



**Appeals Convenor**  
**Environmental Protection Act 1986**

---

**REPORT TO THE  
MINISTER FOR ENVIRONMENT**

---

**APPEALS IN OBJECTION TO THE CONTENT OF, AND RECOMMENDATIONS  
IN, AN ENVIRONMENTAL PROTECTION AUTHORITY REPORT**

**REPORT 1687: WAITSIA GAS PROJECT STAGE 2  
SHIRE OF IRWIN**

**PROPONENT: AWE Perth Pty Ltd**

Ms Jennifer Hole, Dr Chris Johansen, 350 Boorloo Perth, Midwest Carbon Zero, Mid West Geothermal Power Pty Ltd, Mr Ian Dunlop, Hon Dr Carmen Lawrence, Mr Ben Lawrence, Dr Rob Phillips, Ms Leslie McNulty, Gasfield Free Irwin, Mr Philip Warren Gardiner, Lock the Gate Alliance, Doctors for the Environment Australia, Conservation Council of Western Australia Inc, Mr Simon Wallwork, Ms Christie Kingston, Mr Dale Park, Prof Alex Gardner, Sustainable Energy Now, Mr Wayne Pech

**January 2021**

## Appeals Summary

This is a report on 21 appeals lodged in objection to the report and recommendations of the Environmental Protection Authority (EPA) on the proposal by AWE Perth Pty Ltd (the proponent) to construct and operate 250 terajoules (TJ) per day gas plant and related infrastructure about 16 kilometres (km) east-south-east of the Dongara-Port Denison town sites, in the Shire of Irwin.

The issues raised in the appeals largely related to the content of the EPA's report in respect to its assessment of the environmental factor Greenhouse Gas Emissions. A key concern raised through the appeals was that there were fundamental flaws in the EPA's assessment, that the proposal was not consistent with the objective of the EPA's greenhouse gas emissions factor guideline, and that the EPA did not adequately consider the impacts of the proposal's emissions.

In addition, the appellants' concerns related to impacts to water quality, air quality and social surrounds (including impact to human health). The appellants also raised a number of issues considered outside the scope of the appeals process, that have been addressed in 'other matters'.

Appellants sought for the proposal to be remitted to the EPA for further assessment, or at the very least for additional conditions be included, such as requiring the proponent to offset all emissions from commencement of the proposal.

In responding to the appeals and as detailed in EPA Report 1687, the EPA remained of the view that impacts associated with the proposal are manageable, provided there is control on the maximum capacity of the gas processing plant and conditions applied that require a reduction in scope 1 reservoir greenhouse gas emissions from commencement of the proposal and long term emissions reduction targets, abatement measures and broad reporting requirements to the Department of Water and Environmental Regulation and the public.

Having regard for the information provided during the appeals investigation, including the referral documentation, and information provided by the appellants, the proponent and the EPA, the Appeals Convenor considered that, for the most part, the EPA's report and recommendations were appropriate.

## Recommendations

Taking into account the EPA's advice that:

- its assessment against its objective for greenhouse gas emissions related to the Waitsia Stage 2 proposal; and
- it is not possible to draw a link between the proposal's emissions and the environmental impacts associated with climate change in WA; and
- the acceptability of the residual emissions is a matter for decision makers having regard to current policy settings and the many sources of greenhouse emissions and reductions opportunities in the State (many of which are outside the EPA's scope);

it is considered open to the Minister to accept the EPA's advice, and determine that no further assessment or reassessment is required.

In that case, changes to the conditions are recommended to improve transparency and clarify that all plans (including audit reports, summary plans and progress statements) and reports (including annual reports and revised GHG management plans) are to be made publicly available, a requirement for the proponent to revise the plan if there is a chance that the requirement to either avoid or offset all reservoir greenhouse gas emissions will not be achieved and to require the greenhouse gas management plan to be reviewed at least every five years to take into account new information.

## TABLE OF CONTENT

<b>INTRODUCTION.....</b>	<b>1</b>
<b>BACKGROUND AND CONTEXT .....</b>	<b>2</b>
<b>OVERVIEW OF APPEAL PROCESS .....</b>	<b>4</b>
<b> GROUNDS OF APPEAL .....</b>	<b>4</b>
GROUND 1: GREENHOUSE GAS EMISSIONS .....	5
GROUND 2: AIR QUALITY.....	48
GROUND 3: SOCIAL SURROUNDINGS.....	51
GROUND 4: INLAND WATERS .....	53
<b>OTHER MATTERS .....</b>	<b>56</b>
<b>CONCLUSION AND RECOMMENDATIONS .....</b>	<b>58</b>
<b>APPENDIX 1 – APPELLANTS .....</b>	<b>60</b>

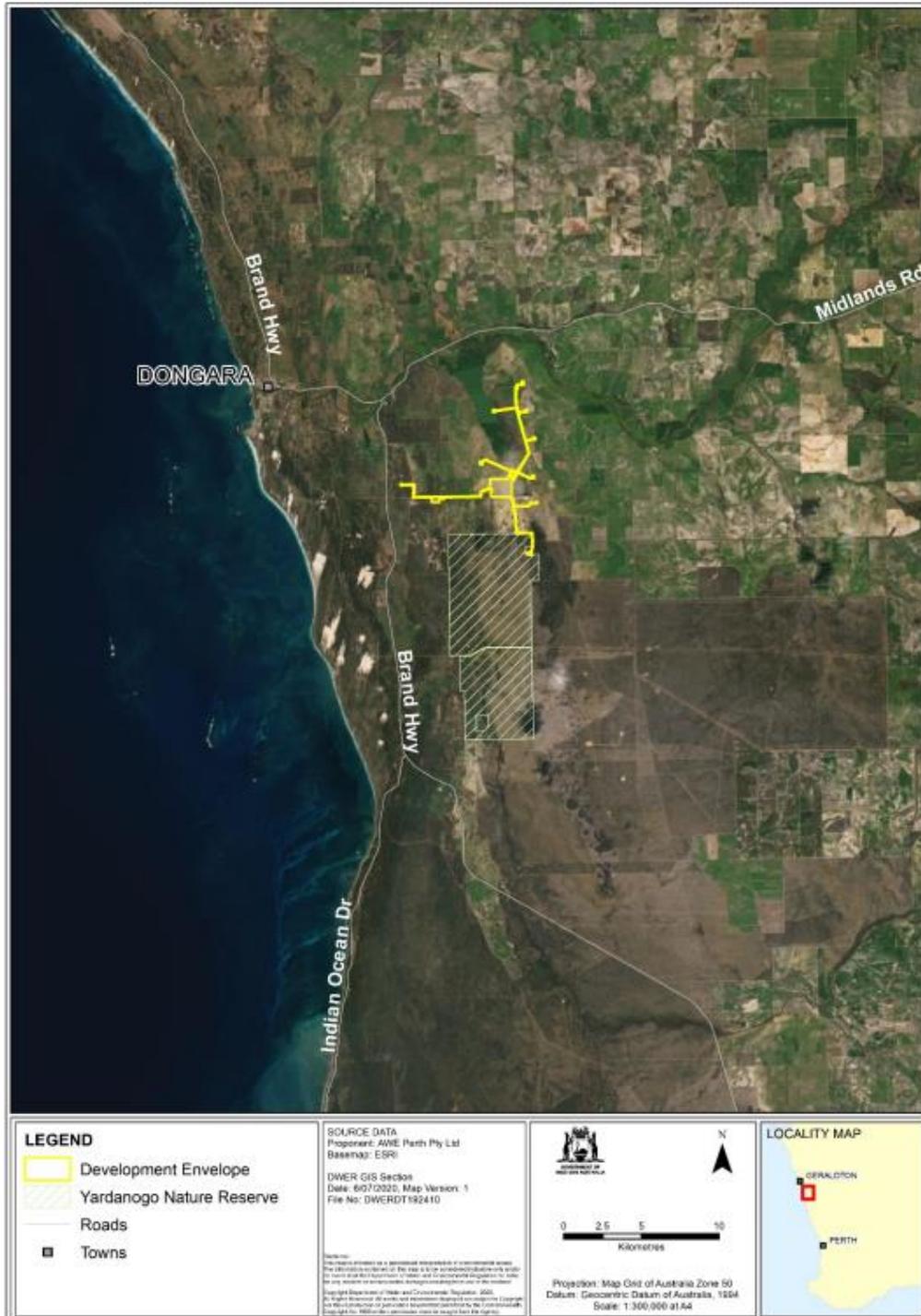
## INTRODUCTION

This report relates to appeals lodged by 21 appellants in objection to the content of, and recommendations in, the Environmental Protection Authority (EPA) Report 1687 for the proposed Waitsia Gas Project Stage 2 by AWE Perth Pty Ltd (the proponent). The appellants are listed in Appendix 1.

The proposal is to construct, operate and decommission a 250 terajoules per day gas plant and related infrastructure, located about 16 kilometres east-south-east of the Dongara-Port Denison town sites.

Figure 1 – Proposal location

(Source: EPA 2020)



The proposal includes:

- construction and operation of a new gas plant, with a maximum export capacity of 250 terajoules (TJ) per day.
- drilling of up to six new production wells, supplementing the existing two suspended appraisal wells.
- installation of a gas gathering system comprising of flowlines and hubs to transfer the extracted gas to the gas plant and gas distribution network.
- installation of a flowline from the gas plant to disused petroleum production wells for disposal of produced formation water.

The proposal is for a conventional gas reserve and does not involve hydraulic fracturing.

During its assessment of the proposal the EPA identified the following key environmental factors:

- Flora and Vegetation – potential impacts from clearing of native vegetation on flora and vegetation, and potential indirect impacts on flora and vegetation from dust deposition, weeds, dieback, fragmentation, and changes to fire regimes.
- Air Quality – potential impacts on air quality from the emission of particulates (including dust) from construction and operation of the gas plant.
- Greenhouse Gas Emissions – direct emission of greenhouse gases throughout the life of the proposal.
- Inland Waters – potential contamination of groundwater or surface water from construction and operation of production wells, reinjection of produced formation water and drawdown impacts from groundwater abstraction.
- Social Surroundings – potential impacts on visual amenity, Aboriginal heritage, and noise.

The EPA has concluded that the proposal may be implemented subject to conditions.

This document is the Appeals Convenor's formal report to the Minister for Environment under section 109(3) of the *Environmental Protection Act 1986* (EP Act).

## **BACKGROUND AND CONTEXT**

The proponent currently operates the Waitsia Gas Project Stage 1 (Stage 1), which was commissioned in 2016 and has been producing from existing wells. Stage 1 was initially developed for an extended production test of the Waitsia gas reservoir and included two production wells, Waitsia-01 and Senecio-03 connected to the Xyris Production Facility. Gas processed through Stage 1 is delivered through the Parmelia Gas Pipeline for domestic consumption.

The initial production capacity of Stage 1 was about 10 TJ per day; however, this will increase to 20 TJ per day following completion of the proposed Waitsia 1 expansion. Stage 1 was not assessed by the EPA as the impacts were not so significant that they warranted referral to the EPA. Stage 1 has been regulated by the Department of Mines, Industry Regulation and Safety (DMIRS) under the *Petroleum and Geothermal Energy Resources Act 1967* (PGER Act) and the *Petroleum Pipelines Act 1969*, and by the Department of Water and Environmental Regulation (DWER) under Part V of the EP Act.

The proponent referred the proposal for Stage 2 to the EPA on 23 August 2019. On 31 October 2019, the EPA decided to assess the proposal and set the level of assessment at Referral Information with additional information required, with two weeks public review. The additional

information was released for public review from 23 April 2020 to 7 May 2020. Forty-three public comments and three agency comments were received.

### Statutory and policy context

The object of the *Environmental Protection Act 1986* (EP Act) is to protect the environment of the State having regard to five principles.<sup>1</sup>

The EPA's statutory objective is to use its best endeavours to protect the environment and to prevent, control and abate pollution and environmental harm.<sup>2</sup>

The functions of the EPA include to conduct environmental impact assessments in Part IV<sup>3</sup> and to advise the Minister on environmental matters generally, including the environmental protection aspects of a proposal.<sup>4</sup> The EPA has all such powers as are necessary to enable it to perform its functions,<sup>5</sup> and may advise the Minister on environmental matters related to any proposals that may be referred to it.<sup>6</sup>

In relation to environmental impact assessment in particular, the EPA's functions include requiring a proponent or decision making authority to refer a significant proposal or proposal of a prescribed class to it;<sup>7</sup> to determine whether or not to assess a referred proposal;<sup>8</sup> and to prepare a report to the Minister on the outcome of an assessment of a referred proposal.<sup>9</sup>

The EPA's assessment report must set out what the EPA considers to be the key environmental factors identified in the course of its assessment, and the EPA's recommendations as to whether or not the proposal should be implemented, and if it recommends approval, what (if any) conditions or procedures should be applied to that approval.<sup>10</sup> In addition to that mandatory content, and consistent with the EPA's powers to advise the Minister on environmental matters related to a referred proposal<sup>11</sup>, the EPA may also include in the report other 'information, advice and recommendations'.<sup>12</sup>

In addition to the statutory context, the EPA also publishes policies to assist proponents and members of public understand the environmental impact assessment process. This includes a Statement of Environmental Principles, Factors and Objectives which (among other things) identifies 14 environmental factors identified by the EPA as relevant to the EIA process:

Environmental factors are those parts of the environment that may be impacted by an aspect of a proposal or scheme. They provide a systematic approach to organising environmental information for the purpose of environmental impact assessment and a structure for the assessment report.<sup>13</sup>

---

<sup>1</sup> *Environmental Protection Act 1986*, section 4A.

