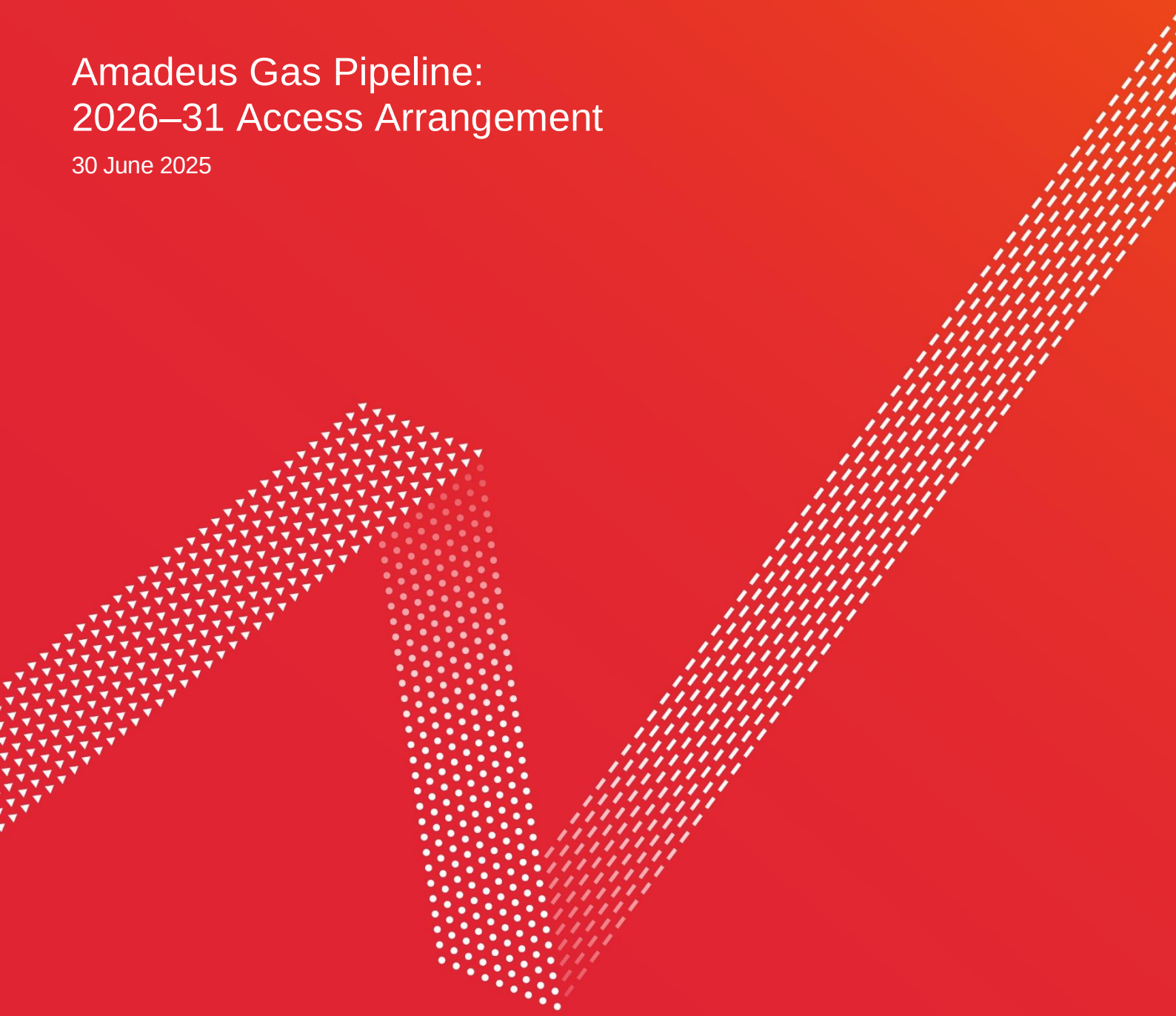
APA
Australia's energy infrastructure partner

