



**DRAFT
ENVIRONMENTAL
OFFSET STRATEGY**

ENTER HERE 

BACK TO CONTENTS 



**DRAFT ENVIRONMENTAL OFFSET
STRATEGY
ARROW ENERGY
2012**

TABLE OF CONTENTS

1	INTRODUCTION	3
1.1	Purpose.....	3
1.2	Objectives.....	3
2	EXTERNAL REGULATORY FRAMEWORK	4
2.1	Hierarchy for managing environmental impacts at a project scale.....	5
2.2	Guiding principles of external policies.....	5
2.3	Arrow’s environmental offset principles	6
3	MANAGING ENVIRONMENTAL OFFSETS FOR A PROJECT	7
3.1	Biodiversity values to be considered	7
3.2	Project planning and approval phase.....	7
3.3	Offset planning framework	8
3.4	Implementing the project – offset delivery options	10
3.5	On-going management and discharging obligations	13
3.6	Auditing, reporting and monitoring offsets	13
4	ACTION PLAN	14
5	SUMMARY	15
6	GLOSSARY & ABBREVIATIONS	16
7	ASSOCIATED DOCUMENTS	17
	APPENDIX 1 – OFFSET REGULATORY FRAMEWORK	18
	APPENDIX 2 – RISK RANKING MATRIX	19

LIST OF FIGURES

Figure 1: Arrow's Environmental Offset Strategy – identifying the linkages to relevant policy frameworks.....	4
Figure 2: Hierarchy to minimise impacts	5
Figure 3: Environmental offset planning framework	9
Figure 4: Arrow's Preferred Hierarchy to deliver offsets.....	12

LIST OF TABLES

Table 1: External policy principles	6
Table 2: Plans within the environmental offset planning framework	8
Table 3 Risk ranking for offset delivery over the life of the LNG project	12
Table 4: Environmental Offset Strategy – Action Plan	14

1 Introduction

1.1 Purpose

The purpose of this strategy is to define and communicate how environmental offsets will be managed by Arrow Energy Ltd to its staff, contractors and government stakeholders. It provides direction for all of Arrow's current and future projects, including:

- Exploration and appraisal projects
- Domestic gas fields and pipelines
- LNG project (upstream, midstream and downstream components).

Environmental offsets are a mechanism to compensate for loss of environmental values from an area resulting from a development. The offset process involves quantifying the value to be lost and replacing it (or a similar acceptable value) at another location. Offsets are used by regulators in Australia and other countries as a mitigation measure to protect natural environmental values, whilst allowing appropriate development to proceed. Offset management aims for a 'no net loss' or a 'net gain' to ensure that the environmental value will be replaced, and it may be replaced by direct or indirect offsets.

Various offset plans are required to provide strategic direction for the company and to satisfy project approvals and allow projects to proceed. The plans will operate at a range of project scales and for varying purposes from supporting large project approvals to detailed singular site plans. They may be required to address:

- the EIS commitments prepared for large projects
- the conditions of Environmental Authorities (environmental licence to operate) for individual tenements
- the unavoidable need to remove threatened plants or habitat for fauna
- removing significant values such as threatened vegetation communities identified by Queensland or the Australian government.

1.2 Objectives

The objectives for this strategy are to:

1. Identify the government framework and policies that must be addressed.
2. Identify the key guiding principles to guide offset planning, implementing and management.
3. Identify the types of plans to be developed to enable projects to proceed.
4. Support projects to proceed by providing a coordinated method to address offset management.
5. Reduce implementation costs and improve environmental outcomes by exploring innovative solutions.
6. Determine the preferred methods to implement offsets.
7. Identify actions to support offset management.

This strategy does not incorporate offsets for carbon or other gaseous emissions, or identify environmental offset required in New South Wales. It commits Arrow to satisfy or exceed its obligations for environmental offsets, to enable its business of coal seam gas exploration, domestic gas production and LNG export to proceed.

2 External regulatory framework

To ensure that Arrow’s operations are conducted at, or above, the legal requirements and standards expected by stakeholders and the broader community; the strategy has considered the Queensland and Australian government’s regulatory framework for environmental offsets that have been developed to consider national priorities and international conventions. **Figure 1** illustrates the interaction between the significant external policies and legislation related to environmental offsetting and developing this strategy. The national and state policies for offsets are not linked. The environmental values identified by each government are generally different and their methods for evaluating a potential offset vary. However some values, such as brigalow woodland and bluegrass grasslands for example, may trigger offsets by the Australian and Queensland government. **Figure 1** also highlights the linkages to other Arrow policies and standards and has been designed to be consistent with Arrow’s Environmental Policy, Sustainable Development Policy and the Biodiversity management standard. The standard, in particular, aims to:

- provide continuous improvement in managing significant environmental impacts
- reduce environmental impacts and protecting the natural habitats, biodiversity and landscape function
- ensure all activities comply with applicable environmental laws and regulations
- report environmental impacts and encouraging improvements.

