Zincara

From strategy to action

Capital Expenditure Review
Western Outer Ring Main
South West Pipeline

Addendum

Prepared for

AUSTRALIAN ENERGY REGULATOR

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Zincara P/L

11 Alexandra Street

St Kilda East 3183

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Report prepared by:	Brian Fitzgerald
Reviewed by:	Ed Teoh

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1. INTRODUCTION

1.1 BACKGROUND

This report has been prepared as an addendum to Zincara's report titled "Capital Expenditure Review Western Outer Ring Main and South West Pipeline", (APA Report), dated 2022/06/08. This addendum should be read in conjunction with the APA Report.

In December 2021, APA submitted its access arrangement proposals to the AER, including a business case "South West Pipeline expansion – Iona 570 TJ/d injection". After reviewing the business case and various other submissions, Zincara concluded that there was justification for installing an additional compressor on the South West Pipeline to provide additional resilience to the Victorian Transmission System (VTS). However, due to the supply-demand uncertainty, Zincara recommended that the choice of either APA's option of a compressor in Stonehaven or the AEMO's option of a compressor in Winchelsea should be a matter for both parties to resolve.

In March 2022, AEMO published its 2022 Gas Statement of Opportunities (GSOO) and Victorian Gas Planning Report (VGPR) which provided the most current analysis of gas supply and demand across the Australian eastern seaboard and in particular Victoria. The reports indicated a risk of supply shortfall as early as 2023, and earlier than APA's proposal to increase capacity of the South West Pipeline (SWP).

Subsequent discussions with key stakeholders including APA, AEMO and the Victorian government aimed to determine whether it was possible to bring forward a project to improve supply capacity injection into the Victorian Transmission System (VTS) prior to winter 2023.

As a result of its investigations, APA established that the installation of a second compressor at Winchelsea before winter 2023 was possible, albeit the schedule would be very tight. They submitted to the AER a business case "South West Pipeline expansion – Winchelsea 2nd unit".

The AER has engaged Zincara P/l (Zincara) to undertake a review of APA's new business case, particularly focussing on the efficiency of the proposed costs.

2. SOUTH WEST PIPELINE – WINCHELSEA 2ND COMPRESSOR

2.1 BUSINESS CASE PROPOSAL

APA's business case "South West Pipeline expansion – Winchelsea 2nd unit" was submitted to the AER on 17 May 2022. It proposes the installation of a second Taurus 60 (5.6 MW) compressor at Winchelsea which will increase Iona's injection capacity to 517 TJ/d. This represents 41 TJ/d of additional gas supply capacity to the VTS during the peak winter period (from post WORM capacity of 476 TJ/d). It is proposed that the compressor will be commissioned prior to winter 2023.

Winchelsea is an existing compressor site on the SWP with a single compressor operating since 2014. The site was initially designed, and provision made, to enable an additional compressor unit to be installed. As such, no land purchase is required and the time for planning design, engineering and approvals is expected to be significantly reduced.

APA's option analysis considered the installation of a Taurus 60 (5.6 MW) compressor or alternatively diverting a Centaur 50 (4.5 MW) compressor which has recently arrived in Australia from its Western Outer Ring Main (WORM) project. The outcome of this analysis was to use the Taurus unit.

A key consideration in arriving at its recommended solution relates to whether the two compressors at Winchelsea are installed in a series or parallel configuration. The configuration options provide differing capacity outcomes when operating the two compressors and also when only one compressor is operating. The business case noted that it is envisaged that a single compressor operation would cover normal winter demand, with the second unit put into operation for winter peak demand days. Therefore it is necessary to maintain a single unit operation as efficiently as possible (as per current performance), especially if re-staging of the existing unit has to be conducted to allow two unit operations.

It should be noted that references to gas flow rates in this Addendum reflect those used in APA's business case which result from the most recent modelling by APA and AEMO.

Iona's injection capacity is currently 530 TJ/d but is constrained by the SWP to 447 TJ/d. Once the WORM is completed in May 2023, Iona will be able to inject up to 476 TJ/d into the VTS. Lochard Energy propose to increase the Iona capacity to 570 TJ/d by January 2023.

2.2 CONFIGURATION ANALYSIS

Parallel configuration

In parallel configuration (one unit next to the other) the Iona injection capacity increase would be 52 TJ/d, an increase from 476 TJ/d to 528 TJ/d.

