predicted and actual impacts; and
- identify the party responsible for undertaking corrective actions, and the actions taken to address problems.

The reporting program should detail:

- steps to be taken to correct detrimental effects identified by monitoring;
- procedures for reporting on monitoring programs; and
- proposed recipients of reports.

The monitoring of rehabilitation success at each sites adjacent to or across waterways must continue for an adequate period to ensure that such works/rehabilitation withstand the natural flow regimes of the region.

6 HEALTH AND SAFTEY

Health and Safety issues pertaining to the design, construction and operational phases of the project, and the transport of construction materials, should be investigated. This should address issues concerning employees visiting the site and members of the public.

- Discuss issues relating to provision of emergency first aid treatment and transport of sick or injured persons to the nearest appropriate medical facility.-
- Prepare a management and administration plan outlining strategies and procedures in the event of an emergency.

7 RISK ASSESSMENT AND EMERGENCY MANAGEMENT

7.1 Risk Assessment

The Proponent shall carry out a Risk Assessment in accordance with appropriate guidelines of the responsible authority, where relevant.

While the EIS must deal comprehensively with on site risks, it is suggested that external risks to the project also be considered. External risks from natural hazards should be determined on the basis of AS/NZS Risk Management Standard 4360:1999 and should include an assessment of climate change, including sea level rise and increase cyclone associated storm surge.

A review of potential hazards, accidents, during the construction, operational and decommissioning phases should be provided. The likelihood of an event, the possible consequences of the event and safeguards to be implemented to reduce the all-potential risks will be discussed in quantitative terms where possible.

7.2 Emergency Management

An outline of the proposed emergency management procedures is to be provided and should include for each site:

- contingency plans to deal with hydrocarbon (eg. diesel, lubricating oils) oil spills during construction, operation and maintenance of the pipeline;
- contingency plans to account for natural disasters such as storms, floods and fires during the construction, operation and maintenance phases;
- ensure that development of emergency planning and response procedures are determined in consultation with regional emergency service providers; and
- include the relevant Commonwealth and Territory agencies in relation to emergency medical response and transport and first aid matters.

8 PUBLIC INVOLVEMENT AND CONSULTATION

Public involvement and the role of government organisations should be clearly identified. The outcomes of surveys, public meetings and liaison with interested groups should be discussed and any resulting changes made to the proposal clearly identified. Details of any ongoing liaison should also be discussed.

Negotiations and discussions with local and community government, the Territory Government and the Commonwealth Government should be detailed and any outcomes referenced. Details of any ongoing negotiations and discussion with government agencies should also be presented.

9 BIBLIOGRAPHY

The Draft EIS should contain a comprehensive reference list/bibliography. Any source of information such as studies, research, maps and personal communications used in the preparation of the Draft EIS should be clearly identified, cited in the text and referenced in the bibliography.

10 GLOSSARY

A glossary should be provided, defining the meaning of technical terms, abbreviations and colloquialisms. (Note: throughout the Draft EIS, technical terms and jargon should be minimised).

11 APPENDICES

Information and data related to the Draft EIS but unsuitable for inclusion in the main body of the statement (eg. because of its level of technical detail) should be included as appendices. This may include detailed analyses, monitoring studies, baseline surveys, raw data and modelling data. Where necessary, specific guidance should be provided on the most appropriate means of accessing information not appended to the Draft EIS.

12 APPENDIX 1

NT Environmental Impact Assessment Guide Greenhouse Gas Emissions.

1 PURPOSE

This Guide has been developed by the Office of Environment and Heritage (the Office)[1]. It provides advice to proponents about the minimum requirements for environmental management, which the Office expects to be met when considering a proposal during the assessment process.

This Guide primarily addresses the minimisation of greenhouse gas emissions from new or expanding operations where greenhouse gas emissions are considered to be a relevant environmental factor in an assessment of a proposal under the *NT Environmental Assessment Act 1994.*

This Guide provides advice only. Proponents are encouraged to consider their proposals in the light of this advice. A proponent wishing to deviate from the guidance provided would be expected to put a well-researched and clear justification to the Office, rationalising the need for that deviation. In practical terms this means that the proponent would need to show that the intent of this Guide has been understood and given serious consideration.

2 THE GUIDANCE

2.1 Overview

While there is a range of views within the scientific community over the climatic and environmental effects that can be expected as a result of the increasing atmospheric concentration of greenhouse gases, the majority view held in the scientific community is that global warming is occurring and that future climate change is inevitable. The Northern Territory Government recognises that it has a role to play in addressing this complex and challenging problem. It is committed to greenhouse policies that are guided by scientific consensus and that take into consideration the Territory's current and future environmental, social and economic needs.