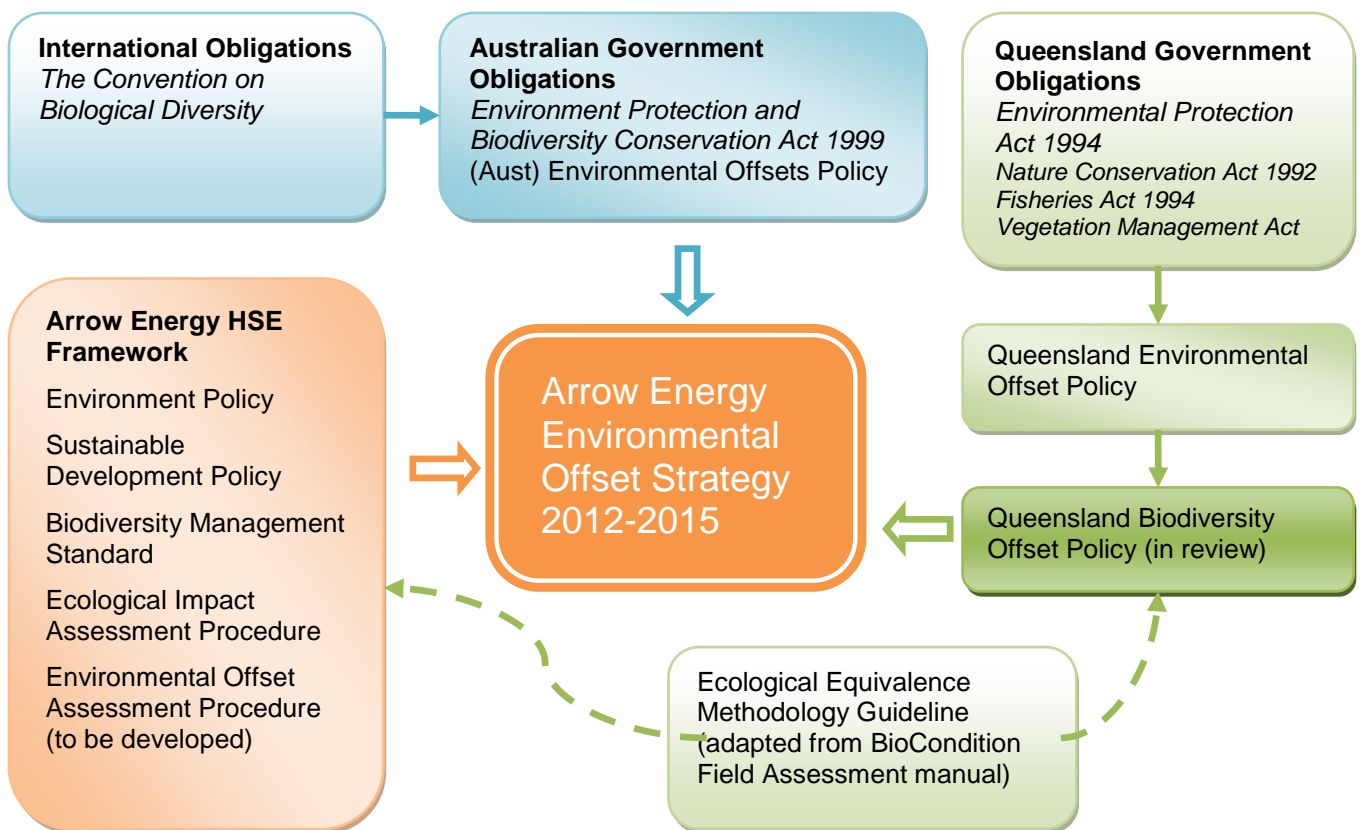


Figure 1: Arrow’s Environmental Offset Strategy – identifying the linkages to relevant policy frameworks

Environmental offsetting is a maturing process in Australia and the key policies are currently being reviewed. This strategy accepts that these policies may be amended and therefore Arrow’s approach to implement environmental offsets may require revising. Depending on the project, environmental offsets will be approved by the Australian and/or Queensland government. Project specific environmental offset triggers are identified in **Appendix 1**.

2.1 Hierarchy for managing environmental impacts at a project scale

Arrow aims to operate in a manner that protects and promotes the health and well-being of the natural environment and actively protects, where practicable, the significant biodiversity values of the areas in which it operates. However, Arrow recognised that unavoidable impacts to environmental values may occur. Providing offsets will allow critical projects to progress whilst complying with environmental regulations, and ensuring overall environmental values are maintained or improved.

All mechanisms to deliver environmental offsets require considerable resources and lead time to source the offset area, legally secure the area and obtain regulatory approval. Good planning, design and execution of projects plays a crucial role in ensuring that Arrow's activities avoids and minimises impacts on environmental values, thereby avoiding the necessity for offsets.

Strategies to avoid or mitigate impacts to environmental values are specific to the type, magnitude and location of the proposed impact and the nature of the value to be impacted; however, adhering to the concept of 'avoiding, minimising, and mitigating' will reduce the environmental impact of a project, reducing the risk of an offset liability (Figure 2).

