

**APA Technical Note - Western Outer Ring Main - Environment Effects Statement**

**TECHNICAL NOTE NUMBER:** TN22

**DATE:** 14 September 2021

**SUBJECT:** Specialist Area: Greenhouse gas  
Response to RFI # 85, 86, 88-90

**SUMMARY** This Technical Note provides responses to the request for information queries raised in relation to Technical Report H *Greenhouse Gas* of the Western Outer Ring Main (WORM) Environment Effects Statement (EES).

**REQUEST:**

85. Clarify how cost will be considered (or weighted) in choosing low embodied energy materials or locally sourced materials.

86. Clarify the net reduction in emissions from the Project compared with the no-project scenario, and explain when this net reduction will be achieved over the life of the Project.

88. Confirm if Scope 3 includes embedded energy in steel and concrete.

89. Clarify whether Table 10 and 11 (Technical Report H) emissions are annual or total.

90. Advise whether the Project of itself will trigger National Greenhouse and Energy Reporting requirements.

**ATTACHMENTS:** Annexure 1 – Changes to greenhouse gas EMMs

**NOTE:**

**Response to RFI# 85 – Considerations of cost for low embodied energy materials or locally sourced materials**

- 1 Key equipment for the gas pipeline and facilities are required to meet strict design standards to ensure the safety and integrity of the pipeline. This limits supply to a select number of vendors who have a proven track record in providing quality products. In the case of steel pipe for example, the steel is manufactured using a bespoke recipe, however, the process must be substantially the same for all vendors in order to meet the design requirements.
- 2 Where equipment is able to be sourced from Australia, the selection of low embodied energy materials (if such a substitution is available and meets technical parameters) or locally sourced materials will be considered by APA and would be based on a weightings assessment that considers cost, environmental impacts, availability of materials and social impacts. EMM GG1 (a) has been updated to reflect this as shown in Annexure 1.
- 3 Vendors of non-critical equipment will be requested to provide information on the total emissions to make and deliver the goods to the project site. Where this information is readily available, the cost of low embodied energy materials would be considered against the benefits of their use. One method of doing this would be to consider the additional cost of the material against the total emissions avoided through its use, to find a dollar per tonnes of carbon dioxide equivalent avoided, i.e., \$ / t CO<sub>2</sub>-e.

- 4 An Australian Carbon Credit Unit (ACCU) is a carbon offset that represents one tonne CO<sub>2</sub>-e stored or avoided by a project. The current spot price for ACCUs is around \$22.50 (September 2021). If the cost to impact ratio of a low embodied energy material is below the cost of purchasing an ACCU, the material should be considered for use. If the cost to benefit ratio of the material is above the cost of purchasing an ACCU, it is considered that the use of the lower embodied energy material is not a cost-effective means of reducing emissions.

**Response to RFI# 86 – Net reduction in emissions from the Project compared with the no-project scenario**

- 5 As described in EES Technical Report H *Greenhouse Gas*, section 8.2.2, the Australian Energy Market Operator (AEMO) estimates that the operation of the Project would result in network efficiency gains leading to an overall reduction in the amount of fuel gas consumed for the purposes of gas transport. Whilst the operation of the Project in itself will generate greenhouse gas emissions, the predicted reduction in fuel gas consumption in the network results in a net reduction of emissions.
- 6 It is predicted that the Project would result in a net reduction in network emissions of 10,110 t CO<sub>2</sub>-e per annum during operation due to the estimated efficiencies gained throughout the network. Considering the predicted greenhouse gas emissions from the construction of the Project are estimated to total 40,554 t CO<sub>2</sub>-e over the 9 months of construction, it is expected that the Project would result in a net reduction of emissions after 4 years of operation (or 4 years and 9 months from the start of construction). These calculations relate to the 500 mm diameter pipeline, refer to Technical Note 08 – Pipeline alignment changes for further detail on the decision to reduce the pipeline diameter to 500 mm.

**Response to RFI# 88 – Scope 3 includes embedded energy in steel and concrete**

- 7 Embodied emissions associated with pipeline construction materials are dominated by steel and concrete. Other materials are deemed immaterial and have been excluded from the assessment.
- 8 The Scope 3 emissions include embodied emissions associated with the most significant pipeline construction materials (i.e., steel and concrete). This is described in EES Chapter 10 *Waste management* (greenhouse gas and contamination), Section 10.8 and EES Technical Report H *Greenhouse Gas*, Section 5.5.1.
- 9 Emissions associated with construction materials are classified as Scope 3 emissions and are calculated to be 21,663 t CO<sub>2</sub>-e for the Project.

**Response to RFI# 89 – Table 10 and 11 emissions are annual or total**

- 10 Table 10 of EES Technical Report H *Greenhouse Gas* presents the total predicted greenhouse gas emissions during construction. Table 11 of the same technical report presents the estimated annual greenhouse gas emissions during operation.

**Response to RFI# 90 – Trigger National Greenhouse and Energy Reporting requirements**

- 11 There are two types of thresholds by which companies have an obligation under the National Greenhouse and Energy Reporting Act:
- Facility threshold: 25,000 t CO<sub>2</sub>-e annually (Scope 1 and 2 emissions)
  - Corporate group threshold: 50,000 t CO<sub>2</sub>-e annually (Scope 1 and 2 emissions)
- 12 During operation, it is estimated that the Project itself, without considering efficiencies gained elsewhere in the network, would be responsible for 14,340 t CO<sub>2</sub>-e Scope 1 emissions and 0 t CO<sub>2</sub>-e Scope 2 emissions. Therefore, the thresholds are not met and

the Project would not, by itself, trigger National Greenhouse and Energy Reporting requirements associated with greenhouse gas emissions.

- 13 APA report energy and emissions data under the NGER Act, as it meets the corporate group threshold. APA would be required to consider and include all emissions associated with the Project, over which it has operation control, in its reporting.

## Annexure 1

### Changes to Greenhouse Gas EMMs

GREENHOUSE GAS		
Ref.	Environmental controls	Project phase
GG1	<p><b>Construction emissions</b></p> <p>Reduce greenhouse gas emissions during construction so far as reasonably practicable including by:</p> <p><u>(a) The selection of low embodied energy materials or locally sourced materials will be carefully considered by APA and would be based on a weightings assessment that considers cost, environmental impacts, availability of materials and social impacts</u></p> <p><del>(a) Using low embodied energy materials where they are of comparable quality, utility, availability and cost.</del></p> <p>(b) Using fuel efficient plant and equipment and used where practicable during construction</p> <p>(c) Using locally sourced materials, including those provided by suppliers, where they are of comparable quality, utility, availability and cost.</p> <p>(d) Reducing the amount of vegetation removal along the pipeline alignment as far as reasonably practicable.</p> <p>(e) Monitoring construction greenhouse gas emissions via audit/monitoring processes.</p> <p>(f) Mulching trees for recycling</p> <p>(g) Minimising the amount of fossil fuel based explosives required during the construction phase.</p> <p>Performance monitoring of these requirements are described in Section 12.2. of the CEMP.</p>	Construction