The Government's objective for managing greenhouse gas emissions from new and expanding operations is to reduce emissions to a level that is as low as practicable. To achieve this, the Office will ensure that potential greenhouse gas emissions from proposed projects are adequately addressed in the planning, design and operation of projects. Specifically the Office will ensure that:

- best practice is applied to maximise energy efficiency and minimise emissions;
- proponents undertake an ongoing program to monitor and report emissions and periodically assess opportunities to further reduce greenhouse gas emissions over time;

[1] This Guide has been based on a similar document produced by Western Australia's Environmental Protection Agency.

- comprehensive analysis is undertaken to identify appropriate emission offsets; and
- due consideration is given to preparing for possible climate change impacts.

Emission offsets include activities that sequester carbon or reduce the greenhouse gas output or intensity per unit product from current or future activities. Examples may include but are not limited to:

- establishment and maintenance of perennial vegetation;
- sequestration of carbon by geological, chemical, biological or other means;
- reducing the carbon intensity of existing activities;
- replacing fossil fuels with renewable fuels;
- trading emission permits in a nationally approved system;
- synergistic linking of enterprises to reduce net greenhouse gas outputs; and
- development of new greenhouse gas efficient technologies.

Measures that offset emissions within the Northern Territory are encouraged, however, the Office recognises global nature of climate change and proponents are also advised to consider national and international offset options.

2.2 Guidance on greenhouse gas emissions

Proponents should indicate the following in their environmental assessment documentation:

Greenhouse gas emissions inventory and benchmarking

Using the methodology developed and periodically updated by the National Greenhouse Gas Inventory Committee[2] or another nationally agreed methodology:

- Estimate the gross emissions of greenhouse gases that are likely to be emitted from the proposed project for each year of its operation in absolute and in carbon dioxide equivalent figures. The estimate of gross emissions should include on site and upstream sources, such as the production and supply of energy to the site. Emissions should be detailed on a gas by gas and a process by process basis.
- Detail the project lifecycle greenhouse gas emissions and the greenhouse gas efficiency of the proposed project (per unit of product and/or other agreed performance indicators). The parameters should be compared with similar technologies producing similar products. Reductions in emissions due to improvement in industry practice since 1990[3] should also be described.
- Estimate any removals of greenhouse gases due to carbon sequestration activities (see (c) below), in carbon dioxide equivalent figures for each year of operation.

[2] Up to date methodology information can be obtained by contacting the Australian Greenhouse Office.

[3] The year 1990 has been selected because it is the base year against which the Kyoto Protocol's emission abatement targets are calculated.

Measures to minimise greenhouse gas emissions

Consider a wide range of options (including, innovative options) and then indicate the intended measures and efficient technologies to be adopted to minimise total greenhouse gas emissions in the proposed project. This should include:

- Identifying improvements in energy efficiency, conservation measures and the reduction of fugitive emissions where applicable; and
- Indicating where potential savings in greenhouse gas emissions can be made through the use of renewable energy sources. This should take into account fossil fuels used for supplementary power generation.

Carbon Sequestration

Consider a wide range of carbon sequestration options and include intended measures for research and adoption. Options include:

- forestry or other revegetation;
- geological re-injection;
- chemical methods;
- soil uptake; and
- re-use.

Minimising emissions over the life of the project

The design measures to minimise emissions, and the sequestration and sink enhancement actions to offset emissions, identified in points (b) and (c) above should, at a minimum, represent best practice at the time of seeking project approval. Within the proponent's Environmental Management Plan, consistent with the principles of continuous improvement, the Office expects commitment to an ongoing program of monitoring, investigation, review and reporting of internal and external greenhouse gas abatement measures.

Proponents should also advise whether they will join the Commonwealth Government's "Greenhouse Challenge" voluntary cooperative agreement program (whether on a project-specific basis, company-wide arrangement or within an industrial grouping, as appropriate).

Benefits on a national or global scale

This section provides the opportunity for proponents to place the proposal in a national and global context so as to provide an understanding of where broader offset benefits might occur. It provides the opportunity for the proponent to provide a statement in support of the proposal indicating where positive outcomes would be achieved in relation to greenhouse gas emissions, regardless of where these measures are located.

The Office looks to proponents to provide the best possible outcome within the Northern Territory but also recognises the potential for benefits to accrue at the national and global scale. If a proponent has adopted best practice to reduce greenhouse gas emissions in the Northern Territory, the Office then acknowledges that benefits may also accrue through actions taken by the proponent elsewhere in Australia or internationally.

2.3 Preparedness for climate changes

Proponents should demonstrate due consideration of the risk of climate change impacts. Relevant variables may include, but are not limited to:

- increasing average temperature and evaporation rates;
- variation in rainfall and the incidence of floods;
- sea level rise;
- increased frequency and intensity of cyclones and storm surge events; and
- altered distribution of pests and disease; and
- In assessing climate change risk, proponents should be guided by recent projections published by organisations such as the CSIRO or the Intergovernmental Panel on Climate Change.