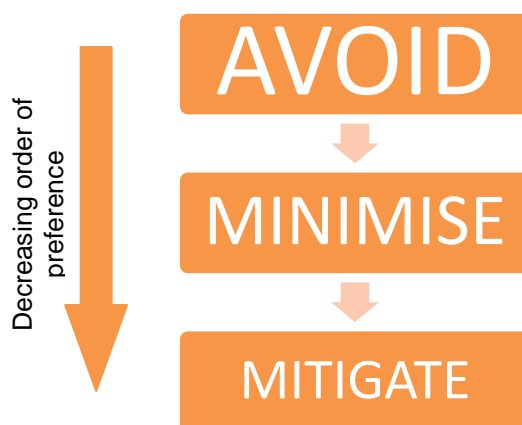


Figure 2: Hierarchy to minimise impacts

Where impacts to an environmental value are known or likely to occur from a project, the preferred order to address the identified impacts should be to first avoid the impact (e.g. relocate the infrastructure). When the impact cannot be avoided, then the impact should be minimised (e.g. by utilising alternative vegetation clearing methods) to as low as reasonably practicable. Where residual impacts to the environmental value are likely to remain, measures can be implemented to mitigate those impacts. Offsetting the environmental value that cannot be avoided or minimised is an acceptable method for mitigating the impact.

2.2 Guiding principles of external policies

Environmental offsets in Queensland are currently governed by Australian and Queensland government legislation and policies, however the two over-arching policies are the:

- Australian Government *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy (August 2001, consultation draft)
- Queensland Government Environmental Offsets Policy (June 2008) (under review).

The policies identify principles to ensure the delivery and management of environmental offsets are aligned to the objectives of each policy. The principles of each policy are presented in **Table 1** and represent the most recent

published version of the respective policies. Both the Queensland and Australian government policies are under review as of September, 2012.

Table 1: External policy principles

AUSTRALIAN GOVERNMENT	QUEENSLAND GOVERNMENT
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed development	Offsets will not replace or undermine legislative requirements
Be efficient, effective, transparent, proportionate, scientifically robust and reasonable	Environmental impacts must first be avoided and minimised
Be built around direct offsets but may include other compensatory measures	Offsets must achieve an equivalency or a conservation gain
Be of a size and scale proportionate to the impacts being offset	Offsets must provide environmental values as similar as possible to those being lost.
Be in proportion to the level of statutory protection that applies to the affected species or community	Offset provision should minimise the time-lag between the impact and delivery of the offset.
Effectively manage the risks of the offset not succeeding but may include other compensatory measures	Offsets must provide additional protection or management actions
Be additional to what is already required determined by law or planning regulations or agreed under other schemes or programs	Offsets must be legally secure.
Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	

2.3 Arrow's environmental offset principles

Arrow's principles for offset management have been developed to align with the offset principles from the external policies and to guide offset planning:

- Offsets will meet the requirements of current government policy.
- Offsets will only be used once the hierarchy to minimise impact (avoid, minimise, mitigate) has been followed.
- Offsets will contribute to managing and protecting biodiversity.
- Offsets will be implemented strategically and economically.

These principles will be used to guide offsets at all planning levels.

3 Managing environmental offsets for a project

3.1 Biodiversity values to be considered

Queensland has been divided into 13 distinct bioregions based on broad landscape patterns that reflect unique combinations of underlying geology, climate and vegetation communities. Arrow holds exploration tenements within many of these bioregions; however the majority of tenements, including all existing and proposed petroleum tenures, are located wholly within the Brigalow Belt (North and South) and South East Queensland bioregions. Bioregions support unique native flora, fauna and communities contributing to Australia's biodiversity.

The Brigalow Belt bioregion is named for vegetation communities dominated by brigalow (*Acacia harpophylla*) that once covered much of the region. Due to excessive land clearing in the past, brigalow communities are now at less than 10% of their original coverage and are protected under Queensland and Australia legislation. Consequently, many animals, plants and other features that are associated with brigalow vegetation are now considered at risk of extinction and are also protected. The region contains several protected areas in the form of National Parks, Conservation Reserves and State Forests and other significant features such as major river systems, wetlands and unique geological landscapes.

The South East Queensland (SEQ) bioregion includes exploration tenures near Brisbane and contains the proposed LNG facility on Curtis Island. The SEQ bioregion is a highly biodiverse bioregion owing to its location at a subtropical latitude and the variable topography from coastal plains to the Great Dividing Range. This combination has resulting in diverse range of vegetation communities including tidal flats, heathlands, dry sclerophyll forests and subtropical rainforests. The bioregion also contains a high number of endemic animal and plant species that are protected under legislation due to threats from disease, land clearing, urbanisation, exotic pests and climate change.

Each project site must be assessed to determine whether any significant values will be impacted by the proposed activities.

3.2 Project planning and approval phase

The likelihood for triggering an environmental offset must be identified early in the planning phase of the project. The process for identifying and delivering the offset will involve locating and securing the offset and ensuring that appropriate management arrangements are formalised to maintain the land and environment on which the offset is located. This may take many months or years to achieve and the associated costs can be significant. Depending upon the offset delivery model chosen for the project, there may also be a significant investment in time negotiating with landholders, offset brokers, lawyers and government agencies to secure the offset.