Heat Shrink Sleeves Business Case

Amadeus Gas Pipeline: 2026–31 Access Arrangement

30 June 2025



Contents

1. Overview

Number/ identifier	AGP_SIB_Heat Shrink
Description of project	Heat Shrink Sleeve Upgrades are required where original sleeves have dis-bonded and are enabling corrosion of the Pipeline at the weld margins. This project replaces the faulty sleeves with an upgraded dual layer wrap process that prevents ongoing corrosion. If corrosion has already reached the extent that strengthening repair is required, this is undertaken prior to completing the same dual layer wrap process.
Options considered	The following options are broadly considered: • Option 1: Do nothing more this regulatory period • Option 2: Follow the required corrosion growth assessment data to inspect and upgrade the coating at a minimum and repair the pipeline section if needed.
Proposed Solution	The recommendation is to have a program that follows the project corrosion growth rates to perform coating upgrades at projected years to avoid the requirement to derate the pipeline capacity to a Restricted Operating Pressure.
Estimated Cost	$ 4.06 million ($ Real 30 June 2026)
Relevant standards, obligations and legislation	• AS 2885.3 Pipelines: Gas and Liquid Petroleum Operations and Maintenance • AGP Pipeline Licence
Consistency with National Gas Rules	The investment in these assets complies with the capital expenditure criteria in Section 79 of the NGR because it: • is necessary to maintain and improve the safety and integrity of services (79(2)(c)(i) and (ii)); and • would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services (79(1)(a)).

2. Project objective and scope

This business case supports the ongoing replacement of heat shrink sleeves along the AGP.

3. Background

Stay-in-business capital expenditure on the AGP relates to projects that are directly related to maintaining the ongoing integrity of the pipeline to ensure it remains fit-for-purpose over its intended operating lifetime. The upgrade of failed heat shrink sleeves are a key aspect of such expenditure.

Heat shrink sleeves and are applied across field welds during pipeline construction to seal the pipeline from the external environment. There are about 84,000 heat shrink sleeves along the length of the AGP.

Unfortunately, a large number of the heat shrink sleeves have failed, which has allowed for the slow but steady growth of corrosion. The sleeves fail due to the quality of application, end-of-life or the force from ground movement. Dis-bonded sleeves expose the pipeline to corrosion whilst also shielding it from effective protection of the Cathodic Protection systems.

Data from In-line Inspections (ILI) and Direct Current Voltage Gradients inspections (DCVG) is used to locate areas of concern. Both ILI and DCVG are operating expenditure programs.

The ILI data pinpoints the locations of corrosion and subsequent corrosion growth analysis identifies when the capacity of the pipeline would be expected to be reduced as a result of corrosion.

From this a dig-up program can be generated for the period between subsequent ILI's, that will enable excavation, physical inspection (by laser scanning) and re-wrap and/or repair prior to calculated corrosion becoming capacity limiting.

In sections of the pipeline that are prone to seasonal flooding, rectification digs may take place up to three years ahead of the expected pipeline capacity reduction. If the site is inaccessible in the first instance, it is rescheduled. Given sections of the pipeline may be inaccessible for years, this approach ensures rectification digs can be undertaken in time to meet licence requirements, without incurring unnecessarily early capital expenditure.

AGP has a responsibility to manage corrosion under AS 2885.3 in line with the pipeline licence.

4. Assessment of options

Two options have been considered for this business case:

- Option 1: Do not replace the failed sleeves until corrosion is extensive and pipeline capacity has been reduced.
- Option 2: Steady replacement of failed sleeves close to, but before any potential capacity reduction on the pipeline.

4.1. Risk assessment

The risk assessment of both options is shown in the following table and is based on APA's Enterprise Risk Matrix.

