NETWORK PLANNING REPORT - P007

Stonehaven (Timing and Planning)

April 2007

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Executive Summary

This report provides a high level analysis of the potential market benefits that may arise from the installation of a compressor at Stonehaven (southwest of Melbourne). The Stonehaven Compressor Station is seen as a logical staged development following the construction of the Corio Loop, which is currently scheduled for completion by March 2008.

Modelling, using Gregg Engineering software, indicates that installing a compressor at Stonehaven will increase the system capacity by 65 TJ/d, but will not increase system linepack. The identified capacity may change after further analysis of the allowable operational limitations.

Using the results of the Gregg Engineering modelling, and combining it with the market benefit results of the Major System Augmentation Report for the Principal Transmission System's (Major System Augmentation Report) calculations, suggests that the installation of one compressor at Stonehaven may be justified for winter 2013. [1]

However, these results should be viewed with caution, given no independent market benefit modelling was conducted, and the market benefit calculations have been derived from calculations undertaken for the Major System Augmentation Report.

The calculations have been adjusted to reflect the results of the technical analysis and the significant decrease in the forecast demand growth assumed in the Major System Augmentation Report's analysis over the period considered in this analysis (2011 to 2015) compared with the latest information available in the 2006 Gas APR.

It should also be noted that this analysis did not compare the installation of a compressor against alternative options, such as pipeline looping.

1 VENCorp, Major System Augmentation Report for the Principal Transmission System, November 2005.

Introduction

In 2005, VENCorp produced a Major System Augmentation Report that considered a number of gas pipeline expansion options to address future transportation limitations affecting Victorian gas consumers. That report utilised an economic cost-benefit assessment that considered various options to address the emerging network limitations.

This report uses a similar approach, by considering the economic costs and benefits that may arise from installing a compressor at Stonehaven. The Stonehaven Compressor Station is seen as a logical staged development following the construction of the Corio Loop, which is currently scheduled for completion by March 2008. Figure 1 shows the compressor's possible location. This approach differs from other timing and planning reports produced by VENCorp in that it does not apply the 1 in 20 peak day planning standard as a trigger for further detailed investigation.

The Major System Augmentation Report sets out in detail how VENCorp conducts economic market-benefit analysis for gas transmission pipelines.