3 LIMITATIONS

This Guide has been prepared by the Office of the Environment and Heritage to assist proponents and the public. While it represents the contemporary views of the Office of the Environment and Heritage each proposal which comes before the Office of the Environment and Heritage for environmental impact assessment will be judged on its overall merits.

4 GLOSSARY OF TERMS

Abatement: Limiting, abating, avoiding or sequestering greenhouse gas emissions through source reduction, fuel displacement or switching, carbon stabilising techniques or sink enhancement.

Absolute Emissions: Refers to the total emissions of greenhouse gases expressed in terms of the actual mass of each individual gas emitted over a specified time period.

Best Practice: A Best Practice is a process, technique, or use of technology, equipment or resources that has a proven record of success in minimising energy use and greenhouse gas emissions. A commitment to use Best Practice is a commitment to use all available knowledge and technology to ensure that greenhouse gas emissions are minimised.

Carbon Dioxide Equivalent: This is calculated by multiplying the actual mass of emissions by the appropriate Global Warming Potential (GWP) factor. This will enable emissions of different gases to be added together and compared with carbon dioxide.

Commonwealth Government's "Greenhouse Challenge" Voluntary Cooperative Agreement Program: The Greenhouse Challenge is a cooperative effort by industry and Commonwealth Government to reduce greenhouse gas emissions through voluntary industry action. Participation in the challenge will be through 'cooperative agreements' between the Commonwealth Government and industry participants. The objective of these agreements is to capture the capacity of industry to abate its greenhouse emissions, mainly by improving its efficiency in energy use and processing. A successful program will mean that Australia is developing sustainable strategies that respond effectively to climate change, while maintaining or enhancing Australian industry competitiveness.

The following features form the basis for cooperative agreements between industry and the Commonwealth to abate greenhouse gas emissions and enhance sinks, as part of a comprehensive approach.

Cooperative agreements include the following:

- an appropriate emissions inventory;
- specific greenhouse action plans;
- a commitment to regular monitoring and reporting of performance against action plans;
- provision for verification of performance; and
- a public statement, as agreed by the parties, on the undertakings contained in the agreement.

Greenhouse Gases: Proponents would be required to report on the emissions of:

- carbon dioxide (CO_2),
- methane (CH_4),
- nitrous oxide (N_2O),
- perfluorocarbons (CFx)
- hydrofluorocarbons (HFCs), and
- sulphur hexafluoride (SF_6)

Emissions must be reported in terms of their absolute emissions and their “carbon-dioxide equivalent” (CO_2-e). The “carbon dioxide equivalent” is calculated by multiplying the actual mass of emissions by the appropriate Global Warming Potential (GWP) factor published by the Intergovernmental Panel on Climate Change.

Gross Emissions: The actual mass of the greenhouse gases emitted. These emissions should be expressed as both absolute and “carbon dioxide equivalent” emissions.

Global Warming Potential: Global Warming Potential (GWP) is the warming potential of a gas. GWPs are revised from time to time as knowledge increases about the influences of different gases and processes on climate change. GWPs also vary with the time horizon being considered. The 100-year horizon is generally used in policy analyses. At the time of the publication of this document the published GWPs were 1 for carbon dioxide (CO_2), 21 for methane (CH_4), 310 for nitrous oxide (NO_2), 23,900 for sulphur hexafluoride (SF_6), 6,500 for the PFC perfluoromethane (CF_4), and 9,200 for the PFC perfluoroethane (C_2F_6). GWPs are not yet available for other greenhouse gases.

Project lifecycle greenhouse gas emissions: Project lifecycle greenhouse gas emissions are those measured cumulatively over a defined period. Typically this period is from the point of extraction of the raw materials to either the beginning of the consumer phase of the product or the final disposal or recycling stage of the exhausted product, depending on its nature. Proponents should justify their choice of the defined period.

Measures: Refers to the range of possible actions that could be undertaken which directly or indirectly contribute to the abatement of greenhouse gas emissions through source reduction or sink enhancement.

National Greenhouse Gas Inventory Committee: The National Greenhouse Gas Inventory Committee consists of representatives of the Commonwealth, State and Territory Governments and oversees the development of greenhouse gas inventory methods and compilation of inventories for Australia. Up-to-date methodology information may be obtained by contacting the Australian Greenhouse Office.

Net Greenhouse Gas Emissions: The actual mass of the greenhouse gases emitted minus any emissions that may have been removed through sequestration or sink enhancement.

Sequestration: Removal of greenhouse gases from the atmosphere by vegetation or technological measures. Sequestration is not yet precisely defined for the purposes of recognised trading or offset schemes. Accordingly, the Office will need to take a common sense approach on a case by case basis in the interim. To assist proponents, the Office regards sequestration, as a process that results in the isolation of carbon dioxide from the atmosphere for a period which is significant in terms of influencing the global warming effect.

Sink: A pool or reservoir that absorbs and stores carbon lowering the amount of carbon dioxide in the atmosphere.

Source: Any process or activity that releases a greenhouse gas into the atmosphere.