Arrow has implemented a constraints based approach to infrastructure development by establishing and maintaining detailed maps of environmental values and locating infrastructure away from these areas, where possible. This approach is the primary mitigation measure, where the need for offsets will be avoided by strategically locating infrastructure away from the significant environmental values.

The mechanism governing environmental offsets for projects that result in unmitigated impacts to environmental values are the conditions of the Environmental Authority for tenure based activities, and the EIS for project based activities with which the company will need to comply.

Identifying when offsets will be required as early as possible in the project's planning and design phase will reduce impediments to the project's schedule and delivery. It will also ensure the project has budgeted financially for the cost to the project for offset design, approving and implementing.

Offset plans are required for a range of purposes, as outlined in **section 1.1**, and each plan will require a level of detail determined by the project stage of development, knowledge of the site conditions, and requirements requested by the relevant authority. To enable projects to be approved, project specific offset plans must be prepared. The strategy aims to ensure that each plan is consistent in quality and delivery; that it identifies and delivers offsets cost effectively; and that offsets can be integrated in their delivery, where possible.

3.3 Offset planning framework

Arrow's environmental offset strategy aims to provide a clear and consistent approach to manage offset obligations across the company. The strategy is supported by a number of management plans at three distinct levels, which aims to provide more detail for each planning level. These are:

- Environmental Offset Strategic Management Plans (EOSMP)
- Environmental Offset Operational Management Plans (EOOMP)
- Project Environmental Offset Management Plans (PEOMP).

EOSMPs are required for each new upstream, midstream and downstream major LNG project and will be developed at the pre-approval phase. They will be developed to comply with the relevant EIS conditions for each project. The EOSMP will provide a high-level analysis of likely impacts on biodiversity values, where an offset requirement may be triggered. The EOSMP will identify the preferred model for offset delivery for each individual project and provide a framework for each subordinate EOOMP.

EOOMPs are required to ensure the company complies with the Environmental Authority (EA) conditions for each of its coal seam gas tenements. The (EOOMP) will identify the likely impacts on biodiversity values and appropriate methods to offset the impacts on those values. Depending on the gas field design and planning, this plan should estimate the extent of the values that may require offsetting to assist with identifying suitable offsets as early as possible in the project's life and to support integrated advance offsets.

PEOMPs are required when a significant environmental value is identified on a site, and it cannot be avoided. The plan will require: a detailed ecological assessment to identify and quantify the significant environmental values to be removed on the site; identifying a suitable match for the value to be replaced; and identifying the ratio for the offset. (Each ratio will be determined by the relevant government policy.) The plan will need to be submitted and approved, prior to project construction. For some projects the site may need to be secured, prior to the project commencing construction, or it may be allowable to delay implementing the offset until a date specified by the state.

The offset management framework is summarised in **Table 2** and **Figure 3** outlines how each plan will integrate with each project and the other plans. **Table 2** identifies who will be responsible for coordinating the development of each plan.

Table 2: Plans within the environmental offset planning framework

	ARROW OFFSET FRAMEWORK	DESCRIPTION
← INCREASING LEVEL OF DETAIL	Environmental Offset Strategy	This is the overarching document that describes the use of offsets under the current regulatory system. It identifies the linkages between subordinate plans that identify, deliver and manage offsets.
	Environmental Offset Strategic Management Plans	The EOSMPs primarily ensure compliance with conditions associated with the specific EIS project approvals. They provide a high-level analysis of likely impacts on biodiversity values within the specific EIS project area or tenement where an offset requirement may be triggered.
	Environmental Offset Operational Management Plans	The EOOMPs ensure that the company complies with the Environmental Authority (EA) conditions for each of its coal seam gas tenements. They will identify the likely impacts on biodiversity values and appropriate methods to offset the impacts on those values.
	Project Environmental Offset Management Plans	Where offsets have been identified as a requirement of a project, the offset management plan will provide details regarding how the proposed offset will meet all relevant policies and how the offset will be managed over the life of the offset.