Table 1: Risk assessment of heat shrink sleeves business case

Risk Area	Potential Impact	Option 1		Option 2:	
		Likelihood / Impact	Inherent risk rating	Likelihood / impact	Residual risk rating
Health & Safety	-	–	–	–	–
Environment	-	–	–	–	–
Operational	Unplanned site visit, higher costs	Frequent/ Significant	High	Unlikely/ Minor	Low
Compliance	Regulatory breach, loss of licence	Frequent/ Catastrophic	Extreme	Remote/ Major	Moderate
Reputation & Customer	Adverse publicity/ decline in value, reduced supply	Frequent/ Major	Extreme	Remote/ Significant	Low
Financial	Costs and penalties	Frequent/ Catastrophic	Extreme	Remote/ Major	Moderate
Untreated risk			**EXTREME**		**MODERATE**

4.1.1. Option 1

It is not anticipated that there are significant safety or environmental risks from deferring upgrades of the heat shrink sleeves as the only prudent alternative of deferring the capex is to conservatively reduce the pipeline's operating pressure.

The impact of not replacing the sleeves is reduced pipeline capacity and this is likely to be for a sustained period given some sections of the pipeline may be inaccessible for years.

Rectification costs will also be higher as repair and rewrapping will not achieve a suitable outcome when high levels of corrosion have occurred – sections of the pipeline will require full replacement.

There are also high risks of:

— regulatory breach and loss of licence as not meeting operating licence conditions,
— financial loss due to fines or loss of operating licence,
— adverse publicity should a regulatory breach occur, and
— APG losing its operating licence.

4.1.2. Option 2

Under a program of proactively replacing failed sleeves, the risks are the same as under Option 1 but the likelihood and consequence is expected to be significantly moderated given the process in place to manage these risks.

This option appropriately balances cost with reducing risk to as low as reasonably practicable, in line with Australian Standard AS2885.

4.2. Financial assessment

A consideration of the expected financial outlays for both options is shown below. Net Present Value calculations have not been undertaken as a realistic expenditure profile for Option 1 is unable to be determined.

Table 2: Financial assessment of heat shrink sleeves business case

	Commentary
Option 1: Replace when corrosion is extensive, and capacity reduced	• Avoided inspection costs would be more than offset by regulatory fines and the financial costs and penalties arising from reputational damage, legal action including the potential loss of the AGP operating licence. • Lower capital expenditure in the near-term, but the haphazard approach to non-conformance identification and associated rectification will lead to lumpy and more unpredictable expenditure.
Option 2: Replace ahead of capacity reduction impacts	• A campaign of upgrades to the coating on a "just-in-time" basis with respect to assured seasonal access when needed, is the most efficient capital expenditure option to avoid the necessity of imposing a Restricted Operating Pressure.

Based on the risk and financial assessments above, option 2, the steady replacement of failed sleeves before expected capacity reduction is the preferred option as it appropriately balances costs and risks.

5. Consistency with the National Gas Rules and other regulations

The AGP is a major pipeline and appropriate maintenance of the pipeline and its facilities enable the pipeline to operate in accordance with its design basis, relevant standards and regulations.

APA consider this program to be consistent with the requirements of Rule 79 of the National Gas Rules, Australian Standards and other legislative obligations. The capital expenditure is:

— Necessary to maintain and improve the safety of services and maintain the integrity of services to customers and is of a nature that a prudent service provider would incur,
— Consistent with the expenditure that a prudent service provider acting efficiently would incur,
— Consistent with accepted and good industry practice,
— Aligned with regulatory requirements of the AGP Pipeline Licence, and
— Aligned with AS 2885.3 Pipelines: Gas and Liquid Petroleum Operations and Maintenance.

The nature of the works require equipment and qualifications not required in normal operation of the pipeline. As such it is more efficient to engage contractors for the majority of works. Contractors are engaged in line with APA's Procurement Policy and require the necessary skills, experience and demonstrated track record of completing work in a safe and cost effective manner.

6. Proposed costs for 2026–31

The costs of works is derived by the total quantity of digs needed, the average historical cost per dig and a balance between the timing of necessity (by corrosion growth assessment) and the scale of works possible given the contract resources available and the window provided by a typical dry season.

Table 3: Proposed 2026–31 costs for heat shrink sleeve replacements ($000 real 30 June 2026)

	2026–27	2027–28	2028–29	2029–30	2030–31	Total
Total	**811**	**811**	**811**	**811**	**811**	**4,056**