In parallel configuration each unit would receive half the flow through the station. Re-staging would be required for the existing compressor to avoid high recycling due to lower flows. With a new re-staged compressor for parallel operation, the capacity of 528 TJ/d expansion for two-unit operation is achieved. However, due to the low efficiency operating regime of the new wheeling for single unit flows, the capacity of operating a single unit is significantly reduced from 476 TJ/d to as low as 415 TJ/d. This means that two units would have to be operated to achieve the capacity of the current single unit.

Series configuration

In series configuration (new unit in tandem with existing unit), the Iona injection capacity increase would be 41 TJ/d, an increase from 476 TJ/d to 517 TJ/d.

The series configuration will not require any re-wheeling of the existing unit. The new unit will be staged similar to that of the existing unit. Series operation reduces the capacity by 11 TJ/d compared to parallel operation because the compressors would be operating at lower efficiency. However, because there is no re-staging of the existing unit, the capacity of single unit operations will be maintained at its current 476 TJ/d. Each unit will provide a full backup of the other when one is down for maintenance.

2.2.1 Cost/Benefit summary

AEMO's operational requirements for the SWP are such that a single compressor operation at Winchelsea will be sufficient, during normal demand periods while the second compressor would come online to achieve maximum capacity during peak load periods.

APA's business case considered options using both Taurus 60 compressor and diverting the recently arrived Centaur 50 compressor from the WORM project, as well as Do Nothing. This Addendum report only summarises the Taurus 60 compressor configurations, with the other options rejected as they are considered not to be prudent in the circumstances.

Note that in the following summary, the flow rates are Iona injection capacity and are post WORM.

Series configuration:

- Capex: $60 million.
- Two unit operation increases maximum capacity by 41 TJ/d to 517 TJ/d.
- Single unit operation maintains 476 TJ/d capacity (post WORM)
- Both units will be similar with no re-staging necessary and full back-up to each other for single unit operation.
- Increased system security due to back-up capability.

Parallel configuration:

- Capex: $60 million.
- Two unit operation increases maximum capacity by 52 TJ/d to 528 TJ/d.
- Restaging of the existing unit is required
- Restaged single unit operation capacity is approximately 415 TJ/d
- Significant reduced level of back-up capability

Given the operational requirements of the SWP, APA's business case concludes that the series configuration is the most prudent. AEMO also supports this configuration.

2.3 CAPITAL EXPENDITURE ANALYSIS

APA's business case includes estimated capital expenditure as outlined in the following table. Our analysis considers each of the expenditure components and how they compare with the initial 570 TJ/d business case[1], while also recognising that there are significant cost

[1] South West Pipeline Expansion – Iona 570 TJ/d injection: table 5.5

impacts associated with the current proposal particularly relating to efforts to deliver this project in a very tight timeframe, before winter 2023.

Table 2-1: Capital Expenditure – Winchelsea 2nd compressor unit ($2022 millions)

Component	2022	2023	Total
Project Mgt	4.28	3.93	8.21
Land & Approvals	2.45	0.53	2.98
Design	4.39	1.23	5.62
Procurement	17.12	2.56	19.69
Construction	8.57	13.91	22.48
Commissioning	0.39	0.64	1.03
Total Direct cost	**37.20**	**22.81**	**60.01**
Overhead (6.91%)	2.57	1.58	4.15
Total	**39.77**	**24.39**	**64.16**

Source: APA Business Case 601: Table 5.5

APA's new business case notes that its estimates are based on:

- Actual costs for the Winchelsea compressor project completed in 2014 with allowance for CPI.
- Actual budget costs provided by vendors, and hence subject to change once final details are known.
- Recent contractor and vendor pricing for similar projects.
- Productivity allowances for work on a brownfield site. Noting that the 2014 project was greenfields and also Stonehaven and Pirron sites would be greenfield.
- Allowance for additional expediting costs due to tight timeframes, which could include airfreighting the compressor unit.

APA also notes that it will update the project estimate and schedule as more accurate information becomes available, including more complete design.

Our analysis of the currently available cost information is as follows:

Project management. The initial business case estimated $4.96 million covering two compressor stations sites and works at Brooklyn city gate and upgrades at Winchelsea. Given the tight timeframes it can be expected that additional project management effort will be required to deliver the project before winter 2023. However, the differential between the initial business case and the latest business case is $3.25 million (65% increase) which we consider to be significant. We recommend that further details/explanation from APA is required to demonstrate why this cost is efficient in the circumstances.

Land and Approvals. The initial business case estimated $2.97 million which included works at a number of sites as well as the acquisition of a new site at Pirron. Stonehaven, which is an APA site, included costs for this item of $0.9 million. Winchelsea is already an APA site. Further explanation from APA is required to demonstrate why this cost is efficient in the circumstances.