<sup>2</sup> *Environmental Protection Act 1986*, section 15.

<sup>3</sup> *Ibid*, section 16(a).

<sup>4</sup> *Ibid*, section 16(e).

<sup>5</sup> *Ibid*, section 17(1).

<sup>6</sup> *Ibid*, section 17(3)(b).

<sup>7</sup> *Ibid*, section 38(5c).

<sup>8</sup> *Ibid*, section 39A(1).

<sup>9</sup> *Ibid*, section 44(1).

<sup>10</sup> *Ibid*, section 44(2). In *Conservation Council of Western Australia Inc v The Hon Stephen Dawson MLC* [2019] WASC 102, the Court of Appeal held section 44(2) confines the EPA to a consideration of environmental factors and to the impact of the proposal on the environment: per Buss P and Beech JA at [97].

<sup>11</sup> *Ibid*, section 17(3)(b).

<sup>12</sup> *Ibid*, section 44(2a). In *Conservation Council of Western Australia (Inc) v The Hon Stephen Dawson MLC* [2018] WASC 34, Martin CJ noted the EPA may include in the report to the Minister other information, advice and recommendations, but that 'the EPA is not empowered to include in its report reference to considerations which do not have an environmental character - such as broader economic, cultural, social or political considerations pertaining to the proposal.' Martin CJ, para [27].

<sup>13</sup> EPA, Statement of Environmental Principles, Factors and Objectives, April 2020, page 5

Relevant to this appeal, one of the 14 environmental factors identified by the EPA is 'greenhouse gas emissions'. In April 2020, the EPA published its Environmental Factor Guideline: Greenhouse Gas Emissions (GHG Guideline). The EPA's environmental objective for the greenhouse gas emissions factor is:

To reduce net greenhouse gas emissions in order to minimise the risk of environmental harm associated with climate change.

In addition to the policies of the EPA, the State Government has published policies relevant to greenhouse gas emissions, including the State Greenhouse Gas Emissions Policy for Major Projects in August 2019, and the Western Australian Climate Policy in November 2020. Both these policies incorporate an 'aspiration of net zero emissions by 2050'.<sup>14</sup>

## OVERVIEW OF APPEAL PROCESS

In accordance with section 106 of the EP Act, a report was obtained from Environmental Protection Authority (EPA) in relation to the issues raised in the appeals. The proponent was also given the opportunity to address the matters raised in the appeals.

During the appeals investigation, the Appeals Convenor consulted the appellants and the proponent in relation to issues raised in the appeals.

Several appellants requested a copy of the EPA's report on the appeals, and some provided additional information in response which was considered during the appeal investigation. The proponent also requested a copy of the EPA's report and provided a response which was considered during the investigation.

The environmental appeals process is a merits-based process. For appeals in relation to an EPA report and recommendations, the Appeals Convenor normally considers the environmental merits of the assessment by the EPA, based on objectives as set by the EPA as well as other environmental factors. The appeals process considers environmental significance, relevance of factors, additional information not considered by the EPA, technical errors, and attainment of policy objectives. Where the development has been the subject of previous EPA assessments, those assessments and any subsequent Ministerial appeal decisions also need to be considered.

## GROUNDINGS OF APPEAL

The appellants raised concerns with the EPA's report and recommendation because in their view, the EPA's assessment of the proposal was flawed, and the EPA's finding that the proposal was environmentally acceptable, was incorrect.

The appellants concerns related largely to the EPA's assessment of the proposal's greenhouse gas emissions. They submitted that significant new sources of greenhouse gas emissions are unacceptable, and the EPA should have found that the proposal was environmentally unacceptable and recommended refusal, or imposed conditions so that that it would be carbon neutral from commencement.

Appellants also raised other concerns regarding the EPA's assessment of:

- Air quality
- Social surrounds
- Inland waters

---

<sup>14</sup> Government of Western Australia, Greenhouse Gas Emissions Policy for Major Projects, August 2019, page 1.

Appellant's sought for the proposal to be remitted to the EPA for further assessment or re-assessment. Appellants also requested that the EPA's recommended conditions be varied.

## **GROUND 1: GREENHOUSE GAS EMISSIONS**

By this ground of appeal, appellants questioned the basis of the EPA's recommendation that the proposal may be implemented given the risks posed by greenhouse gas emissions.

The appellant's concerns are essentially that any new emissions of greenhouse gas emissions will add to the risk of catastrophic climate change, and that the EPA's recommendations were inconsistent with science, its own policy and its statutory role.

The appellants recommended that the proposal either be remitted to the EPA for further assessment of this factor, or that conditions be applied to require all emissions to be offset from commencement (i.e. the proposal should have net zero emissions from commencement).

### **Emissions from the proposal**

The proposal is for six new gas production wells and a new gas plant with a maximum export capacity of 250 TJ per day, as well as other supporting infrastructure. The greenhouse gas emissions from the proposal are from two sources:

- a) the processing of gas and operation of the gas plant, and
- b) the removal of 'excess' CO<sub>2</sub> from the gas stream which is vented into the atmosphere.

These 'reservoir' emissions are necessary as the maximum permitted CO<sub>2</sub> concentration in the Dampier to Bunbury Gas Pipeline (the destination of the gas) is 4.0 mol percent, and the proposal's extracted CO<sub>2</sub> content is estimated to range from 4.5 mol% and 7.5mol% (with an expected average of 6.0mol%).<sup>15</sup>

At full 250 TJ per day production, total annual Scope 1 greenhouse gas emissions<sup>16</sup> from the proposal are estimated to be approximately 300,000 tonnes of carbon dioxide equivalence (t CO<sub>2</sub>-e) per year. This is inclusive of emissions related to gas processing/operation of the Waitsia gas plant, and reservoir CO<sub>2</sub> removal.

Of the annual 300,000 t CO<sub>2</sub>-e Scope 1 emissions, approximately 120,000 t CO<sub>2</sub>-e per year or 30 per cent is from the gas plant and 180,000 t CO<sub>2</sub>-e per year or 60% is from reservoir emissions.<sup>17</sup>

### **Referral and assessment process**

The proposal was referred to the EPA in on 22 August 2019.<sup>18</sup>

The EPA determined that the proposal required formal impact assessment, and identified preliminary key environmental factors as Flora and Vegetation, Inland Waters, Air Quality, Social Surroundings.<sup>19</sup> The decision relevantly stated that impacts associated with the factor 'Air Quality' included 'greenhouse gas emissions'.<sup>20</sup>

On 23 April 2020, the EPA published the proponent's environmental review documentation, which included the Waitsia Gas Project Stage 2 - Greenhouse Gas Management Plan (Rev

---

<sup>15</sup> AWE, Waitsia Gas Project Stage 2 - Greenhouse Gas Management Plan Rev 5, 27 August 2020, page 15.

<sup>16</sup> emissions released to the atmosphere as a direct result of an activity, or a series of activities at a facility level

<sup>17</sup> EPA, Report and recommendations, Waitsia Gas Project Stage 2, Report 1687, September 2020.

<sup>18</sup> AWE, Referral form for Waitsia Gas Project Stage 2, 22 August 2019.

<sup>19</sup> EPA, Public record pursuant to s39(1) of the EP Act, Waitsia Gas Project Stage 2, 31 October 2019.

<sup>20</sup> Ibid.

1).<sup>21</sup> The Plan states it was prepared with due consideration to (among other things) the EPA's GHG Guideline, published in April 2020.<sup>22</sup>

The proponent noted in regard to the GHG Guideline:

The express language of the Policy makes clear that the Proposal's scope 1 emissions are to be reduced 'over the life of the proposal'. The GHGMP aligns with the Policy.

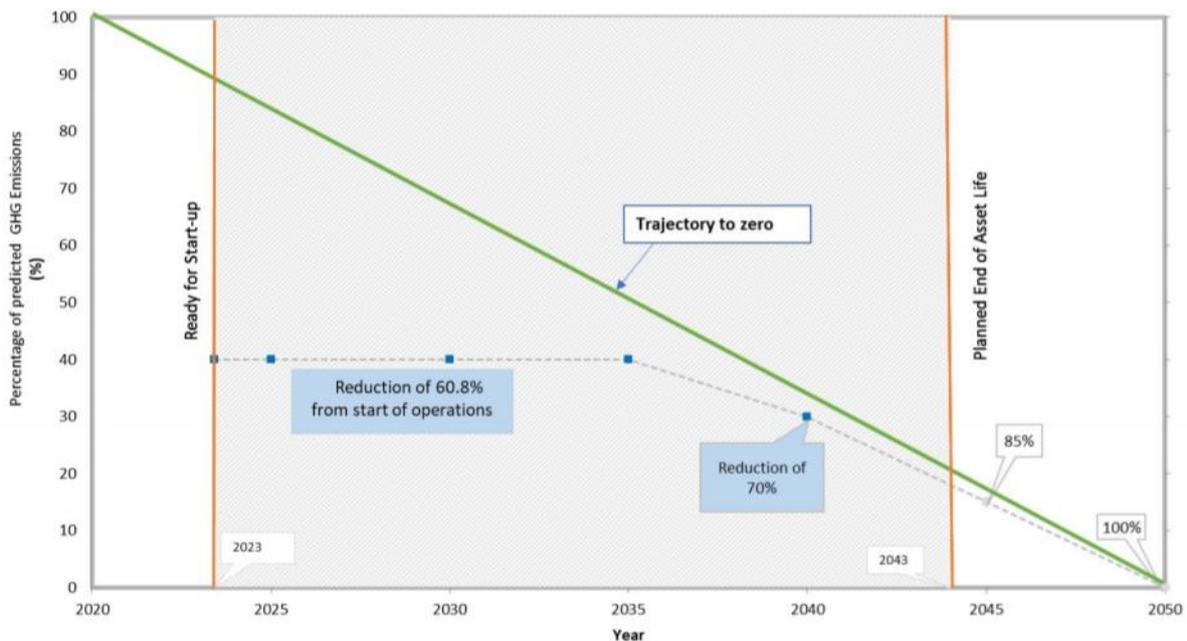
[AWE] notes that there are public concerns about the policy and that it should achieve net zero emissions from the commencement of a proposal. [AWE] interprets that net zero emissions should be achieved by 2050.<sup>23</sup>

In this regard the proponents Greenhouse Gas Management Plan (GHGMP) considered as part of the assessment process, the Greenhouse Gas Management Plan (GHGMP) was updated with the version the subject of the EPA's assessment (Rev 5) relevantly providing:

[AWE] is committed to working with the Western Australian Government to achieve the State's aspiration of net zero greenhouse gas emissions by 2050. To enable this, [AWE] have [sic] committed to Emission Reduction Targets that avoid, reduce or offset the Scope 1 Reservoir CO<sub>2</sub>e emissions (calculated as 60.8% of Proposal Emissions Refer Section 2.1.4) commencing from start of operations. In addition to this, to demonstrate commitment to zero emissions, and to ensure a continued trajectory of emissions down to net zero, [AWE] have [sic] committed to an Emission Reduction Target of a further 10% (calculated to be aggregated to 70%) of Proposal Emissions by the financial year ending 30 June 2040.<sup>24</sup>

These emission reductions are shown in Figure 2.

**Figure 2 – Emission reduction targets**



Neither the proponent's GHGMP nor EPA's report estimates the proposal's total lifetime scope 1 emissions. Following clarification from the proponent, it is understood that an exact figure is not possible to calculate as future emissions reductions measures and efficiencies need to be factored into the calculation (due to the recommended 'certified improvement')

<sup>21</sup> AWE, Waitsia Gas Project Stage 2 - Greenhouse Gas Management Plan Rev 1, 20 April 2020.

<sup>22</sup> AWE, Waitsia Gas Project Stage 2 - Greenhouse Gas Management Plan Rev 1, 20 April 2020, page 7.

<sup>23</sup> AWE, Waitsia Gas Project Stage 2 - Greenhouse Gas Management Plan Rev 1, 20 April 2020, page 15.