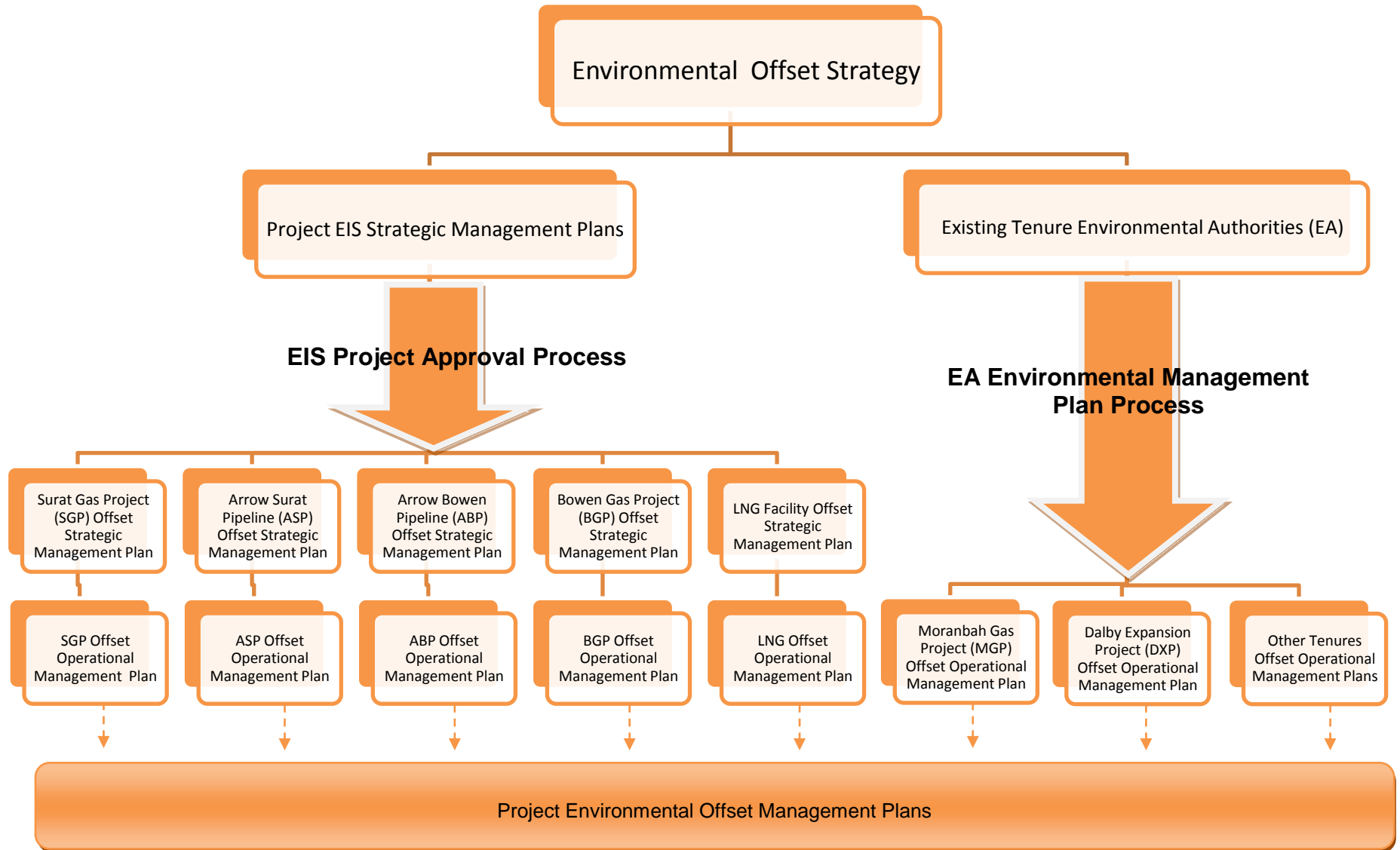


Figure 3: Environmental offset planning framework

3.4 Implementing the project – offset delivery options

Arrow's activities have the potential to cause unavoidable impacts to environmental values. In particular circumstances, an offset will be required to restore significant values, prior to a project proceeding. There are many potential scenarios that will trigger an offset, depending on the environmental value to be impacted, the type and nature of the infrastructure being developed, the location of the infrastructure and the tenure of the land.

Where a project will result in disturbing an environmental value (as listed in the various Queensland and Australian legislation and policies) then the activity may trigger an offset. The offset itself would be assessed under the relevant offset policy and may include:

- a direct offset, including:
 - use or partial use of Arrow's existing properties for offsets
 - purchase of land for a specific offset requirement
 - a collaborative effort to pool resources from other companies to secure an offset area
 - land banking, whereby an area of land is purchased as it contains environmental values that could be used as an offset in the future.
- an offset transfer, whereby Arrow discharges its offset delivery obligations to a third party such as an offset broker to find the offset area
- an indirect offset, including:
 - investing in environmental programs that aim to restore or enhance biodiversity values or provide multiple benefits such as community and landholder engagement, erosion and sediment control or expanding the national park estate
 - contributing to research or to a recovery plan for a species or community
 - contributing to Balance the Earth Trust or other similar organisation to either purchase land or fund research into environmental values where knowledge is deficient
- a combination of the above methods.

Arrows aims to comply with the conditions of the respective offset policies and any other conditions of approval relating to offsets. Given this is a new method for mitigating residual impacts, it is prudent to consider offset options that may deliver more benefits to the company and the environmental outcomes of the project. Arrow also seeks to implement methods in offset delivery that provide opportunities for strategic, landscape-scale, decision making around whole of project offset liabilities (**Figure 1**). Offset options will be considered that will allow for advanced offsets, thus allowing groups of project offset requirements to be grouped together. This may improve the environmental benefit of the outcome, due to the scale of the offset (reduced deleterious effects from edge effects). Any method or arrangement to reduce costs to implement offsets will be supported.

Table 3 and **Figure 4** illustrates Arrow's preferred offset delivery options, identifying constraints to employing each delivery option. Constraints have been identified by completing a risk assessment for each delivery method according to the risk ranking matrix as shown in **Appendix 2**.

Arrow's preferred method to fulfil its offset obligations is to source properties that the government has a biodiversity interest in, requiring less management inputs than other options over the life of the offset. The delivery of this type of offset may be as a nature refuge, additional national park estate, or to purchase a property where the long term management can be passed to another party. This method allows for multiple offsets to be grouped, but accepts that the offset site selected may not meet all the ecological equivalence criteria for all the values that need to be offset.

