12 Conclusions and justification

12.1 Introduction

This EA has comprehensively examined the potential impacts associated with the proposed modification. This chapter discusses the potential impacts of the proposed modification to determine whether, on balance, it can be justified on social, environmental, and economic terms, including consideration of its consistency with applicable objects of the EP&A Act and the principles of ecologically sustainable development (ESD).

12.2 Justification for the proposed modification

A justification for the GGP was detailed in the original AECOM (2009a) EA, having regard to environmental, social and economic considerations together with the principles of ESD. It was found to be generally consistent with these principles. It was concluded that the GGP was justifiable on biophysical, economic and social terms, provided that the recommended mitigation and management measures were implemented. The GGP was deemed likely to have a positive impact on the regional and state economies due to the provision of an indigenous gas supply, and demand for local goods and services during both its construction and operating phases, particularly in the Gloucester LGA. The GGP would also assist in achieving several State energy objectives and initiatives which are formulated to provide safe efficient, secure and indigenous energy supplies into the future.

The proposed modification comprises minor realignments of the pipeline corridor in four sections and replaces the HDS with a connection to the NGSF via the TRS. The realigned sections represent an overall positive environmental outcome. Straightening and shortening the pipeline corridor at the Seaham and Brandy Hill sections will result in less ground disturbance compared to the approved pipeline corridor. The proposed modification will also improve ecological outcomes of the GGP, including by reducing native vegetation clearing.

The proposed realignment of the Tomago section avoids a wetland area and reduces disturbance to ASS. The number of crossings of the Hunter River will be reduced from two to one. There is no change to the method of river crossing, which will by HDD. The river crossing will be further upstream of the Hunter Estuary Wetlands Ramsar site and Hunter Wetlands National Park than for the approved pipeline corridor alignment.

The Seaham, Millers Forest and Tomago sections will also maximise the use of existing cleared easements. This approach is consistent with the principles adopted in the original EA (AECOM 2009a), which specified that existing easements would be used for the pipeline corridor alignment where possible to minimise impacts to existing land uses, encumbrance to the land and future development potential.

In addition, the proposed modification will fulfil the National Gas Objective (AEMO 2009) for Australia, which is:

> To promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.

The Tomago section will replace the approved pipeline corridor to the HDS, instead transporting natural gas from the GGP to the NGSF via the TRS. The NGSF provides continuity of gas supply to both domestic and industrial consumers, and improves gas supply security to NSW by providing an alternative gas source which is independent of gas field production facilities and gas transmission pipeline capacity constraints. The connection of the GGP to the NGSF via the TRS will contribute to the benefits of that facility. Furthermore, the proposed modification promotes the efficient use of AGL's natural gas infrastructure and supply network.

The proposed modification will also improve construction cost efficiencies by straightening and shortening the pipeline alignment at the Seaham and Brandy Hill sections, which will result in less ground disturbance compared to the approved pipeline corridor alignment. The realigned Tomago section will reduce the number of crossings of the Hunter River from two to one, and the overall length of HDD required will be reduced. These will also result in cost savings during construction of the pipeline.

12.3 Objects of the EP&A Act

Consistent with the GGP, the proposed modification has been considered against the objects of the EP&A Act. The objects are:

(a) to encourage

(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment

As described in Section 12.2, the proposed modification will generally improve environmental outcomes compared to the approved pipeline corridor alignment. The realigned sections will result in a reduction in overall ground disturbance and vegetation clearing, reduce impacts to an EEC, reduce the number of crossings of the Hunter River, increase the distance from the Hunter Estuary Wetlands Ramsar site and maximise use of existing cleared easements, thereby promoting the proper management, development and conservation of resources.

The conditions in the Project approval are sufficient to manage the predicted environmental impacts of the proposed modification. The proposed modification would facilitate the orderly use of resources, both natural and artificial, thus promoting social and economic welfare and with the continued implementation of environmental management at site, provide a better environment. Therefore, the proposed modification is consistent with this object of the Act.

(ii) the promotion and co-ordination of the orderly and economic use and development of land

The proposed modification is an orderly and economic use and development of land that would contribute to the overall economic benefits of the GGP. It may also add to the economic benefit of the NGSF. Therefore, the proposed modification is consistent with this object of the Act.

(iii) the protection, provision and co-ordination of communication and utility services

The proposed modification will maximise the use of existing easements which contain utility services. Appropriate setbacks for pipeline infrastructure will be adopted as required to protect existing services within the Seaham, Millers Forest and Tomago sections. Therefore, the proposed modification is consistent with this object of the Act.

(iv) the provision of land for public purposes

This object of the EP&A Act is not relevant to the proposed modification.

(v) the provision and co-ordination of community services and facilities

This object of the EP&A Act is not relevant to the proposed modification.