<sup>24</sup> AWE, Waitsia Gas Project Stage 2 - Greenhouse Gas Management Plan Rev 5, 27 August 2020, page 32.

condition).<sup>25</sup> However, it's estimated that the proposal will result in approximately 2 million t CO<sub>2</sub>-e Scope 1 emissions over its lifetime after mitigation (discussed later in this Ground).

No Scope 2 emissions (emissions from the consumption of an energy product) will be generated by the proposal. The proposal will generate power on site from small scale solar systems and gas fired reciprocating engines and alternators, and as such, no produced power will be imported or exported.

The proponent has estimated total Scope 3 emissions (greenhouse gas emissions generated in the wider community as a consequence of the proposal) to be 4.6 million t CO<sub>2</sub>-e per annum, or 37.7 million t CO<sub>2</sub>-e over the life of the proposal.<sup>26</sup>

### **EPA's assessment report**

The EPA's objective for the greenhouse gas emissions factor is 'to reduce net greenhouse gas emissions in order to minimise the risk of environmental harm associated with climate change'.<sup>27</sup>

In its assessment of the proposal against this factor, the EPA stated it paid particular attention to the following:

- Environmental Factor Guideline – Greenhouse Gas Emissions
- incorporation of best practice technologies by the proponent into the design of the proposal to avoid and/or reduce impacts associated with this factor
- adoption of an adaptive management approach by the proponent to ensure improvement opportunities are identified and implemented where appropriate
- potential cumulative impacts to greenhouse gas emissions from the proposal and the existing Waitsia Gas Project Stage 1
- the proponent's commitment to delivering against (at worst) a trajectory of net zero greenhouse gas emissions by 2050
- application of the Environmental Factor Guideline: Greenhouse Gas Emissions (EPA 2020b) by the proponent in the development of its Greenhouse Gas Management Plan.<sup>28</sup>

On the basis of this information, and the relevant EP Act principles and the objective for greenhouse gas emissions, the EPA considered that the impacts associated with greenhouse gas emissions from the proposal are manageable, provided the maximum capacity of the plant is limited to up to 250 TJ per day and the proponent is required to implement the GHGMP (Rev 5).<sup>29</sup>

It was in relation to this conclusion that the appeals on this factor were received.

### **The appellants' concerns about the assessment**

Appellants raised a number of concerns about the EPA's recommendations and the assessment report generally. These are:

- failure to consider emissions in context of carbon budget/warming scenarios
- failure to consider environmental harm; impacts to agriculture
- failure to consider cumulative impacts
- Scope 3 emissions

---

<sup>25</sup> Pers comm, AWE, January 2021.

<sup>26</sup> Based on publicly available factors for domestic gas consumption (NGERD 2008)

<sup>27</sup> EPA, Environmental Factor Guideline: Greenhouse Gas Emissions, April 2020, page 1.

<sup>28</sup> EPA, Report and recommendations, Waitsia Gas Project Stage 2, Report 1687, September 2020, page 22.

<sup>29</sup> Ibid.

- fugitive emissions
- inadequate application of GHG Guideline
- inadequate consideration of principles
- influence of Government policy
- alternative energy and power sources not adequately considered
- conditions inadequate

Appellants broadly contended that the nature of the threat posed by climate change and additional greenhouse gas emissions is such that the EPA ought to have found the proposal to be environmentally unacceptable and should not be recommended for approval. If all new emissions could not be avoided the EPA ought to have required all emissions to be offset, such that the proposal was 'net zero' from commencement.

### **Failure to consider emissions in context of carbon budget/warming scenarios**

By this element of the appeal, several appellants submitted that the EPA failed to properly consider the impacts of the proposed emissions because it had not contemplated the proposal within the broader context of WA's emissions. Appellants contend that if WA has a limited carbon budget to avoid contributing to catastrophic climate change, the EPA and the proponent should have identified how the proposal fits within that budget.

In this regard, Alex Gardner submitted:

A fundamental problem with the GHGMP and the EPA report is that they fail to conduct a carbon/emissions budget analysis to assess the cumulative impact of the Proposal's GHGe in increasing the level of State emissions. This failure is starkly apparent by the inclusion of benchmarking exercises to compare reservoir CO<sub>2</sub> levels with other natural gas projects in Australia but not providing any related analysis as to the baseline of the Proponents' existing emissions.

If we are to meet our international commitments, and protect the State from severe and irreversible climate change harm, the proponent and the EPA need to consider how the Proposal to substantially increase GHGe from the Proponents' total operations will contribute to achieving the 2030 target and emissions budget. If the Proponent is increasing emissions, then who is decreasing them?<sup>30</sup>

Similarly, Jennifer Hole highlighted that approval of this proposal will outweigh the efforts made to reduce emissions in other parts of the economy:

The best course of action is to refuse permission for this project to expand, given that WA's efforts to reduce emissions in both the transport and energy sectors will be compromised.<sup>31</sup>

Dr Chris Johansen stated that:

... allowing new gas extraction enterprises can only jeopardize any hopes of staying within a carbon budget compatible with a 2 deg C, let alone 1.5 deg C<sup>32</sup>.

CCWA submitted that a carbon budget should be applied to show which other parts of the economy will make up for the proposal's additional emissions by delivering even greater abatement:

Specific impacts associated with climate change cannot be identified without reference to a particular warming scenario. It is clear from IPCC 1.5 that the impacts of average warming of 1.5°C are substantially different to those associated with 2°C, for example. Therefore any assessment of greenhouse gas emissions which fails to identify the relevant warming scenario

---

<sup>30</sup> Alex Gardner, Initial Submissions in support of appeal against Report 1687, 21 September 2020, page 7.

<sup>31</sup> Jennifer Hole, Appeal 045/20.001 page 2.

<sup>32</sup> Chris Johansen, Appeal 045/20.002 page 2.

that a WA carbon budget which encompasses the Proposal would produce cannot provide a proper assessment of the potential impacts.<sup>33</sup>

Ian Dunlop suggested that the application of budgets with 50 to 66 per cent probability provide insufficient confidence to prevent catastrophic climate change:

This Intergovernmental Panel on Climate Change (IPCC) analysis assumes only a 50-66% chance of meeting the targets. Not good odds for the future of humanity. To have a sensible 90% chance, there is no carbon budget left today to stay below 2°C, let alone 1.5°C. Thus all fossil fuel consumption should stop immediately. Obviously that is not going to happen, but new investment must stop now, and the existing industry wound down as fast as possible.<sup>34</sup>

### EPA advice

In response to this element of the appeal, the EPA advised that:

... in the absence of a National or State emissions budget, its approach will be to obtain adequate information to assess the GHG factor, and consider its GHG Guideline, regardless [*sic*]. The lack of an emissions budget analysis did not impact the adequacy of the EPA's information in this case.<sup>35</sup>

It added more generally that as knowledge evolves, so too will the requirements associated with the GHGMP:

The GHGMP condition framework requires reporting on mitigation measures, and is flexible enough to be able to ensure the GHGMP include additional information and mitigation measures if that is needed in the future to ensure the EPA's objective for GHG is met.<sup>36</sup>

### Proponent advice

In its response on this issue, the proponent advised that whether or not the state should have a carbon budget involves 'larger economic and policy questions ... which are not appropriate for a proponent to be required to address or to include as part of a proposal.'<sup>37</sup>

On the warming scenario raised by CCWA, the proponent stated that 'the EPA conducted its assessment in accordance with the GHG Guideline [and] appropriately considered the Greenhouse Gas Emissions environmental factor.'<sup>38</sup>

### Appellants' reply

Alex Gardner provided the following reply to the EPA's advice:

The proponent needs to supply more baseline information in the assessment documentation and assess the harm from the cumulative emissions. It would be consistent with the EPA's role to try harder to evaluate the harm and the potential means of abating that harm consistently with the s.4A principles, especially the precautionary principle and polluter pays principle.

In 2020, when Australia and the world are supposed to be reducing our GHGe in accordance with the Paris Agreement, it should be seen as environmentally unacceptable for GHGe polluters to be increasing their emissions and the harm they cause. Adopting the carbon budget analysis, as in *Gloucester Resources*, will assist this GHGe assessment<sup>39</sup>.

---

<sup>33</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, para 65.

<sup>34</sup> Ian Dunlop, Appeal 045/20.006, 21 September 2020, page 4.

<sup>35</sup> EPA, Response to appeal 045/20, 8 December 2020, page 7.

<sup>36</sup> *Ibid*, page 12.

<sup>37</sup> AWE, Response to CCWA appeal, 30 October 2020, para 13; Response to Alex Gardner appeal, 30 October 2020, para 31.

<sup>38</sup> AWE, Response to CCWA appeal, 30 October 2020, para 53.

<sup>39</sup> Alex Gardner, Response to EPA's s106 Report, 21 December 2020, page 8.

CCWA reiterated its appeal submission that relevant warming scenarios is essential to a proper assessment of the impacts of the proposal and its environmental acceptability. It further submitted:

The [EPA] refers to the 'absence of a National or State emissions budget'. [CCWA] notes that a government-set emissions budget would be of limited utility to the EPA's scientific assessment process and that the Carbon Analytics' carbon budget should be regarded as the benchmark to use in the EPA's assessments.<sup>40</sup>

### Consideration

The use of a carbon budget is reflected in international approaches to combatting climate change. The UNFCCC Paris Agreement is an international treaty on climate change, with the goal of providing a global framework to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C.<sup>41</sup> The Paris Agreement acknowledges that emissions will need to reach net zero in the second half of this century.<sup>42</sup>

Australia is a signatory to the Paris Agreement, which entered into force in 2016. Consistent with the Agreement, Australia is committed to reducing greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030 (this commitment was reconfirmed by the Commonwealth on 31 December 2020).<sup>43</sup> The Western Australian government has committed to work with the Commonwealth to achieve this goal.<sup>44</sup>

The Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5°C (IPCC 1.5)<sup>45</sup> found that the then current (2018) pledges under the Paris Agreement (referred to as nationally determined contributions (NDCs)) were unlikely to limit global warming to 1.5°C, even if supplemented by very challenging increases in the scale and ambition of emissions reductions after 2030.<sup>46</sup>

The IPCC 1.5 Report states:

Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems (high confidence). ...

Under emissions in line with current pledges under the Paris Agreement (known as Nationally Determined Contributions, or NDCs), global warming is expected to surpass 1.5°C above pre-industrial levels, even if these pledges are supplemented with very challenging increases in the scale and ambition of mitigation after 2030 (high confidence). This increased action would need to achieve net zero CO<sub>2</sub> emissions in less than 15 years.<sup>47</sup>

A key element of IPCC 1.5 Report is the use of a carbon budget approach:

Limiting global warming requires limiting the total cumulative global anthropogenic emissions of CO<sub>2</sub> since the preindustrial period, that is, staying within a total carbon budget (high confidence)<sup>48</sup>

In that regard, the IPCC estimates that for at least a 66 per cent chance of staying below 1.5°C, total global greenhouse gas emissions must be less than 420 gigatonnes of CO<sub>2</sub>

---

<sup>40</sup> CCWA, Submissions in Response to Section 106 Report, 17 December 2020, para 39.

<sup>41</sup> United Nations, Framework Convention on Climate Change, Adoption of the Paris Agreement, 21st Conference of the Parties, 12 December 2015, Article 2.

<sup>42</sup> Ibid, Article 4.

<sup>43</sup> Australian Government, Australia's Nationally Determined Contribution, 2020, available [here](#).

<sup>44</sup> Western Australian Government, Greenhouse Gas Emissions Policy for Major Projects, August 2019, page 1.

<sup>45</sup> Available [here](#).