Providing a financial contribution is recognised as a favourable method also, however this is not a method that is consistent with current policies, as a sole method of meeting the delivery obligations.

Broking offsets on a project by project basis, and securing those offsets on part of a property managed by a landholder is recognised as an expensive and resource intensive method for delivery. It may be a solution for sourcing offsets for threatened species, where the habitat is limited and for some projects it may be the only solution consistent with external policy.

Arrow owns some property, where its current facilities and future facilities will be located. It may be possible to secure offsets on these properties, however this option will require managing and securing the area for the life of the offset. These properties have the advantage that they can provide multiple purposes to the company, and where suitable would be value adding to the company.

Land banking, or purchasing properties to secure offsets on, is seen as the least preferred option because of the long term management inputs required by the company. This may be the only alternative to meet certain offset requirements.

There are several options available to use land identified to be suitable for an environmental offset. Importantly, an offset does not necessarily have to be located within an Arrow tenement for it to be considered an offset. Other strategic delivery options include accumulating minor offset liabilities that would be compensated by a single offset package at a later stage, or a staged approach to offset delivery to coincide with the LNG project ramp up (eg. advance offsets, land banking).

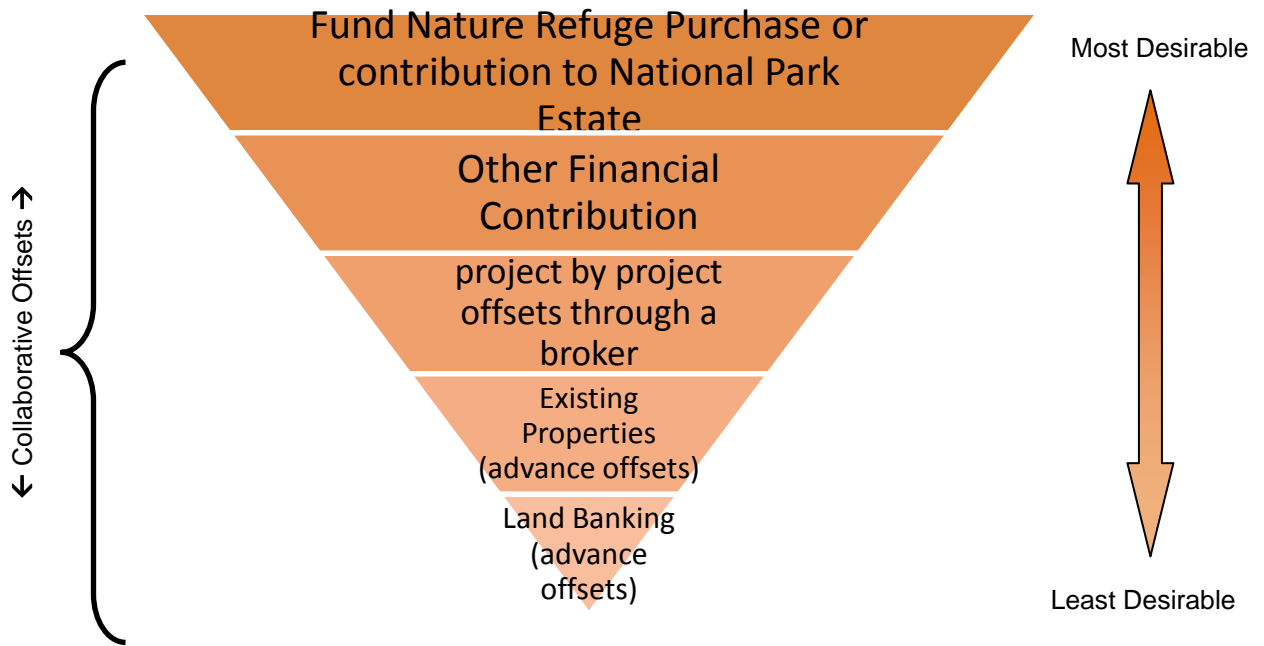


Figure 4: Arrow's Preferred Hierarchy to deliver offsets

Table 3 Risk ranking for offset delivery over the life of the LNG project

OFFSET DELIVERY METHOD	UPFRONT COST	COMMERCIAL MANAGEMENT	PERCEPTION	AVAILABILITY	TIMING	MANAGEMENT
Contribution to National Park Estate	3A	2B	1A	4C	5E	2B
Land Banking	3E	2C	4E	2D	3D	2C
Financial Contribution	4A	1A	3D	1A	3B	1A
Existing Properties	1C	2C	1C	5C	2C	2C
Broking Offsets	3C	2C	4D	2D	2C	2C
Collaborative Offsets	3B	3E	2C	3D	5D	1C
Purchase Nature Refuge	3A	2B	1A	4C	5E	2B

3.5 On-going management and discharging obligations

Depending upon the offset delivery options chosen for each project, on-going management of the offset is critical for the success of the offset (ie. the objectives of the offset are met to the satisfaction of the regulator) and eventual discharge of Arrow's responsibility for the offset. Each delivery method is unique in terms of the amount and type of on-going management required and the length of time Arrow will be obligated to manage til the offset's has met its offset criteria. The length of time for responsibility of each offset delivery option is:

- short-term (<1 – 3 years) responsibility – financial contributions, purchase of Nature Reserves, contributing to National Park estate or negotiating suitable offset through a broker
- long-term (>3 years and up to 50 years) responsibility – land banking, existing properties, collaborative offsets or broking offsets

Broking offsets can be a short-term or long-term proposition depending upon the offset delivery option chosen and the state of the land-based offset provided.