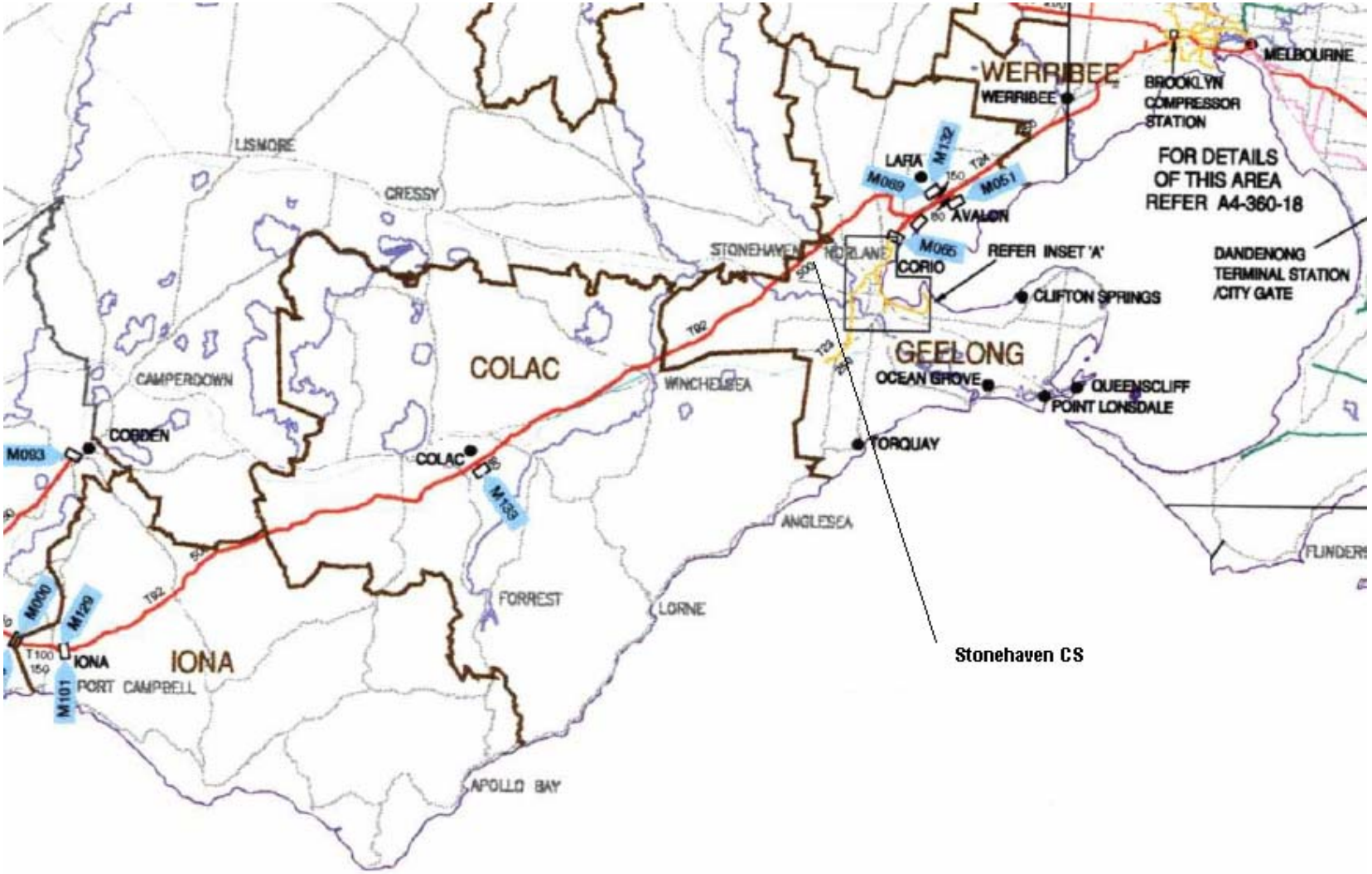
Planning Inputs

Table 1 lists the key planning inputs used in the modelling.

Table 1 - Key planning inputs

Item
Base case includes Corio Loop
Increase in capacity - 65 TJ/d
Increase in system linepack - 0 TJ/d
No Competition Benefits
No benefits assumed for bi-directional flows
Constant discount rate of 7% (i.e. benefits accruing later not discounted at a higher rate)
Costs based on those provided by GasNet
Outage rate of compressors - 5%
Growth scenarios weighted at 1/6 high, 2/3 medium and 1/6 low economic growth
Costs are assumed to be incurred over two years (the year prior to when it is required and the year in which it is required)

Figure 1 - South West Pipeline schematic and possible Stonehaven Compressor Station location



Assessment

Augmentation Timing

The results of the market benefit analysis provide the Stonehaven Compressor Station's optimal timing and solution..

Augmentation Options

The two augmentation options considered involve the installation of one or two compressors.

A more detailed assessment would also consider demand-side options, and pipeline looping along the existing Longford or SWP. These have not been considered in this report, but will be analysed in detail in the appropriate Major System Augmentation Report.

Analysis

Modelling, using Gregg Engineering software, indicates that the installation of a compressor at Stonehaven will increase system capacity by 65 TJ/d. However, the results do not indicate that there would be an increase in system linepack [2]. This increase in system capacity was based on a set of assumptions, including an allowance for operational limitations (which may change). As a result, a further review will be carried out that may deliver different results .

A high-level review of the results from the Major System Augmentation Report analysis suggest that half of the involuntary load curtailment benefits derive from an increase in system capacity, and half from an increase in system linepack. It is therefore assumed that approximately one half of the involuntary load curtailment associated with the Major System Augmentation Report analysis could be derived from installing a compressor at Stonehaven

Given the lower forecast demand growth over the period considered in this analysis (2011 to 2015) it is assumed that the compressor's benefits would not start to accrue until 2011. This assumption is considered reasonable given that the installation of the Corio Loop in 2008 would address any system constraints for at least three years based on the results of the Major System Augmentation Report of this analysis.

The system security benefits were modelled using the forecast system capacity increase of 65 TJ/d and the methodology adopted in the Major System Augmentation Report.

Table 2 lists the market benefits.

[2] This compares to the increase in system capacity of the Corio Loop, which was found to be around 87 TJ while the increase in system linepack was estimated to be around 20 TJ

Table 2 - Market benefits

	($'000) real excluding GST				
Year	2011	2012	2013	2014	2015
Involuntary Curtailment Benefits (from the Corio Loop)	2,378	3,696	5,951	9,695	16,288
System Security Benefits of additional compression at Stonehaven	880	880	880	880	880
Two Compressors	1,102	1,348	1,769	2,468	3,700
One Compressor	1,047	1,281	1,681	2,345	3,515

The market benefits from 2014 onwards are assumed to be the same for the life of the assets of 50 years.

Table 3 lists the option costs.

Table 3 - Option costs

One Compressor	Two Compressors
$26 million	$48 million

Table 4 lists the net market benefit analysis results which were calculated from the differences between the market benefits, the costs and the discount rate.

Table 4 - Net market benefits

	($'000) real excluding GST	
Year	One Compressor	Two Compressors
2010	13,340	-180
2011	13,740	1,570
2012	13,870	2,170
2013	13,590	2,700
2014	12,710	2,520
2015	11,870	2,350
2016	11,100	2,200
2017	10,370	2,060
2018	9,690	1,920
2019	9,060	1,800
2020	8,470	1,680
2021	7,910	1,570

Based on this high-level analysis, the highest net market benefit may be achieved with one compressor constructed between 2012 and 2013 for operation in 2013.

Conclusion

The analysis shows that installing one compressor at Stonehaven between 2012 and 2013 for operation in 2013 delivers the highest net market benefits.

These results are indicative only. No independent market modelling was conducted, and further analysis may produce different results.

Recommendations

Based on the analysis conducted it is recommended that one compressor be installed at Stonehaven between 2012 and 2013 for operation in 2013.

Definitions

Corio Loop	The Corio Loop is the 500 mm diameter pipeline extension of the South West Pipeline from Lara to Brooklyn, scheduled for completion prior to winter 2008.
Gas APR	Gas Annual Planning Report, published by VENCorp by 30 November each year.
Major System Augmentation Report	Major System Augmentation Report for the Principal Transmission System, November 2005
PTS	The Principal Transmission System, serving Gippsland, Melbourne, Central and Northern Victoria, Albury, the Murray Valley region, Geelong, the western region of Victoria. The PTS is owned by GasNet and operated by VENCorp.