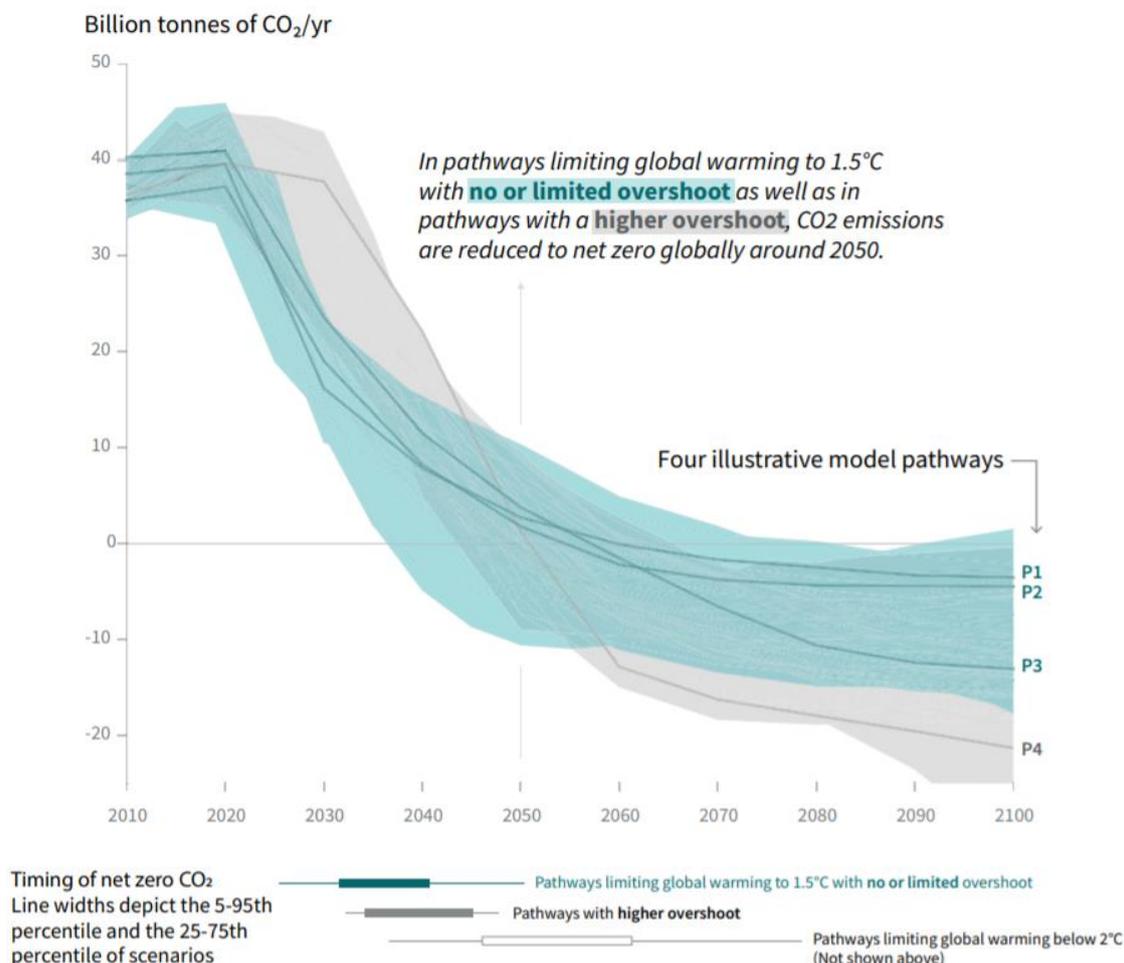
<sup>46</sup> IPCC, Summary for Policymakers in Special Report on Global Warming of 1.5°C, 2018, para D.1.

<sup>47</sup> Ibid, para C.2.

<sup>48</sup> Ibid, para C.1.3.

(GtCO<sub>2</sub>) calculated from the end of 2017.<sup>49</sup> Figure 3 shows pathways for limiting warming to 1.5°C with no overshoot, and pathways with higher overshoot.

**Figure 3 – Global emissions pathways (carbon dioxide)** (Source: IPCC 1.5 Report, 2018)



To limit global warming to 1.5C with no or limited overshoot, the IPCC states, requires:

... rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems (high confidence). These systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and a significant upscaling of investments in those options.<sup>50</sup>

This proposal was assessed to result in additional scope 1 emissions of up to 300,000 t CO<sub>2</sub>-e per annum. Of this, reservoir emissions which comprise about 61 per cent of the total volume would be offset from commencement. Of the balance, there is a requirement from 2035 to 2043 to reduce those emissions by ten per cent. Net emissions are therefore predicted to be in the order of 120,000 t CO<sub>2</sub>-e per annum, reducing from 2035, resulting in total net lifetime scope 1 emissions of about 2 million t CO<sub>2</sub>-e.

In response to the appeals, the EPA maintained its view that it did not need more detail to assess the greenhouse gas factor. It advised that the proponent adequately demonstrated

<sup>49</sup> IPCC, Summary for Policymakers in Special Report on Global Warming of 1.5°C, 2018, para C.1.3.

<sup>50</sup> Ibid, para C.2.

that (at the time of assessment), it would take reasonable and practicable measures to avoid and reduce emissions consistent with the GHG Guideline.<sup>51</sup>

From the above, it is apparent that to limit global warming to well below 2°C and pursuing 1.5°C, steep reductions in emissions are required this decade. If approved, this proposal will result in residual emissions that will need to be met with reductions or offsets elsewhere. In that regard, the EPA advised:

**The State Government will now determine if the residual emissions from the proposal are acceptable and/or aligned with current policy settings, taking into account the many sources of GHG emissions and reduction opportunities in the State** (many of which are outside the EPA's scope e.g. existing emissions sources).<sup>52</sup> (emphasis added)

It follows from this advice that while the GHG Guideline contemplates assessment of proposals that would result in an increase in greenhouse gas emissions, the final decision on whether that increase is acceptable is ultimately a matter for the decision makers in section 45. The scope of that decision making role is wider than the scope of the EPA's role on assessment, and may (as the EPA has observed) include identification of other opportunities for emission reductions elsewhere in the State to counterbalance approving new emissions.

The question for the Minister on appeal is whether he is of the view that the EPA's assessment was based on inadequate information, and in particular, whether it ought to have had regard to how the new emissions from the proposal fit within a carbon budget or warming scenario reflected in (for example) the IPCC 1.5 Report.

If the Minister agrees with the EPA that these are matters that are appropriately a matter for decision makers under section 45, Other Advice (below) provides some additional information that may be of assistance as part of that process.

### **Failure to consider environmental harm; impacts to agriculture**

By this element of the appeal, a number of appellants submitted that the EPA did not appropriately consider the impacts that greenhouse gas emissions from the proposal pose to the environment of Western Australia (WA), and in particular, agriculture. Several appellants raised concerns that climate change was already significantly impacting WA's agricultural productivity, and that the EPA had failed to consider the effect of additional emissions, particularly in the south-west of the State.

By its appeal, AgZero submitted that:

... climate change impacts on Western Australia's environment in recent decades have already hampered agricultural productivity. Looking ahead, climate change represents a serious threat to the Western Australian environment and hence the agricultural sector's continued viability, which risks impacting our long-term food production, sustainability of regional communities, and ability to protect and regenerate our natural environment.<sup>53</sup>

Wayne Pech, whose family company owns and manages farm properties north of the Stirling Ranges submitted:

Our average rainfall over the last 40 years is 50 mm less than the preceding 80 years. Our ability to grow pasture for sheep has decreased due to this declining rainfall ...

Our business is undertaking a number of measures to impact the effects of Climate Change: revegetation, new pasture species, improved technologies, increased water harvesting, carbon

---

<sup>51</sup> EPA, Response to appeal 045/20, 8 December 2020, page 3.

<sup>52</sup> Ibid, page 7.

<sup>53</sup> AgZero2030, Appeal 045/20.016, 21 September 2020, pages 1-2.

accounting. But as producers we need acknowledgement and help from other sectors of our society: government, industry and consumers.

We are facing human generated and controlled powers that are seriously impacting on food and fibre producers in Western Australia – there is little doubt that there are many others in Western Australia operating in similar circumstances. It simply cannot continue. The implications will be far greater than those which we are already experiencing, as well as affecting a much wider part of our society.<sup>54</sup>

Christie Kingston, who farms near Goomalling north east of Perth, submitted:

In my region, future climate projections include: higher temperatures, hotter and more frequent hot days, less winter and spring rainfall, higher intensity rainfall events, longer droughts, increased solar radiation, reduced relative humidity in winter and spring, increased evaporation, reduced soil moisture and runoff and harsher fire-weather. This will adversely affect farming and the native plants and animals many of us are trying so hard to bring back. It makes planning ahead, including succession planning, challenging.<sup>55</sup>

Alex Gardner, by his appeal, raised the above issues but also the concept of the common law duty of care in relation to farming in particular:

... neither the Proponents nor the EPA have given sufficient consideration to the ... common law duty of care that the proponents and the State Government owe to the identified class of farmers to take positive actions to give effect to all reasonable measures to abate the risk of harm generated from increasing the level of the State's greenhouse gas emissions in 2020. The standard of care required now demands that new or amended projects do not cause a substantial increase in GHGe because we know that increasing the level of GHGe will immediately cause an increase in global warming and an increased risk of climate change harm to farmers in Western Australia.<sup>56</sup>

### EPA advice

In response to this element of the appeal, the EPA stated that while there is an established link between greenhouse gas emissions and the risk of climate change:

It is not scientifically possible to draw a direct link between the Waitsia proposal's (or any single proposal's) emissions and a specific environmental harm or impact. However, there is acknowledgment in the GHG Guideline of the cumulative impacts that arise from development proposals, and that a warming climate will impact the WA environment.

The lack of a direct link between a single proposal's emissions and the impacts associated with climate change did not prevent the EPA from assessing and applying the mitigation hierarchy to the emissions from the proposal and recommending conditions that minimise the impacts of these emissions on a broad range of environmental factors, including Flora and Vegetation, Inland Waters, Air Quality and Social Surroundings.<sup>57</sup>

Regarding duty of care, the EPA advised that it does not consider it has such a duty itself, or that it is responsible to assess the impact of any proponent duty of care on landholders, as this would be inconsistent with the EPA's statutory functions:

A duty of care owed by the EPA to landholders outside the proposal area would involve consideration of matters such as private and proprietary interests. It would be inconsistent with the EPA's statutory functions under the EP Act to assess the environmental impacts of projects if it were to consider such issues. It would also distort the EPA's statutory assessment function if it had to comply with a duty of care to protect other private interests as well as perform its overriding duty to use its best endeavours to protect the environment.

---

<sup>54</sup> Wayne Pech. Statement to Appeals Convenor against Report 1687, 21 September 2020.

<sup>55</sup> Christie Kingston, Waitsia Gas Project Stage 2 Appeal, 21 September 2020, page 3.

<sup>56</sup> Alex Gardner, Initial Submissions in support of appeal against Report 1687, 21 September 2020, page 1.

<sup>57</sup> EPA, Response to appeal 045/20, 8 December 2020, page 4.

It would also be inconsistent with the legal principle that the EPA should not consider social and economic matters which are not directly affected by the proposal's physical disturbance of the surrounding environment.

The EPA also considers that it would not actually be practically possible for the EPA to assess the impact of a duty of care in carrying out its Part IV assessment. The principles of causation and remoteness, which are fundamental to whether a duty is owed or breached, cannot be assessed without information about some causal link. That information is not available to the EPA because it is not possible to draw a direct link between any specific proposal and a specific environmental impact.<sup>58</sup>

### Proponent's advice

In response to appellants concerns that the EPA failed to consider environmental harm associated with new emissions of greenhouse gases, the proponent stated:

The EPA at pages 17 to 22 of the EPA Report comprehensively considered greenhouse gas emissions and concluded that the impacts associated with the Proposal's greenhouse gas emissions are manageable provided there is a limit on the maximum capacity of the WGP and a condition requiring implementation of the GHG Management Plan. The EPA correctly recommended approval of the Proposal subject to conditions.<sup>59</sup>

In relation to the duty of care issue, the proponent advised:

There is no precedent in Australian law that a proponent or government has any duty of care to take all reasonable measures to avoid increasing greenhouse gas emissions. This is an uncertain area of law, raising complex legal issues, including whether there exists a duty of care, foreseeability and causation. This is not the appropriate forum to agitate or determine whether that duty exists.

Further, nothing in Gardner Appeal shows how such a duty, if it exists, is a relevant consideration for the EPA.

The Proponent says it is not a relevant consideration [as] Section 111 of the EP Act [states] that any rights a person has at law are separate to the provisions of the EP Act and do not raise any additional, legal considerations for the EPA, and therefore the Minister, to consider.

Under section 44(2)(a) of the EP Act, the EPA is to consider 'key environmental factors' identified in the assessment. The EPA appropriately considered the Greenhouse Gas Emissions environmental factor (amongst others). The EPA was not permitted to consider whether any party has a legal duty of care to farmers, or any other individuals, as that is not an environmental factor relevant to the Proposal.<sup>60</sup>

### Appellants' reply

In reply to the EPA's advice on harm generally and the EPA's contention that it cannot draw a link between a proposal and environmental harm, Alex Gardner submitted:

It is not necessary to draw a direct link between the Waitsia proposal's emissions and a specific environmental harm or impact. ... [It] is the cumulative assessment of emissions, including from single projects and of scope 3 emissions, that matters ... Any significant increase (i.e. anything more than a regular daily variation of ordinary individual's levels of emissions) is causing harm and that harm must be addressed.<sup>61</sup>

Christie Kingston submitted:

While it may be the case that the proposal's exact GHG pollution can't be linked to an exact bit of climate harm, I can't see the relevance of that to the EPA's role to not allow an increase

---

<sup>58</sup> EPA, Response to appeal 045/20, 8 December 2020, page 5.

<sup>59</sup> AWE, Response to appeal 045/20, 6 November 2020, para 177.

<sup>60</sup> AWE, Response to Alex Gardner appeal, 30 October 2020, paras 41-45.