(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats

As described in Section 12.2, the proposed modification will generally have positive environmental outcomes. The straightening and shortening of the pipeline alignment at the Seaham and Brandy Hill sections will result in less ground disturbance compared to the approved pipeline corridor alignment. The proposed pipeline corridor realignments will reduce clearing of remnant native vegetation compared to the approved GGP, particularly within the Seaham section. This includes reducing clearing of the Hunter Lowland Redgum Forest EEC. The proposed modifications at these sections will improve ecological outcomes of the GGP.

(vii) ecologically sustainable development

The principles of ESD are outlined in Section 6 of the *Protection of the Environment Administration Act 1991* and Schedule 2 of the EP&A Regulation 2000 and comprise the precautionary principle, inter-generational equity, conservation of biological diversity and valuation and pricing of resources. Section 12.4 describes the proposed modification in the context of the principles of ESD in further detail.

(viii) the provision and maintenance of affordable housing

This object of the EP&A Act is not relevant to the proposed modification.

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

This object of the EP&A Act is not relevant to the proposed modification.

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

AGL has undertaken a program of stakeholder engagement regarding the proposed modification, including with the GCCC, landholders affected by the proposed modification, and regulatory stakeholders including councils and government agencies. The public exhibition of the EA will further enable community participation and feedback regarding the proposed modification and continue the public participation in the planning and assessment process.

12.4 Principles of ESD

12.4.1 The precautionary principle

The precautionary principle is defined as:

> Namely, that 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.

In the application of the precautionary principles, public and private decisions should be guided by:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
(ii) an assessment of the risk-weighted consequences of various options.

The proposed modification and its environmental interactions have been assessed by experts in their respective fields. Where lack of full scientific certainty was identified, worst-case scenarios were adopted for the assessment. The results of the assessments are provided in this EA and conclude that, with the implementation of the prescribed mitigation, management and monitoring measures as outlined in the original EA and the Project approval, there will be no threat of serious or irreversible damage to the environment as a result of the proposed modification.

12.4.2 Inter-generational equity

Inter-generational equity is defined as:

Namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

The proposed modification will result in minor improvements to environmental outcomes compared to the approved GGP. With the implementation of the environmental safeguards and mitigation measures described in the original EA (AECOM 2009a), this EA and the existing Project approval conditions, the proposed modification would facilitate the provision of a valuable indigenous NSW gas resource without causing significant or irreversible environmental harm.

12.4.3 Conservation of biological diversity and ecological integrity

Conservation of biological diversity and ecological integrity is:

Namely, that conservation of biological diversity and ecological consideration be a fundamental consideration

The proposed modification will result in improvements to environmental outcomes compared to the approved GGP. With the implementation of the environmental safeguards and mitigation measures described in the original EA (AECOM 2009a), this EA and the existing Project approval conditions, the proposed modification will have positive biological diversity and ecological outcomes.

12.4.4 Valuation and pricing of resources

Valuation of pricing of resources is:

Namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement;
(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services including the use of natural resources and assets and the ultimate disposal of any waste,
(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Given the different values placed on different elements of the environment, and the various components of the environment, it is difficult to assign a monetary value against the environmental costs and benefits associated with a project. In recognition of this, the approach adopted for this project is the management of environmental impacts through appropriate safeguards, and to include the cost of implementing recommended safeguards in the total cost of the GGP. Additionally, the relative costs of sourcing natural gas locally while utilising modern plant design are deemed to have lower cost on the environment when compared to importing gas to the Hunter Region from interstate or overseas.

12.5 Conclusion

AGL has identified improvements to the GGP pipeline alignment to further minimise its environmental impacts and to connect directly with AGL's approved NGSF via the TRS at Tomago, rather than the previously-proposed HDS at Hexham. Minor realignments are proposed to four sections of the pipeline corridor at Seaham, Brandy Hill, Millers Forest and Tomago.

The proposed modification will have the following benefits and outcomes:

- overall reduction in the length of the pipeline corridor and disturbance area during construction;
- improved environmental outcomes including reduced vegetation clearing and impacts to an EEC and maximising the use of existing cleared easements;
- efficient and effective utilisation of AGL's infrastructure and natural gas supply network; and
- minimal environmental consequences beyond the approved GGP.

Based on the outcomes of this EA it is concluded that once AGL's existing committed mitigations are applied, all the potential environmental impacts identified in Chapter 5 became low risk. This EA did not identify any significant residual environmental risks associated with the proposed modification.

The proposed modification is strongly justified through the orderly and logical use of natural, physical and human resources. The existing environmental safeguards and mitigation measures recommended in the AECOM (2009a) EA and included in the existing Project approval conditions will be sufficient to manage the potential impacts of the proposed modification. The benefits of the proposed modification largely outweigh its costs and it is considered to be in the public interest for it to be positively determined.