

## First Gas Limited response

17 February 2017

### **GAS DPP RESET 2017 – SUPPLEMENTARY QUESTIONS: SUPPLIER EVIDENCE OF FORECASTING EXPENDITURE PROCESS (corrected as of 13 February 2017)**

#### **FIRST GAS TRANSMISSION**

1. With reference to First Gas' 2016 AMP forecast material, we request the following information from First Gas:

1.1 The risk analysis and evidence of the marine erosion effects that have underpinned the Gilbert Stream project being considered a pipeline integrity risk;

First Gas has attached the UAV survey report from December 2015 (see [Appendix A](#)), that shows the aerial mapping of the cliff side area for Gilbert Stream. This report compares data from previous years to show the degree of erosion that threatens pipeline integrity at the Gilbert Stream site.

This analysis triggered a project to study the options and costs of replacing the pipeline under threat, considering factors such as the current distance of the pipeline to the cliff edge and the current high and low estimates of cliff erosion.

The pipeline is less than 10 metres from the cliff side (a 50-metre high cliff). In addition to average erosion rates, the failure data for this coast line also indicates that episodic failure (where a large piece of land slips onto the beach) is the biggest concern. Episodic slips can eliminate up to five to ten metres at a time.

In addition, as the cliff side erodes, our ability to replace the pipeline and safely remove the pipeline under threat from the ground (an essential requirement) diminishes. We have an emergency response plan in place with the First Gas maintenance team to be able to effectively deal with a cliff side slip emergency that exposes the pipeline.

1.2 Details of any industry consultation, discussions and support for the proposed Gilbert Stream pipeline realignment expenditure;

First Gas met with the Secretariat of the Major Gas Users Group (MGUG) in July 2016, before the release of our 2016 transmission Asset Management Plan (AMP). First Gas discussed the proposed projects to be included within the AMP and the Gilbert Stream project was discussed in relation to First

Gas's work on geo-hazards. The presentation slides provided to MGUG are attached as **Appendix B**.

In November 2016, First Gas representatives attended a regular meeting of MGUG members hosted at the Gas Industry Company in Wellington. First Gas presented many aspects of the recently published First Gas Transmission 2016 AMP. The Gilbert Stream remediation work was discussed during this meeting. MGUG members expressed general support for First Gas investing to manage known risks to pipeline integrity. A copy of these slides is attached in **Appendix C**.

### 1.3 Details of any alternatives that were considered for the Gilbert Stream pipeline realignment project;

In 2016, First Gas undertook an options study (see **Appendix D**) that:

- identified four potential options; and
- carried out a net present value analysis to establish the most cost effective solution in terms of asset life.

The analysis concluded that the best value solution was to spend an estimated \$8.6 million to replace approximately 400 metres of 30-inch pipeline further inland (option 3C). This option was chosen as it provided a solution that creates a 25 metres distance to the top of the existing cliff edge, which translates into a design life of up to 43 years, based on an erosion rate of 0.375m/year. This option provided for the tie in points to be on relatively flat and accessible ground, and incorporates an aerial crossing with a walkway to facilitate future maintenance and inspection. This is the project that was included within First Gas's 2016 transmission AMP.

The most expensive replacement option cost identified was \$14.3 million. This option was not recommended.

### 1.4 Details of the economic impact of a pipeline failure in the Gilbert Stream vicinity, estimated outage duration and any cost benefit analysis that has underpinned the decision to carry out the investment;

The options study commissioned by First Gas (**Appendix D**) does not consider the financial impact on the country if the gas transmission pipeline failed and gas supplies were curtailed.

However, First Gas has considered the outcomes from the report commissioned by Ministry of Business, Innovation and Employment following the Pukearuhe incident in 2011.<sup>1</sup> The report outlined that "the gross cost of

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<sup>1</sup> *Review of the Maui Pipeline Outage of October 2011*, October 2012, Ministry of Business, Innovation and Employment, <http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-security/documents-image-library/Review-Maui-pipeline-outage-october-2011.pdf>.

the outage to the economy was \$200 million”.<sup>2</sup> This outage was for a total duration of five days (equivalent to an average economic cost of \$40 million per day).

We note that Gilbert Stream is located on the same pipeline section as Pukearuhe and is within 1 kilometre of the location of this historic failure. We therefore consider that any outage is likely to affect the country in a similar way, with similar impacts.

The duration of a pipeline outage at Gilbert Stream will depend on whether the pipeline fails with the cliff side slip, or is damaged/potentially damaged but not leaking.

First Gas has previously stated that five to six days would be typical for a pipeline repair of this type. However, due to access around the valley, cliff erosion close to the pipe and the distance of the aerial span, we expect that repair times around Gilbert Stream would likely be greater than this estimate.

1.5 Forecast expenditure values (as used in the 2016 AMP) over the 2016 AMP forecast period from FY2016 to FY2026 for:

- 1.5.1 the asset replacement and renewal capex category with the Gilbert Stream pipeline realignment and White Cliffs realignment projects subtracted out of the forecast;
- 1.5.2 the Gilbert Stream pipeline realignment project;
- 1.5.3 the White Cliffs pipeline realignment project; and
- 1.5.4 the Henderson compressor project.

First Gas has attached a breakdown of its capital expenditure in **Attachment E** outlining the:

- the total capital expenditure, the total “Consumer Connection” capital expenditure and the total “Asset Replacement and Renewal” capital expenditure, as forecasted in our AMP; and
- the revised total capital expenditure, the revised “Consumer Connection” capital expenditure and the revised “Asset Replacement and Renewal” capital expenditure, with the large projects subtracted out of the AMP forecasts.

The table below sets out the expenditure and timing for each of the large projects – Gilbert Stream remediation, White Cliffs remediation and the Henderson Compressor Station project.

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<sup>2</sup> Page 24.

Project	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
White Cliffs Remediation - Kapuni System	-	750,000	2,500,000	250,000	250,000	250,000	7,649,910	20,099,910	-	-	-
White Cliffs - Remediation - Maui system	-	750,000	4,100,000	250,000	250,000	250,000	12,600,000	31,650,000	-	-	-
Gilbert Stream - Realignment	-	1,957,000	6,546,000	-	-	-	-	-	-	-	-
Henderson Compressor Station	5,616,000	10,025,000	-	-	-	-	-	-	-	-	-
<b>Total Capital Expenditure Large Projects</b>	<b>5,616,000</b>	<b>13,482,000</b>	<b>13,146,000</b>	<b>500,000</b>	<b>500,000</b>	<b>500,000</b>	<b>20,249,910</b>	<b>51,749,910</b>	-	-	-

## **Attachments provided**

First Gas has provided the following attachments to support our responses outlined above:

- Appendix A: Maui Pipeline (400Line) Gilbert Stream – Pukearuhe, UAV Survey Report # V-2890-02, 1 July 2016, NZ Geomatics.
- Appendix B: First Gas presentation - AMP consultation, July 2016.
- Appendix C: First Gas presentation to the Major Gas Users Group – First Gas Transmission Asset Management Plan, November 2016.
- Appendix D: 400-Line coastal erosion – Gilbert Stream, Pipeline realignment options study, August 2016, First Gas Limited.
- Appendix E: First Gas Transmission Capital Expenditure Breakdown, February 2017.