<sup>61</sup> Alex Gardner, Response to EPA s.106 Report, 21 December 2020, page 7.

environmental harm? A smoker may not know which exact cigarette/s caused her lung cancer, but *does* know that smoking fewer cigarettes would have decreased her chance of getting lung cancer, and stopping smoking would have been the best means of reducing the harm.<sup>62</sup>

Responses from Philip Gardiner and AgZero were to similar effect.<sup>63</sup>

In relation to the duty of care element of the EPA's advice, Alex Gardner stated:

I cannot see how the application of the duty of care to the Minister's function would be inconsistent with the Act or be contrary to the EPA's functions to consider. [The EPA's] role is to assess the impact of proposals, including the socio-economic impacts (EP Act s.3(2)) the consideration of the duty of care should not be inconsistent with that function in so far as it is concerned with addressing impacts. The causal link is clearly identified in the fact that cumulative emissions, especially significant increases, will definitely cause an increase in global warming and the climate change science projects that global warming to increase climate change harm in WA. It is sufficient to establish the generic, not the specific harm, to show that the duty of care is breached.<sup>64</sup>

### Consideration

As noted above in respect to the application of a carbon budget, the impacts of climate change on the south-west of WA are likely to continue, with the impacts varying depending on the success of efforts to limit global warming. The Department of Primary Industries and Regional Development notes the following predictions for rainfall in the south-west:

- By 2030, mean rainfall will reduce by 6% in an intermediate-emission scenario compared to current conditions, and 5% in a high-emission scenario.
- By 2090, the mean rainfall will reduce by 12% (range 1–15%) in an intermediate-emission scenario compared to current conditions, and 18% (range 5–35%) in a high-emission scenario.
- Rainfall will decline by 29% in winter, and 36% in spring by 2090 in a high-emission scenario.<sup>65</sup>

While the EPA advised that there is acknowledgement in its GHG Guideline that cumulative impacts will arise from development proposals and there will be impacts to WA from a warming climate<sup>66</sup>, in response to this element of the appeal it advised that because it is not possible to draw a direct link between any specific proposal and a specific environmental impact, it would not actually be practically possible for the EPA to assess the impact of a duty of care in carrying out its Part IV assessment. The EPA also noted that such an approach would be inconsistent with the legal principle that it should not consider social and economic matters which are not directly affected by the proposal's physical disturbance of the surrounding environment.

While not invoked in the EPA's advice, its view appears to be reflected in the Environmental Factor Guideline: Social Surroundings, which provides:

... that for social surroundings to be considered in EIA [environmental impact assessment], there must be a clear link between a proposal or scheme's impact on the physical or biological surroundings and the subsequent impact on a person's aesthetic, cultural, economic or social surroundings.<sup>67</sup>

In relation to the 'economic' element of social surroundings, the EPA states:

---

<sup>62</sup> Christie Kingston, Reply EPA's response to appeals on EPA Report 1687, 20 December 2020, page 3.

<sup>63</sup> Philip Gardiner, EPA Response Waitsia Project, 20 December 2020, page 1; AgZero, Reply to the WA EPA's response to appeals on EPA Report 1687, 20 December 2020, page 1.

<sup>64</sup> Alex Gardner, Response to EPA s.106 Report, 21 December 2020, pages 7-8.

<sup>65</sup> DPIRD, Climate projections for Western Australia, 17 April 2020, available [here](#).

<sup>66</sup> EPA, Response to appeal 045/20, 8 December 2020, page 4

<sup>67</sup> EPA, Environmental Factor Guideline: Social Surroundings, December 2016, page 1.

While the EP Act defines social surroundings to include a person's economic surroundings, this does not mean that a proposal's economic benefits, such as job creation or revenue generation, can be considered as part of EIA under Part IV of the EP Act. Rather, the EPA may assess the impacts of a proposal on the economic surroundings of a proposal, that is, economic impacts related to the physical area involved in a proposal. For example, **this could include the economic impacts on farmers who own farmland adjacent to a proposed coal mine, which may be affected by impacts on water supply caused by the proposal.**

While EIA of impacts to economic surroundings is not common, the EPA will consider significant economic impacts resulting from any significant impact of a proposal or scheme on the physical or biological surroundings.<sup>68</sup> (emphasis added)

It is apparent from the EPA's response to the appeals and the Environmental Factor Guideline that it views the association between impacts and social surroundings to require some form of proximity (i.e. 'surrounding environment'). Combined with its view (discussed above) that it would not be possible to draw a direct link between any specific proposal and a specific environmental impact in WA, the EPA's position is taken to exclude consideration of economic impacts associated with greenhouse gas emissions from a single proposal.

Given this is a question that goes to the characterisation of the scope of the EPA's role in assessing a proposal, duty of care, and the broader definition of 'environment' and 'social surroundings' in the EP Act, the view of the EPA is accepted. In any event, the EPA's advice that it is for the decision makers under section 45 to consider the acceptability of the residual emissions from this proposal is taken to include potential economic benefits and disbenefits of approving an increase in greenhouse gas emissions.

### **Failure to consider cumulative impacts**

Some appellants raised concerns about the EPA's consideration of the cumulative impacts of global climate change more broadly, and the impact of Stage 2 (this proposal) in conjunction with Stage 1 and other proposed gas projects in the area.

In its appeal, CCWA submitted that by limiting its consideration to the cumulative impacts associated with emissions from Stage 1 and 2 of the Waitsia proposal:

... the consideration of cumulative impacts in the Report is not adequate and that the cumulative impacts of the Proposal's greenhouse gas emissions in the context of existing and reasonably foreseeable projects (beyond the Waitsia Gas Project Stage 1) is crucial for the EPA to effectively assess the Proposal's contribution to global emissions and the impacts of climate change.<sup>69</sup>

### EPA advice

The EPA advised that it did consider cumulative impacts of greenhouse gases in its report:

The potential for cumulative impact of greenhouse emissions to have an impact on the Western Australian environment is the fundamental basis of the GHG Guideline which the EPA has considered in its assessment. The GHG Guideline acknowledges greenhouse gases from a cumulative range of sources may have an impact on WA's environment, and then provides that the GHG Guideline will be applied to ensure that proposals emitting significant volumes of greenhouse gases (nominally greater than 100,000 tonnes CO<sub>2</sub>-e per year) have specific consideration be given to them. The EPA's consideration of the GHG Guideline in its assessment therefore means the impact of cumulative emissions on WA's environment has already been acknowledged and considered in general terms.<sup>70</sup>

The EPA acknowledged that the proposal would result in greenhouse gas emissions that would contribute to the global emissions of carbon dioxide and in that context, it:

<sup>68</sup> EPA, Environmental Factor Guideline: Social Surroundings, December 2016, page 3.

<sup>69</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, paras 59-60.

<sup>70</sup> EPA, Response to appeal 045/20, 8 December 2020, page 11.

... specifically assessed the cumulative impacts on greenhouse gas emissions from the proposal and the existing Waitsia Gas Project Stage 1 and considers that the cumulative impacts are not significantly different to the impacts from the proposal only.

... The EPA is only permitted to recommend conditions on proposals which are fairly and reasonably related to the proposal. The EPA would not have the legal power to recommend conditions on the proponent or third parties to deal with emissions from other projects, even if they did together cause cumulative impacts.<sup>71</sup>

### Proponent's advice

In response to this element of the appeal, the proponent advised:

The term 'cumulative impacts' does not appear in the EP Act. An approach requiring an assessing authority to take account of the 'cumulative effects of a proposal' has been rejected in *Tarkine National Coalition v Minister for the Environment*, where the court held (in the context of a legislative scheme where consideration of direct and indirect impacts of a proposal is mandated) that the relevant consideration was the consequences of the proposal under consideration, not the cumulative impacts or circumstances which were not consequences of the proposal at all, but which came about by other actions.

In any event, it is clear that the EPA at pages 17 to 22 comprehensively considered greenhouse gas emissions and expressly stated that it considered the cumulative impacts on greenhouse gas emissions from the Proposal. The EPA concluded that the impacts associated with the Proposal's greenhouse gas emissions are manageable provided there is a limit on the maximum capacity of the WGP and a condition requiring implementation of the GHG Management Plan.<sup>72</sup>

### Appellants' reply

CCWA reiterated its view that the EPA's approach of limiting cumulative impacts to the existing Waitsia Gas Project Stage 1 is not adequate and that the cumulative impacts should be considered in the context of existing and reasonably foreseeable proposals:

That is, the acknowledged circumstance of WA's increasing greenhouse gas emissions at a time when urgent reductions are required to avoid catastrophic warming scenarios should be considered in the assessment of the Proposal and its additional greenhouse gas emissions.

The ... EPA is required to assess the impacts of the Proposal, not merely generalised references to the phenomenon of anthropogenic climate change.

Further, the 106 Report submits that the EPA is limited to recommending conditions which are fairly and reasonably related to the Proposal itself. Regardless of whether or not the EPA can recommend conditions relating to cumulative impacts, [CCWA] reiterates its submission that a proper consideration of the cumulative impacts of the Proposal's greenhouse gas emissions in the context of existing and reasonably foreseeable proposals is crucial to an effective assessment of its impacts.<sup>73</sup>

### Consideration

This element of the appeal concerns cumulative greenhouse gas emissions, and how these were assessed by the EPA.

By their nature, greenhouse gas emissions add to a load of gases in the atmosphere that contribute to global warming. In the context of the current proposal, if approved in the form assessed by the EPA, it will emit about 2 million t CO<sub>2</sub>-e scope 1 emissions over its life.

In Report 1687, the EPA acknowledged the inherent links between the greenhouse gas emissions factor and other environmental factors due to the relationship between

---

<sup>71</sup> EPA, Response to appeal 045/20, 8 December 2020, page 11.

<sup>72</sup> AWE, Response to Alex Gardner appeal, 30 October 2020, paras 37-38.

<sup>73</sup> CCWA, Submissions in Response to Section 106 Report, 17 December 2020, paras 33-37.

anthropogenic greenhouse gas emissions and climate. It also acknowledged that the proposal would result in greenhouse gas emissions that would contribute to the global emissions of carbon dioxide.<sup>74</sup>

The GHG Guideline additionally provides that:

... the established link between GHG emissions and the risk of climate change, and the broad acknowledgement that the warming climate will impact the Western Australian environment, means that the EPA can consider the effects of proposals which would increase the State's emissions, and contribute to environmental harm.<sup>75</sup>

On the proposal specifically, the EPA stated that it:

... assessed the cumulative impacts on greenhouse gas emissions from the proposal and the existing Waitsia Gas Project Stage 1 and [considered] that the cumulative impacts are not significantly different to the impacts from the proposal only.<sup>76</sup>

Given the above, the EPA expressly considered cumulative impacts of this proposal with the existing Waitsia Stage 1 proposal, and determined they were acceptable. On cumulative emissions more broadly, the EPA has advised that it is for the State Government to determine if the residual emissions from the proposal are acceptable taking into account (among other things) the many sources of greenhouse gas emissions and reduction opportunities in the State. This is taken to reflect the view of the EPA that the broader cumulative context of emissions from this proposal is a matter for the decision makers under section 45 of the EP Act. Considerations that may be relevant to that process are examined in further detail in Other Advice, below.

### Scope 3 emissions

Many appellants submitted that the EPA's report does not adequately consider or address Scope 3 emissions from the proposal. They contend that the EPA has failed to apply its own policy in relation to the assessment of scope 3 emissions from the project. The EPA's consideration of Scope 3 emissions in its report is limited to the articulation of the estimated Scope 3 emissions, being 4.6 million t CO<sub>2</sub>-e per annum, or 37.7 million t CO<sub>2</sub>-e over the life of the proposal, as mentioned above.

CCWA submitted that while Report 1687 acknowledges the significant nature of the proposal's scope 3 emissions, the EPA does not contemplate the proponent being required to abate these emissions through avoidance, reduction or offset measures.<sup>77</sup> It further questioned the EPA's apparent reliance on the scope 3 emissions being regulated and reported on as a scope 1 emission from these third-party facilities:

Given there is no regulation of greenhouse gas emissions of proposals under Part V of the EP Act and Ministerial conditions imposed under Part IV relating to greenhouse gas emissions (if they have any) do not require reductions in emissions over time that are consistent with maintaining a safe climate, [CCWA] assumes that the EPA is referring to the Commonwealth Safeguard Mechanism and the *National Greenhouse and Energy Reporting Act 2007* (Cth) (NGER Act).

[CCWA] emphasises that the Commonwealth Safeguard Mechanism does not adequately regulate greenhouse gas emissions. The baselines set under the Safeguard Mechanism allow facilities to emit substantial greenhouse gas emissions. For example, the baseline for Alcoa of Australia Ltd's Pinjarra Alumina Refinery is over 1.5 mt CO<sub>2</sub>-e, Wagerup Alumina Refinery is over

<sup>74</sup> EPA, Report and recommendations, Waitsia Gas Project Stage 2, Report 1687, September 2020, page 18.

