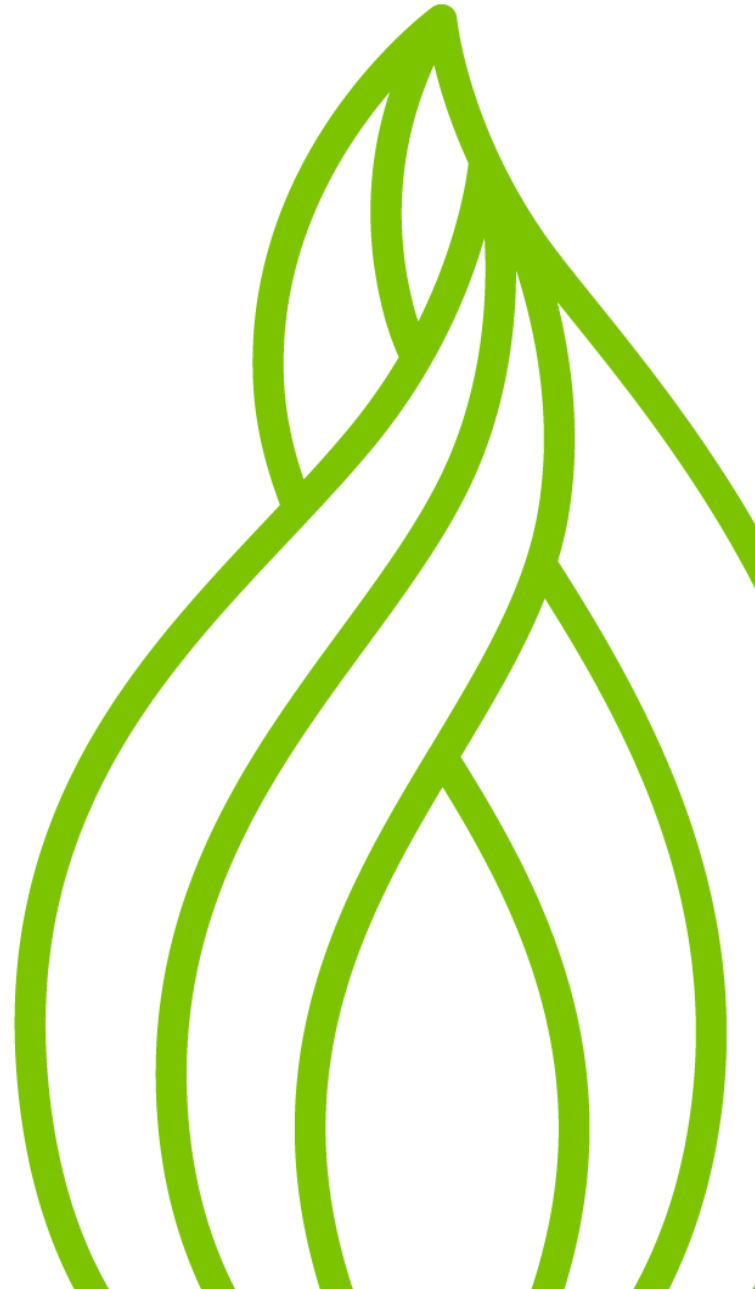




NMT Noise Mitigation Tool

Value Tracking Case Study



NMT Noise Mitigation Tool

Background

Normal gas flow through pipelines can cause significant noise. Where the noise breaches planning limits or becomes a nuisance to site or neighbours then historically hard cladding and soft lagging have been used to try and reduce noise emissions to within acceptable limits. However, the use of lagging and cladding causes a number of corrosion, integrity and inspection issues and significant asset management costs over the whole life of the pipework. Previous research has identified a number of alternative technologies that may be more effective at mitigating noise pollution but did not go as far as making any kind of quantitative assessment.

Currently there also does not exist such a standardised method of quantitative assessment (Best Available Techniques) of noise mitigation solutions for designers designing new assets, leading to inconsistency and use of costly solutions with limited effectiveness. National Gas Transmission has experience of developing effective BAT assessment toolkits for certain aspects of Compressor Balance Of Plant but this did not include noise mitigation which is a specialist field.

This project will therefore refresh and expand on that earlier noise research and develop a toolkit including a series of cost benefit analyses and BAT assessments for a range of real-world noise mitigation scenarios for pipework systems.

What's new?

Studies completed with Supply Chain and external Supplier input on Cab Noise Study and Pipework Noise Mitigation. The Learnings from this work can

be applied to any application where above ground gas pipeline systems are required which are subject to noise or temperature control. The Noise Mitigation Tool comprises of a suite of BAT spreadsheets, Case Studies and a Cost Estimator Tool, which will enable National Gas Transmission to evaluate whole life cost and effectiveness of pipework noise mitigation techniques.

The benefits

- Improved awareness of noise mitigation techniques.
- Repeatable methodology to utilise for each situation.
- Limit noise of assets to aid performance and limit affect to stakeholders in the nearby and surrounding area.
- Cost saving using alternative techniques identified from the research findings and assessment updates.

Financial savings

At two National Gas Transmission sites with cladding, to reduce noise emissions, recent inspections identified corrosion under insulation issues that required cladding removal, pipework remediation and cladding reinstatement. This led to costs of circa £75k (£25k for corrosion remediation works plus £50k cladding reinstatement material) at each site to rectify; Assuming two site interventions are required every ten years of the pipework are required at each site with cladding, a cost of £150k (£75k x 2) could be saved per site by using an alternative solution shown to be BAT; Conservatively assuming 10 sites (from around 400 above ground installations, but noting that not all of which will have noise issues or cladding) will have the same issues and require asset health or other project work over the next 5 years (2 x sites per year); then: Total savings = £1.5m over 10 years (£150k x 10) plus further project programme linked cost savings. This



does not include further future cost avoidance on new build assets where alternatives to cladding may be identified as the BAT solution through use of the tool.

Implementation

Outputs linked with another innovation project (NIA project NIA_NGGT0049 “Investigation into the use of constrained-layer damping”) to link solutions on improving noise mitigation using several different options. Policies and procedures have been updated based on the findings and options to utilise including:

T/PM/PWC/10 Pipework Cladding Requirements
T/SP/PWC/11 Pipework Acoustic Cladding