Design. The initial business case estimated $10.7 million, which included $4.6 million for each of the two compressor sites. Given the design activities associated with the series configuration of the additional compressor at Winchelsea and comparing costs of the two business cases we consider that APA's cost is efficient in the circumstances.

Procurement. The initial business case estimated $36.6 million, which included procurement costs of $17.3 million at Stonehaven and $18.3 million at Pirron. The current business case cost is $19.7 million, which we consider to be an efficient cost in the circumstances.

Construction. The initial business case estimated $29.4 million, which included installation of two compressor units and other associated works. Construction costs at Stonehaven were estimated to be $13.7 million. The current project estimates construction costs of $22.5 million. APA indicated that they would select contractors with past performance in delivery of similar projects and may require terms outside of its typical agreements. Winchelsea is a brownfields site which will command additional work arrangements compared to the greenfield sites of Stonehaven and Pirron. There is also a tight timeframe for construction activities. In these circumstances we consider the construction costs estimate to be efficient.

Commissioning and Handover. The initial business case estimated $6.4 million, which included costs of $3.1 million at each of Stonehaven and Pirron. We therefore consider that the current business case cost estimate of $1.3 million is efficient.

In addition to the above analysis, we believe that APA's competitive procurement processes, project management governance and reporting provide a level of assurance that the project will be managed effectively. In addition, APA, as an ASX listed company, faces market scrutiny on its investments.

2.4 CONCLUSION

Given the risk of supply shortfall during 2023 and the significant uncertainties with gas supply and demand as detailed in AEMO's 2022 GSOO and VGPR, efforts have been made to fast-track the installation of an additional compressor at Winchelsea prior to winter 2023. While this proposal does not enable the full capacity of Iona's injection capacity to be realised it will increase capacity by 41 TJ/d, with compressors configured in series. It also provides full back-up to each other for single unit operation improving system security.

While the schedule is very tight APA has determined that delivery of such a project is possible and have submitted a new business case to the AER for inclusion in its access arrangement.

The business case has considered a number of configuration and compressor options, concluding that a Taurus 60 compressor unit, installed in series with the existing unit at Winchelsea would provide the most effective option in the circumstances.

The AER has requested that Zincara provide an Addendum report, particularly focussing on the efficiency of the proposed costs. As such, we have included details of the various options, as shown in APA's new business case, to provide context to the challenges faced by the key stakeholders, in particular APA in arriving at the proposed solution. We note that AEMO has indicated its support of APA's proposal to install the additional compressor in series, as the most effective outcome in the circumstances, for the overall operation of the SWP throughout the year.

In our earlier report, we concluded that it would be prudent to increase injection capacity of the SWP and recommended that the AER make capital investment provision in their Draft Decision in the order of $45 million (direct $2021) for APA to install an additional compressor in the SWP at the most suitable location based on its modelling. AEMO had suggested that

an additional compressor at Winchelsea may provide maximum benefit in the shortest timeframe and hopefully by winter 2023.

APA's new business case provides a capital expenditure estimate of $60.0 million (direct cost). It also shows overhead cost of $4.1 million (at 6.91%). Note that our analysis relates to the direct cost components of this proposal.

Our assessment of the efficiency of the proposed capital expenditure is based on a review of each of the project components. The business case included the basis of APA's estimate such as using actual costs from the earlier Winchelsea compressor project, budget costs provided by vendors, recent contractor pricing of similar projects and allowance for the fact that the works will be undertaken on a brownfields site, compared to greenfields sites that applied to its initial business case. We acknowledge that the fast-tracked nature of the project will impact costs. Finally, we have used the initial business case (as submitted in December 2021) expenditure estimates as a source of comparison.

Based in our assessment we consider that each of the cost components can be considered to be efficient in the circumstances, apart from "Project Management" and "Land and Approvals". With respect to these two components, we do not have sufficient information at this time to enable us to make an assessment as to whether they are efficient.

We recommend that APA provide further explanation and clarification of the following to demonstrate that the cost estimate of these components is efficient in the circumstances:

- Project Management. While we would anticipate additional effort associated with the fast-tracked nature of the project, the cost estimate has a relatively significant differential compared with the initial business case, submitted in December 2021.

- Land and Approvals. The cost estimate is very similar to that provided in the initial business case estimated ($2.97 million). The initial business case included works at a number of sites as well as the acquisition of a new site at Pirron. Stonehaven, which is an APA site, included costs for this component of $0.9 million. For the new project, Winchelsea is an existing APA site and one additional compressor is being installed rather than two, along with associated works.