<sup>75</sup> EPA, Environmental Factor Guideline: Greenhouse Gas Emissions, April 2020, page 2.

<sup>76</sup> EPA, Report and recommendations, Waitsia Gas Project Stage 2, Report 1687, September 2020, page 22.

<sup>77</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, paras 37-39.

1.4 mt CO<sub>2</sub>-e and Kwinana Alumina Refinery is over 1.3 mt CO<sub>2</sub>-e per annum. Proponents can also apply to have baselines for facilities increased.

The 100,000 t CO<sub>2</sub>-e per annum threshold under the Safeguard Mechanism also means that smaller point sources of greenhouse gas emissions, for example, from smaller industrial and commercial gas users and domestic gas use, are not covered or regulated at all despite making up a significant volume of gas demand in WA.

The EPA has acknowledged the inadequacy of the Safeguard Mechanism, stating that it “offers many exemptions and in itself does not require any reduction of business as usual”.<sup>78</sup>

In relation to scope 3 emissions that are generated from export of gas overseas, CCWA submitted that there is a lack of confidence in regulatory controls being imposed in foreign countries and the EPA's assumption that these emissions are adequately regulated cannot be supported.<sup>79</sup>

Other appellants raised similar concerns. Dr Carmen Lawrence questioned the assumption that scope 3 emissions would be regulated and controlled at the facilities using the gas ignores the fact that the domestic users are not required to control or reduce emissions and there is no reason to believe that foreign buyers are universally committed to such controls.<sup>80</sup>

By its appeal, 350 Boorloo Perth submitted:

The EPA report states that scope 3 emissions will be regulated and reported on as a scope 1 emission from other third-party facilities.

The reporting and regulation recommended by the EPA is inadequate because third party facilities are only required to report carbon dioxide emissions to the Safeguard Mechanism and NGER Act if they produce 100,000 tonnes or more per year. The numerous facilities that emit considerable amounts of CO<sub>2</sub> per year may not reach the lower limit to report to the Safeguard Mechanism. Therefore third parties are not required to report their emissions (including scope 1) anywhere. Thousands of tonnes of CO<sub>2</sub> are not accounted for as a result of a lack of regulation and reporting<sup>81</sup>.

Dr Chris Johansen questioned the accounting for scope 3 emissions:

At the intended gas production of 250 TJ/ day, this would amount to over 5 million tonnes of CO<sub>2</sub>-e per year (@ 56.1 t CO<sub>2</sub>-e/TJ), with the bold assumption that no methane escapes between despatch and ignition. This compares with the proponent's estimate of 4.6 Mt CO<sub>2</sub>-e per year, probably obtained by assuming some days operating at below capacity. Over the intended 20-year lifespan of the project this would amount about 100 Mt CO<sub>2</sub>-e (at full operating potential), which is about the current annual recorded emissions for WA (less exported Scope 3 emissions).<sup>82</sup>

AgZero submitted that despite the significant complexities arising from the consideration of Scope 3 emissions, they must be considered by the EPA:

In proposing this recommendation, AgZero2030 highlights the landmark *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7 decision, in which Scope 3 emissions and climate change clearly played a significant role in weighing up the negative and positive aspects of the project, tipping the balance towards the eventual refusal.<sup>83</sup>

---

<sup>78</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, paras 42-44. The quoted text attributed to the EPA is from its withdrawn Technical Guidance, Mitigating Greenhouse Gas Emissions, March 2019, page 4.

<sup>79</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, para 45.

<sup>80</sup> Carmen Lawrence, Appeal 045/20.007, 21 September 2020, ground 1.

<sup>81</sup> 350 Boorloo Perth, Appeal 045/20.003, page 3

<sup>82</sup> Chris Johansen, Appeal 045/20.002, 18 September 2020, ground 1.

<sup>83</sup> AgZero2030, Appeal 045/20.016, 21 September 2020, page 3.

Alex Gardner highlights the impact the proposal's scope 3 emissions might have on the State's carbon budget:

while the EPA Report identifies the scope 3 emissions of the Proposal both at an annual rate and for the 20 year life of the project, it has not considered the effect of approving 20 years of scope 3 emissions from the Proposal on the State's carbon budget. While regulating those emissions may be seen as beyond the scope of the assessment of this Proposal under Part IV, it is a factor in projecting forward the WA carbon budget. The EPA could comment on this factor as a means of informing the Minister's consideration in approving or not the Project and, if approving, for the Minister's longer term policy attention<sup>84</sup>.

### EPA advice

In response to the appeals, the EPA advised that it:

... had regard to scope 3 emissions in its report. Based on publicly available factors for domestic gas consumption (NGERD 2008), the proponent has estimated total scope 3 emissions (GHG emissions generated in the wider community as a consequence of the proposal) to be 4.6 million t CO<sub>2</sub>-e per annum, or 37.7 million t CO<sub>2</sub>-e over the life of the proposal. The EPA notes the estimated total scope 3 emissions appear to be high due to the proportion of reservoir CO<sub>2</sub> being emitted as a result of on-processing by third parties, including domestic gas consumption and industrial processing.

As set out in the GHG Guideline, scope 3 emissions occur as a consequence of the activities of a facility, but from sources not owned or controlled by that facility's business. The EPA however considered that a significant proportion of these scope 3 emissions will likely be regulated and reported on as scope 1 emissions from these third-party facilities. For example, if gas produced from the Waitsia proposal is used to produce electricity (e.g. the recent Pilbara Energy Generation proposal) or for other significant industrial processing, then they will likely be regulated and reported under those operations as scope 1 emissions. The EPA therefore considers it has appropriately considered scope 3 emissions in line with the EPA's GHG Guideline.<sup>85</sup>

### Proponent advice

In its response to this element of the appeal, the proponent advised that the EPA requested an estimate of the scope 3 emissions for the proposal, and no further information was requested:

This estimate of Scope 3 emissions was calculated based on the annual production capacity of the WGP, the emission factors in the NGER Determination and the anticipated reserve volume for the gas field associated with the Proposal. The emission factors in the NGER Determination provide a standardised method of calculating the kilograms of CO<sub>2</sub>-e generated per gigajoule of energy by different methods of fuel combustion.<sup>86</sup>

In relation to the comment in Report 1687 that 'estimated total scope 3 emissions appear to be high', the proponent stated that it:

... does not consider that the estimate of Scope 3 emissions for the Proposal is 'high' compared to the Scope 3 emissions associated with similar projects. Like this Proposal, such projects would typically be required to deliver gas into a transmission gas pipeline (e.g., the DBNGP) in accordance with specifications for that pipeline. Application of the emission factors in the NGER Determination to all gas meeting that specification would generally lead to similar calculated Scope 3 emissions (subject to certain project-specific factors such as transmission distance).

... [T]he EPA requested, and the Proponent provided, an estimate of the Scope 3 emissions for the Proposal. No further information was requested.<sup>87</sup>

---

<sup>84</sup> Alex Gardner, Appeal 045/20.019, 21 September 2020, page 6

<sup>85</sup> EPA, Response to appeal 045/20, 8 December 2020, page 9.

<sup>86</sup> AWE, Response to appeal 045/20, 6 November 2020, para 233.

<sup>87</sup> Ibid, paras 234-235.

As to whether conditions should be applied to control scope 3 emissions, the proponent submitted this was not a matter for it:

... [I]t is unclear how the EPA could recommend reasonable conditions in relation to such emissions which are to be emitted in the future by third parties.<sup>88</sup>

The proponent similarly advised that scope 3 emissions from exported gas is outside its control so it could not comply with any conditions regarding the use of that gas. It also advised that:

... to impose conditions regarding the use of that gas would be to impose a stricter obligation on the Proponent than that under the agreed international greenhouse gas accounting systems used in the United Nations Framework Convention on Climate Change, Kyoto Protocol and the Paris Agreement, where emissions are accounted for in the country in which the gas is consumed.<sup>89</sup>

### Appellants' reply

In reply to the EPA's advice, CCWA submitted that the EPA's advice repeated its position that a significant proportion of scope 3 emissions will be regulated and reported on as scope 1 emissions from third-party facilities:

The discussion of this issue in both the Report and the [response to the appeal] was cursory and speculative, and no evidence was presented to support this conclusion. The [response to the appeal] also does not address [CCWA's] concerns that the Report does not clearly identify the regulations that will be applicable to the third-party facilities or consider their adequacy in meeting the EPA's objectives.<sup>90</sup>

### Consideration

This element of the appeal raises three questions:

1. What are scope 3 emissions and are they relevant to the assessment?
2. If so, what are the scope 3 emissions in this case?
3. Are the scope 3 emissions acceptable/should they be regulated?

These will be addressed in turn.

#### *What are scope 3 emissions and are they relevant to the assessment?*

This element of the appeal relates to the adequacy of the EPA's assessment of 'scope 3' emissions. Scope 3 emissions are indirect emissions produced in the consumption or use of a company's goods or services.<sup>91</sup>

Relevant to this issue, the GHG Guideline provides that where greenhouse gas emissions are:

... identified as a preliminary key environmental factor, the EPA may require the proponent to provide information including ... credible estimates of scope 1, scope 2 and scope 3 GHG emissions (annual and total) over the life of a proposal.<sup>92</sup> (emphasis added)

It follows that the EPA may request from a proponent credible estimates of scope 3 emissions as part of an assessment of a referred proposal. As noted above, the proponent advised that the EPA requested details of scope 3 emissions in this case, and they were provided.<sup>93</sup>

<sup>88</sup> AWE, Response to appeal 045/20, 6 November 2020, para 236.

<sup>89</sup> Ibid, para 237.

<sup>90</sup> CCWA, Submissions in Response to Section 106 Report, 17 December 2020, para 31.

<sup>91</sup> The Australia Institute, Submission on *National Greenhouse and Energy Reporting Amendment (Transparency in Carbon Emissions Accounting) Bill 2020*, April 2020, page 4.

<sup>92</sup> EPA, Environmental Factor Guideline: Greenhouse Gas Emissions, April 2020, page 4.

<sup>93</sup> AWE, Response to Alex Gardner appeal, 30 October 2020, para 32.

*What are the scope 3 emissions in this case?*

In Report 1687, the EPA stated:

Based on publicly available factors for domestic gas consumption (NGERD 2008), the proponent has estimated total scope 3 emissions ... to be 4.6 million t CO<sub>2</sub>-e per annum, or 37.7 million t CO<sub>2</sub>-e over the life of the proposal.<sup>94</sup>

While there was some disputation as to the validity of the method of calculation of the scope 3 emissions, based on the EPA's advice, it is accepted for the purposes of this report that this estimate is accurate (fugitive emissions are considered in the next section).

*Are the scope 3 emissions acceptable/should they be regulated?*

In Report 1687, the EPA advised:

The estimated total scope 3 emissions appear to be high due to the proportion of reservoir CO<sub>2</sub> being emitted as a result of on-processing by third parties, including domestic gas consumption and industrial processing. It is considered that a significant proportion of these scope 3 emissions will be regulated and reported on as a scope 1 emission from these third-party facilities.<sup>95</sup>

As noted above, EPA's response to the appeals reiterated the advice from Report 1687 that the scope 3 emissions would likely be regulated and reported on as scope 1 emissions at third-party facilities, such as power stations and other significant industrial processing facilities. The EPA therefore advised that it appropriately considered scope 3 emissions in line with the GHG Guideline.

If the GHG Guideline applies, it provides that the EPA:

... will require proponents to develop a Greenhouse Gas Management Plan as part of the assessment process that demonstrates their contribution towards the aspiration of net zero emissions by 2050 ...

At a minimum, a Greenhouse Gas Management Plan should outline:

- intended reductions in scope 1 emissions over the life of the proposal
- regular interim and long-term targets that reflect an incremental reduction in scope 1 emissions over the life of the proposal
- strategies which demonstrate that all reasonable and practicable measures have been applied to avoid, reduce and offset a proposal's scope 1 emissions over the life of the proposal.<sup>96</sup>

From this, it is apparent that the intent of the GHGMP is limited to emissions within the control of the proposal – i.e. scope 1 emissions.

Aside from establishing a discretion for the EPA to seek information from a proponent on scope 3 emissions, there is no guidance provided in the GHG Guideline as to how the EPA will consider or assess these types of emissions. This may reflect that the nature and scale of scope 3 emissions are highly variable and depend on a number of proposal-specific and third-party factors.

In this case, the EPA identified that while the scope 3 emissions are 'high', a significant proportion will be regulated and reported on as a scope 1 emission at third-party facilities.

There is no guidance on the proportion of the supply provided by this proposal will be used by facilities that are regulated in the manner contemplated by the EPA. In the absence of this

---

<sup>94</sup> EPA, Report and recommendations, Waitsia Gas Project Stage 2, Report 1687, September 2020, page 19.