Arrow's intention is to give preference to offset delivery options that result in discharging offset responsibilities within the shortest possible timeframe. Exceptions will be considered where offset areas are located adjacent to semi-permanent infrastructure (e.g. compressor stations, dams).

3.6 Auditing, reporting and monitoring offsets

Managing all the offsets obligations for the company will be complex, as the requirements will need to be maintained for a long duration.

An offset register will be established to provide a single source for all information relating to offsets management for Arrow. The register will collect information to:

- Demonstrate how an offset has met the requirements for a particular project, for example what was being offset, what the ratio for offsetting was, method of securing the offset, when the obligations are planned to be met, any additional management requirements and links to source approval documents.
- Identify any properties that will be suitable for other complementary offsets as an advanced offset. For example, if an area of brigalow has been sourced, an additional area may be available for another project in the future.
- Regulators undertaking audits.
- Provide records for ongoing management within the company.

It is expected that the company will need to provide records to regulators, and Arrow will be audited, to demonstrate that obligations have been met.

4 Action plan

To ensure that the strategy will be implemented, some key actions and the responsible department have been identified in the following table.

Table 4: Environmental Offset Strategy – Action Plan

ITEM	RESPONSIBLE DEPARTMENT & POSITION	TIMEFRAME
Develop environmental offset register	Corporate HSE, Corporate Environment Advisor – Biodiversity & Fauna	Q4 2012
Prepare Environmental Offset Strategic Management Plans	EIS Manager for the project	As dictated by EIS project timeframes
Prepare Environmental Offset Operational Management Plans for EIS projects	EIS Manager for the project	As dictated by EIS project timeframes
Prepare Environmental Offset Operational Management Plans for individual tenements	Corporate HSE, Corporate Environment Advisor – Biodiversity & Fauna	As required
Prepare Project Environmental Offset Management Plans	Relevant Project Manager for the project (Asset, Upstream LNG, Exploration & Appraisal) with technical support from Ecologist (Land Access team).	As required prior to project approval
Environmental Offset Assessment Procedure	Corporate HSE, Corporate Environment Advisor – Biodiversity & Fauna	Q4 2012

5 Summary

The Environmental Offset Strategy has been developed to communicate to employees, contractors and government stakeholders Arrow Energy's direction for using and managing environmental offsets to compensate for residual impacts. The strategy seeks to manage offsets as a part of Arrow's established environmental management framework, and to maintain or improve environmental values in the locations where it operates.

The regulatory framework for offsets in Queensland and Australia are identified and opportunities for strategically implementing offsets are explored. Environmental offsets in Queensland are currently governed by Australian and Queensland government legislation and policies, the two over-arching policies are: the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy (August 2001, consultation draft); and the Queensland Government Environmental Offsets Policy (June 2008). Both the Queensland and Australian government policies are under review as of September, 2012. Offset planning and management policy is still undergoing development. Therefore, this strategy must have the ability to adapt to changes in policy. It is well accepted that environmental offsets are, and will increasingly become a common regulatory and environmental management tool. Offset planning and approvals must become embedded into Arrow's project management to minimise project risks and delays. To guide decision making processes within the company, principles for offset management within the company have been developed to align with the offset principles from the external policies and to guide offset planning.

The strategy aims to provide a clear and consistent approach to managing offset obligations for the company. It identifies a number of management plans at three distinct levels that need to be developed, which aim to provide more detail for each planning level. These are: Environmental Offset Strategic Management Plans (EOSMP), Environmental Offset Operational Management Plans (EOOMP); and Project Environmental Offset Management Plans (PEOMP). The strategic plans need to: identify the types of environmental values that will require offsetting; to plan for offsets in a coordinated way; and to be efficient and effective in delivering the offsets.

Arrow's preferred method to fulfil its offset obligations is to source properties that the government has a biodiversity interest in, that can be used to meet offset obligations from multiple projects, and will require minimal ongoing management inputs over the life of the offset. These types of offsets may be set up as nature refuges, additional national park estate, or as a property where the long term management can be passed on to another party. Multiple offsets, grouped into one offset solution, may need to accept that the offset site selected does not meet all the ecological equivalence criteria for all the values that need to be offset. However, this type of offset is likely to provide better environmental outcomes for Queensland, than small disjointed offsets, established for individual projects. Other delivery solutions are discussed, as it is likely that offset delivery will require a range of tools and methods for the varying sized projects requiring offsets as part of their approval process.

6 Glossary & Abbreviations

TERM	DEFINITION
Advanced offset	Advance offsets are direct offsets, which are secured before future development will take place. It can avoid delaying projects because an offset solution is already available.
CSG	Coal seam gas. A naturally occurring gas that is held within coal seams under pressure.
EIS	Environmental Impact Statement
Environmental value	Any environmental value that is considered to trigger an offset under the current regulatory framework. Examples include waterways, wetlands, significant vegetation communities, threatened plants, animals or communities, and vegetation containing such values.
Land banking	Strategic purchase or leasing of a property that has environmental values that can be put forward as an offset at a later date.
LNG	Liquefied natural gas. CSG that has been cooled and condensed ready from transport.
Offset broker	A third party person or company which facilitates negotiations between proponents and the landholder on which the offset area is to be located.
SEQ	South East Queensland, including the coastal area north of the New South Wales border to Gladstone and east to Toowoomba

7 Associated Documents

99-V-POL-0002 Arrow Energy Environmental Policy

99-H-MSS-0034 Biodiversity Standard

Arrow Energy Sustainable Development Policy

Ecological Equivalence Methodology Guideline, version 1, October 2011

Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy

Queensland Government Environmental Offsets Policy, June 2008

Queensland Biodiversity Offsets Policy, October 2011

Appendix 1 – Offset Regulatory Framework

APPROVALS	LEGISLATION AND POLICIES	ARROW PROJECTS IMPACTED*	RESPONSIBLE AGENCY
Australian Government			
Project referral to determine controlled action status.	<ul style="list-style-type: none"> <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). Draft EPBC Act Environmental Offsets Policy. 	<p>All projects and operations.</p> <p>The DXP has been assessed under the EPBC Act and has been approved subject to conditions. Offsets are not considered as part of this approval unless threatened species or communities are significantly impacted.</p>	Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC)
Queensland Government			
Environmental Authority (EA) required for each tenure or group of tenures comprising a single project to condition the activities under the <i>Petroleum and Gas (Production and Safety) Act 2004</i>	<ul style="list-style-type: none"> <i>Environmental Protection Act 1994</i> (EP Act). Environmental Authority <ul style="list-style-type: none"> Specific offset conditions Biodiversity Offset Policy 	All projects and operations, except infrastructure off tenure and infrastructure on tenure, but not a petroleum activity	Department of Environment and Heritage Protection (DEHP)
Clearing of assessable vegetation that is conducted outside of the EP Act.	<ul style="list-style-type: none"> <i>Vegetation Management Act 1999</i> (VM Act) Policy for Vegetation Management Offsets (Version 3.0) 	LNG, infrastructure off tenure and infrastructure on tenure, but not a petroleum activity	DEHP
Clearing of marine fish habitat	<ul style="list-style-type: none"> <i>Fisheries Act 1994</i> Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss. 	LNG, coastal tenures	Department of Agriculture, Forestry and Fisheries (DAFF)
Clearing of habitat for the Koala in south east Queensland within Koala Management Areas	<ul style="list-style-type: none"> <i>Nature Conservation Act 1992</i> (NC Act). <ul style="list-style-type: none"> <i>Nature Conservation (Koala) Conservation Plan 2006</i>; Offsets for Net Gain of Koala Habitat in South East Queensland. 	LNG, tenures within south-east Queensland bioregion.	Department of National Parks, Recreation, Sport and Racing (DNPRSR)
Clearing of habitat for endangered, vulnerable or near threatened (EVNT) wildlife	<ul style="list-style-type: none"> <i>Nature Conservation Act 1992</i> (NC Act). <ul style="list-style-type: none"> <i>Nature Conservation (Wildlife) Regulation 2006</i>; Offsets for Net Gain of Koala Habitat in South East Queensland. 	All projects and operations	DNPRSR

Key to Arrow Projects: LNG – Arrow LNG plant on Curtis Island; DXP – Dalby Expansion Project (all southern Petroleum Leases).

Appendix 2 – Risk Ranking Matrix

								Arrow Preference				
Impact								High		Moderate	Low	
Schedule	Total Cost	Commercial Management	Negative Perception	Availability	Timing	On-going Management		Almost Certain	likely	Moderate	Unlikely	Rare
								A	B	C	D	E
High Impact	> \$500 m	> \$1 m annual cost	Serious LT issues	Lack of suitable areas in Qld	> 3 year approval	> \$1 m annual cost	5	5	10	15	20	25
	\$100 - \$500 m	\$500 k - \$1 m annual cost	Serious Med to LT issues	Lack of suitable areas in Bioregion	18 month - 3 year approval	\$500 k - \$1 m annual cost	4	4	8	12	16	20
Moderate Impact	\$10 - \$100 m	\$250 k - \$500 k annual cost	Moderate ST to Med issues	Lack of suitable areas in subregion	6 - 18 month approval	\$250 k - \$500 k annual cost	3	3	6	9	12	15
Low Impact	\$1 m - \$10 m	\$50 k - \$250 k annual cost	Minor Short term issues	Lack of suitable areas in project area	3-6 month approval	\$50 k - \$250 k annual cost	2	2	4	6	8	10
	< \$1 m	< \$50 k annual cost	Low level / no lasting issues	Lack of suitable areas in local area	< 1 - 3 month approval	< \$50 k annual cost	1	1	2	3	4	5