<sup>95</sup> Ibid.

<sup>96</sup> EPA, Environmental Factor Guideline: Greenhouse Gas Emissions, April 2020, page 5.

information, it is difficult to determine what proportion of the scope 3 emissions are regulated as scope 1 emissions elsewhere, and the extent and content of that regulation.

By his appeal, Alex Gardner argued that while the EPA identified scope 3 emissions, it did not consider these in the context of a carbon budget for WA:

While regulating those emissions may be seen as beyond the scope of the assessment of this Proposal under Part IV, it is a factor in projecting forward the WA carbon budget. The EPA could comment on this factor as a means of informing the Minister's consideration in approving or not the Project and, if approving, for the Minister's longer term policy attention.<sup>97</sup>

Most other appellants submitted that the EPA ought to have recommended conditions be applied to the proposal requiring scope 3 emissions to be offset.

The position of Professor Gardner is preferred: it is not considered open to the EPA to recommend conditions on an individual proponent controlling how third parties manage their emissions.

The question of a carbon budget is discussed above, and it is accepted in that regard that using that approach is consistent with IPCC 1.5 and the Commonwealth's NDC (to which WA has agreed to pursue).<sup>98</sup>

It follows from the above that the EPA did identify scope 3 emissions as a relevant element to its consideration of greenhouse gas emissions from this proposal, and concluded that while they are 'high', a significant proportion will be regulated and reported on as a scope 1 emission at third-party facilities. In line with the EPA's advice that it is for the decision makers under section 45 to determine the acceptability of the residual scope 1 emissions of this proposal, it is open to the Minister to accept this advice to include consideration of scope 3 emissions, and how they are regulated through other processes.

### **Fugitive emissions**

By this element of the appeal, some appellants questioned the adequacy of the EPA's assessment of the effects of fugitive emissions of methane. Concerns included that fugitive emissions had been underestimated and should have been the subject of stronger conditions.

Dr Chris Johansen's appeal reflects the concerns raised by this element of the appeal:

Methane can escape to the atmosphere at any step in the supply chain, from the extracting well to the gas-fired appliance. The International Energy Agency quotes a global mean of 1.7% but most estimates are in the range 1-4%. Considering that methane has a global warming potential about 84 times that of CO<sub>2</sub> on a 20-year time frame, it is possible for fugitive methane emissions to contribute as much to global warming as combustion of that methane.

The proponent only makes promises to patch leaks when found, but gives no quantification of possible fugitive emissions and concrete measures as to how they would be minimized. How is it possible to "minimise emissions from pressure relief valves"? Presumably, only by opening them less. Depending on realized methane leakage should this project proceed, effective Scope 1 emission levels much higher than the level suggested (i.e. 300,000 t CO<sub>2</sub>-e per annum) would be probable.<sup>99</sup>

---

<sup>97</sup> Alex Gardner, Initial Submissions in support of appeal against Report 1687, 21 September 2020, page 6.

<sup>98</sup> As noted in respect to the carbon budget discussion above, Ian Dunlop contends that the use of the IPCC budget (based on 66 per cent probability) is insufficiently robust and a higher level of confidence is required to be shown.

<sup>99</sup> Chris Johansen, Appeal 045/20.002

CCWA similarly advised that gas leakage from the network post extraction may result in methane emissions, and that as a result, not only scope 3 emissions from combustion must be considered.<sup>100</sup>

Sustainable Energy Now identified the risks of methane leakage:

Methane, the major extracted component of value in fossil gas is very potent GHG that is known to leak in all phases of the lifecycle from exploration, to drilling, fracking, capping, compressing, transmitting, chilling and compressing, transporting, distribution and appliances.<sup>101</sup>

### EPA advice

In relation to concerns raised about the emission of methane, the EPA advised that the proponent will be implementing a number of management measures to avoid and minimise fugitive emissions, including:

Design elements ... to reduce impacts to air quality, such as nitrogen blanketing replacing fuel gas blanketing to minimise the emission of the methane fraction of the vented gas stream. The proposal also includes an enclosed flare to allow for more efficient combustion of gas by maintaining temperature, air flow and more stable combustion conditions, which maximises the conversion of methane to carbon.

The EPA advises that modern leak detection and repair programs such as that proposed can minimise fugitive emissions to very low levels. The GHGMP management actions also include maintenance programs to minimise emissions from pressure relief valves, which will include an inspection and testing program and implementation of in-service monitoring programs.

The GHG emissions assessment accounts for all upstream (reservoir) and processing emissions. The assessment included consideration of all GHG emissions listed under the *NGER Act 2007*, including methane, with total emissions represented as tonnes of carbon dioxide equivalents (tCO<sub>2</sub>-e).

The EPA advises that fugitive emissions are difficult to quantify through modelling (very small and variable), however the management measures which are proposed were assessed to ensure impacts to both the environment and economic loss for the proposal are minimised.<sup>102</sup>

As to whether additional conditions should be applied for the reporting of methane, the EPA advised that greenhouse gas emissions are required to be:

... reported under the NGER Scheme include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulphur hexafluoride (SF<sub>6</sub>) and specified kinds of hydro fluorocarbons and perfluorocarbons. NGER Scheme reporting requires emission monitoring to occur from the beginning of the construction phase and continue during the operations, including for fugitive emissions. It will be a requirement of the NGER Scheme that all emissions including methane be recorded and reported.

Methane will also be required to managed and reported on in accordance with the recommended GHG conditions which relate to the reporting, mitigation and offsetting of all GHG emissions (including fugitive emissions).<sup>103</sup>

### Proponent advice

In response to this element of the appeal, the proponent advised that fugitive emissions were considered in the development of the proposal, and it has:

- (a) identified that the wells, flowlines and pipelines which would be constructed and operated as part of the Proposal are 'closed loop' systems, such that no fugitive emissions are expected to arise from their operation;

<sup>100</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, para 35.

<sup>101</sup> Sustainable Energy Now, Appeal 045/20.020 page 2

<sup>102</sup> EPA, Response to appeal 045/20, 8 December 2020, page 10.

<sup>103</sup> EPA, Response to appeal 045/20, 8 December 2020, page 10.

- (b) notwithstanding the above, provided estimates of potential fugitive methane emissions associated with construction, commissioning and operation of the proposed wells and the WGP based on published factors from the National Inventory Report 2017 Volume 1 (published May 2019); and
- (c) committed to implementing ongoing monitoring and preventative maintenance to minimise fugitive emissions of natural gas, as detailed in the GHG Management Plan.<sup>104</sup>

In response to Sustainable Energy Now's appeal, the proponent clarified that the proposal does not include exploration, hydraulic fracture stimulation, distribution of gas or use of gas in appliances, and confirmed that it will:

- implement a range of measures to minimise the potential for and monitor fugitive emissions, to be detailed in Environment Plans to be submitted and approved under the PGER Act and Pipeline Integrity Management Plans as required by Australian Standard AS2885; and
- report any fugitive emissions that occur during the construction, commissioning and operational phases of the Proposal to the Clean Energy Regulator, in accordance with the *National Greenhouse and Energy Reporting Act 2009*.<sup>105</sup>

In regard to concerns regarding the calculation of methane from the proposal, the proponent advised that it:

... used the methods for measurement prescribed in the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* (Cth). These methods require the GWP values prescribed in Regulation 2.02 of the *National Greenhouse and Energy Reporting Regulations 2008 (NGER Regulations)* to be used in calculating estimated emissions. This approach allows a comparison of emissions of various greenhouse gases (noting these gases vary in radiative activity and atmospheric residence time). At the time of referral of the Proposal, the GWP value of methane prescribed in Table 2.02 of the NGER Regulations was 25. This value represents the 100-year GWP of methane.

While the Proponent acknowledges that different greenhouse gases have different GWPs depending on the relevant time frame, the Proponent considers the 100-year GWP approach is appropriate, noting it is consistent with the approach prescribed in Commonwealth legislation, by the United Nations Framework Convention on Climate Change and is supported by Climate Analytics.<sup>106</sup>

### Consideration

The United States Environmental Protection Agency (US EPA) states that:

Methane's lifetime in the atmosphere is much shorter than carbon dioxide (CO<sub>2</sub>), but [methane] is more efficient at trapping radiation than CO<sub>2</sub>. Pound for pound, the comparative impact of [methane] is 25 times greater than CO<sub>2</sub> over a 100-year period.<sup>107</sup>

Over a 20- year timeframe, as Dr Johansen observed, the global warming potential of methane is about 84 times that of CO<sub>2</sub>.<sup>108</sup>

The US EPA estimates that the second highest source of methane emissions in the United States (after agriculture) is from natural gas and petroleum systems:

Methane is the primary component of natural gas. Methane is emitted to the atmosphere during the production, processing, storage, transmission, and distribution of natural gas and the production, refinement, transportation, and storage of crude oil.<sup>109</sup>

<sup>104</sup> AWE, Response to appeal 045/20, 6 November 2020, para 85.

<sup>105</sup> Ibid, para 15.

<sup>106</sup> Ibid, paras 18-19.

<sup>107</sup> <https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane>, accessed 20 January 2021.

<sup>108</sup> <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>, accessed 20 January 2021.

<sup>109</sup> <https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane>, accessed 20 January 2021.

From this, it is apparent that methane presents significantly higher warming potential than CO<sub>2</sub>, and that natural gas proposals pose a key emission risk.

In its Response to Submissions, the proponent provided estimates of fugitive methane emissions based on publicly available data.<sup>110</sup> These are shown in Table 1.

**Table 1 – Estimates fugitive methane emissions (in CO<sub>2</sub>-e)**

Element	Wells	Gas plant
Construction	108 tonnes	Nil
Commissioning	27 tonnes	2,508 tonnes
Operations	2,349 tonnes per annum	28,494 tonnes per annum

In relation to the operational emissions, the proponent advised in its response to the appeals, that recommended condition 8-3 would require it to submit a report to the CEO each year verifying (among other things) the quantity of Proposal Emissions for the previous financial year, which the proponent advised would include fugitive emissions of methane.<sup>111</sup>

By recommended condition 1-1, the proponent must not exceed the authorised extent of the proposal specified in Table 2 of Schedule 1 of the conditions. This includes a limit of up to 300,000 tCO<sub>2</sub>-e per annum of scope 1 greenhouse gas emissions. As this limit is taken to include reservoir and proposal emissions, and fugitive emissions form part of the proposal emissions, the EPA's assessment took into account these emissions in imposing the cap. It will be for the proponent to ensure that the limit is not exceeded.

In its assessment of the proposal, the EPA noted that:

... the proponent has committed to implementing operational and maintenance programs and procedures to monitor operations, improve efficiencies, reduce wastes and minimise emissions. These include a maintenance program to monitor and minimise leaks from pressure relief valves, and pressure retaining equipment that could contribute to fugitive emissions. A leak detection and repair programme will be developed to identify and mitigate fugitive emissions.<sup>112</sup>

In relation to greenhouse gas emissions specifically, Table 3-1 of the proponent's GHGMP sets out management-based greenhouse gas emissions management provisions, including measures to:

- establish and implement a leak detection and repair program
- establish and implement a maintenance program to minimise emissions from pressure relief valves, including mandated inspection and testing frequencies and in-service monitoring programs
- establish a target for number of pressure relief instances and quantity of leaked emissions
- monitor and publicly report fugitive emissions data.<sup>113</sup>

On the last point, reporting is stated to be within the context of the 'Annual Compliance Assessment Report',<sup>114</sup> which is taken to mean the report required by the EPA's recommended condition 4-6. The Compliance Assessment Report is required to:

<sup>110</sup> AWE, Waitsia Gas Project Stage 2: Response to Public Comments, 12 August 2020, page 12.

<sup>111</sup> AWE, Response to appeal 045/20, 6 November 2020, para 95.

<sup>112</sup> EPA, Report and recommendations, Waitsia Gas Project Stage 2, Report 1687, September 2020, page 15.

<sup>113</sup> AWE, Response to appeal 045/20, 6 November 2020, para 87.

<sup>114</sup> AWE, Waitsia Gas Project Stage 2 - Greenhouse Gas Management Plan,

- (1) be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;
- (2) include a statement as to whether the proponent has complied with the conditions;
- (3) identify all potential non-compliances and describe corrective and preventative actions taken;
- (4) be made publicly available in accordance with the approved Compliance Assessment Plan; and
- (5) indicate any proposed changes to the Compliance Assessment Plan.

That Report, as the name suggests, is directed at compliance with the conditions of the approval. In that regard, recommended condition 8-5(1) requires the proponent to implement the GHGMP (Rev 5), and given the Plan includes undertakings to implement leak detection and repair program and to 'monitor and publicly report fugitive emissions data', it appears the Compliance Assessment Report provides a mechanism by which the details of fugitive emissions are made available to the public.

The proponent's Response to Submissions sets out additional details of how monitoring will be conducted, some of which form part of requirements under other legislation, such as the *Petroleum and Geothermal Energy Resources Act 1967*.<sup>115</sup>

In relation to the potency of methane as a greenhouse gas, the observation by Dr Johansen that methane is 84 times more warming than CO<sub>2</sub> over a 20 year timescale is correct. This relates to the global warming potential of different emissions over different timescales. It is assumed that the EPA was aware of these different metrics as part of its assessment.

Based on the foregoing, it is considered that the EPA had sufficient information before it to assess fugitive emissions from the proposal. It has recommended conditions in relation to greenhouse gases which include a total cap on greenhouse gas emissions, and this cap includes fugitive emissions shown in Table 1. It follows that, if the proposal is implemented subject to the conditions recommended by the EPA, fugitive emissions (in combination with all other scope 1 emissions from the proposal) must not exceed 300,000 t CO<sub>2</sub>-e per annum (noting that emissions from the reservoir stream are required to be offset).

### **Inadequate application of GHG Guideline**

By this element of the appeal, appellants raised concerns that the recommended conditions and procedures in EPA's report do not manage the proposal to meet the EPA's objective for the greenhouse gas emissions environmental factor.

CCWA suggests that the objective of the GHG Guideline, and its language around reducing emissions recognises the necessity to reduce Western Australia's net greenhouse gas emissions and its contribution to climate change:

[A]llowing total greenhouse gas emissions of approximately 4.9 mt CO<sub>2</sub>-e per annum<sup>116</sup> is plainly inconsistent with an objective to *reduce* greenhouse gas emissions. Indeed, any new emissions will add to WA and Australia's already increasing emissions and the risk of environmental harm associated with climate change and are in direct opposition to the reduction objective.<sup>117</sup> (original emphasis)

CCWA submitted that on the basis that proposal's greenhouse gas emissions will contribute to global emissions and climate change and the EPA's objective for the greenhouse gas

---

<sup>115</sup> AWE, Waitsia Gas Project Stage 2: Response to Public Comments, 12 August 2020, pages 12-13.

<sup>116</sup> CCWA has calculated this figure by adding all Scope 1 emissions (resulting from the plant and the reservoir), and Scope 3 emissions.

<sup>117</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, paras 10-14.

emissions environmental factor is to reduce emissions, the EPA should have recommended that the greenhouse gas emissions of the proposal were 'environmentally unacceptable'.<sup>118</sup>

Other appellants raised similar concerns.<sup>119</sup>

### EPA advice

In response to this element of the appeal, the EPA noted that the GHG Guideline recognises that Western Australia's (WA) greenhouse gas emissions will continue to increase in the short to medium term and that the:

... intent of EPA guidelines is to inform the development and assessment of a proposal, not determine the outcome of the EPA's assessment. Each proposal is assessed on its individual merits. These guidelines do not bind EPA assessments; they are explicitly not intended to be predictive of EPA advice. The EPA assesses proposals on a case-by-case basis and recognises that a flexible approach is important to drive innovation and improvement in best practice technologies.<sup>120</sup>

The EPA stated that there are a number of actions included in the proposal to avoid and reduce impacts, and the recommended conditions reflect reductions in Scope 1 emissions to achieve net zero by 2050. The EPA stated these reduction targets are aligned with the EPA's environmental objective of reducing greenhouse gas emissions over time.<sup>121</sup>

The EPA advised that the proposal includes reasonable and practicable measures to avoid and reduce emissions, which was consistent with its GHG Guideline:

The EPA then concluded that the residual impacts of the proposal were not so significant that the EPA should recommend against the proposal being implemented. This process is consistent with the EPA's GHG Guideline, and with its statutory functions (including as outlined in *Save Beelihar Wetlands Inc v Jacob* at 115, 118).

The EPA considers that it has appropriately assessed the proposal against the GHG Guideline objective.<sup>122</sup>

### Proponent's advice

The proponent responded to this element of the appeal, and stated that in its view, the environmental objective does not require the elimination of net greenhouse gas emissions:

The GHG Guideline provides a flexible framework for the EPA to assess greenhouse gas emissions in relation to individual proposals... the EPA conducted its assessment in accordance with the GHG Guideline and recommended a control on the maximum capacity of the WGP (thereby limiting Scope 1 emissions) and implementation of the GHG Management Plan.

Recommended Environmental Condition 8 would require the Proponent to implement the GHG Management Plan, which, as set out below, complies with the requirements of the GHG Guideline.

The EPA Report recommends that greenhouse gas emissions be limited to up to 300,000 tonnes of carbon dioxide equivalent (t CO<sub>2</sub>-e) per annum, with an authorised WGP capacity of up to 250 TJ per day. The 300,000 t CO<sub>2</sub>-e represents an increase of approximately 0.4% to the State's annual greenhouse gas emissions based on the 2013-14 figure of 83.4 million tonnes. The EPA has also recommended the 'project life' of the Proposal be limited to 20 years.

---

<sup>118</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, para 61.

<sup>119</sup> For example, AgZero2030; Dr Carmen Lawrence.

<sup>120</sup> EPA, Response to appeal 045/20, 8 December 2020, page 3.

<sup>121</sup> EPA, Response to appeal 045/20, 8 December 2020, page 3.

<sup>122</sup> EPA, Response to appeal 045/20, 8 December 2020, page 3.

The GHG Management Plan outlines the avoidance and mitigation measures which would be required to be implemented by the Proponent pursuant to Recommended Environmental Condition 8 of the EPA Report. Those measures are consistent with the GHG Guideline<sup>123</sup>.

...the Proposal's greenhouse gas emissions would be rigorously and adequately managed in accordance with the GHG Guideline.

### Appellants' reply

In response to the EPA's advice, CCWA reiterated its view that:

... the objective for the greenhouse gas emission environmental factor is to *reduce* net greenhouse gas emissions in order to minimise the risk of environmental harm associated with climate change, not 'to minimise the risk of climate change' (p 2), 'reducing GHG emissions over time' (p 3) or 'minimising GHG emissions' (p 3). This objective means that the EPA's focus should be on reducing net greenhouse gas emissions, not merely minimising emissions or reducing the residual greenhouse gas impacts of proposals.

[CCWA] maintains its submission that allowing the Proposal to result in additional greenhouse gas emissions of approximately 4.9 million tonnes CO<sub>2</sub>-e (mt CO<sub>2</sub>-e) per annum is plainly inconsistent with an objective to *reduce* greenhouse gas emissions. The proposed measures to avoid and reduce greenhouse gas emissions (which only apply to the Proposal's scope 1 emissions of 300,000 t CO<sub>2</sub>-e per annum) do not ensure the Proposal reduces net greenhouse gas emissions in line with this objective.<sup>124</sup>

CCWA further stated that because IPCC 1.5 makes it clear that greenhouse gas emissions must urgently reduce in order to limit global warming to 1.5°C confirms that the EPA should have found the proposal to be environmentally unacceptable.<sup>125</sup>

In his response to the EPA's advice, Alex Gardner raised a new issue questioning the reliability of the GHG Guideline. In summary, he expressed the view that because of the way in which the policy was developed, it would be unjust to apply it:

[I]t is strongly arguable that this is a proposal that should not be assessed merely by applying the GHGe Guideline. The reason for considering but departing from the Guideline is that it would be unjust to apply it – unjust because the Guideline has been formulated in circumstances where there has been insufficient consultation with those impacted by climate change harm, especially the agricultural industry, and because it gives insufficient expression to the consideration of relevant principles of s.4A of the *Environmental Protection Act 1986*.<sup>126</sup>

Professor Gardner concluded on this point by submitting:

[T]he EPA has accepted the premise of the State Government's Major Projects Policy and the GHGe Guideline that some increase in the State's GHGe is environmentally acceptable but without conducting an assessment of the harm that will occur from the increased GHGe, especially to agriculture. The Proponent and the EPA fail to see the well-recognised and urgent need to reduce our GHGe if we are to have a chance of contributing fairly to global efforts to meet the goals of the Paris Agreement, meet the existing nationally determined contribution to GHGe reduction, and protect our own self-interest in minimising climate change harm to the State. New projects of this scale should only be approved if the proponent can show that the project will reduce the level of the State's GHGe or, at least, not increase the level of GHGe.<sup>127</sup>

### Consideration

This element of the appeal is essentially that the EPA's objective for greenhouse gas emissions required, on the facts of this case, the EPA to find that the proposal was

<sup>123</sup> AWE, Response to appeal 045/20, 30 October 2020, paras 22-37.

<sup>124</sup> CCWA, Submissions in Response to Section 106 Report, 17 December 2020, paras 8-9.

<sup>125</sup> Ibid, paras 19-20.

<sup>126</sup> Alex Gardner, Response to EPA's s106 Report, 21 December 2020, page 3.

<sup>127</sup> Alex Gardner, Response to EPA's s106 Report, 21 December 2020, page 6.

environmentally unacceptable, or to otherwise recommend conditions requiring the residual emissions to be offset from commencement.

As to the contention that the EPA should have found the proposal to be unacceptable, the Court of Appeal in *Conservation Council of Western Australia Inc v The Hon Stephen Dawson MLC* noted that in determining an appeal against an EPA report, 'the Minister has no power to vary the EPA's recommendation as to whether the proposal should be implemented.'<sup>128</sup>

On the issues raised by Professor Gardner in relation to the development of the GHG Guideline, these are considered to raise questions of law and policy that are beyond the scope of an appeal under section 100(1)(d) of the EP Act. In any event, the EPA's finding that the proposal meets its objective is not binding on the decision makers under section 45, and nor are any of the policies referenced by Professor Gardner. As noted in previous sections, the EPA has further advised that it is for the decision makers to determine if the residual emissions from the proposal are acceptable, taking into account emissions from other sources which the EPA advised were outside the scope of its report.<sup>129</sup>

The question as to whether the EPA ought to have recommended conditions requiring the proposal to be carbon neutral from commencement is considered below.

### **Inadequate consideration of principles**

By this element of the appeal, appellants questioned how the EPA applied the object of the EP Act to its considerations in respect to greenhouse gas emissions, having regard to the principles set out in section 4A of the Act.

Section 4A relevantly provides that the object of the EP Act is to 'protect the environment of the State having regard to' five principles listed in the Table to that section.

The principles identified by the appellants as being relevant to this element of the appeal are:

- the precautionary principle
- intergenerational equity
- waste minimisation.

These will be addressed in turn.

#### Precautionary principle

A number of appellants questioned the EPA's application of the precautionary principle in this case.

CCWA questioned the EPA's conclusion 'that there is no threat of serious or irreversible harm' associated with greenhouse gas emissions from the proposal:

[CCWA] is concerned that this statement appears to only consider the Proposal's scope 1 emissions and fails to consider all the Proposal's emissions, including scope 3 emissions, which will result in a total amount of approximately 4.9 mt CO<sub>2</sub>-e per annum.

Further, it appears that this statement fails to recognise the findings in IPCC 1.5 that '[s]ome impacts [of climate change] may be long-lasting or irreversible, such as the loss of some ecosystems (high confidence)' (p 5).

Given this, our client submits that the Proposal, through its substantial greenhouse gas emissions, clearly presents a threat of serious or irreversible harm. The precautionary principle should

---

<sup>128</sup> [2019] WASCA 102, at [109].

<sup>129</sup> EPA, Response to appeal 045/20, 8 December 2020, page 7.

therefore be applied to ensure that emissions are reduced, as a preventative measure against environmental degradation associated with warming scenarios over 1.5°C.

At a minimum, this must require that the Proposal does not postpone reaching net zero emissions to 2050 but rather is subject to avoidance and mitigation measures from the commencement of implementation.<sup>130</sup>

For his part, Alex Gardner submitted that:

Given the global, national and State level recognition that increasing anthropogenic GHGs pose a serious and likely irreversible Climate Change effect on our natural environment and agricultural industries, and the uncertainty of the scale and scope of that harm in the future, the EPA should give a more detailed consideration of the application of precautionary principle in its analysis of the greenhouse gas emissions factor.<sup>131</sup>

Ian Dunlop advised:

Unfortunately, the implications of tipping points are not quantified in IPCC analyses, in part because scientists do not know enough about their mechanisms to accurately assess the potential impact. Hence the importance of exercising the precautionary principle, by early reduction of carbon emissions. As Professor Hans Joachim Schellnhuber, founder of the Potsdam Institute for Climate Impact Research puts it 16: "*This is particularly true when the issue is the very survival of our civilisation, where conventional means of analysis may become useless*".<sup>132</sup>

#### *EPA advice*

In response to this issue, the EPA stated that the precautionary principle is central to the GHG Guideline, which:

... recognises there is an established link between GHG emissions and the risk of climate change, and that a warming climate will impact WA's environment. The Guideline then sets out measures the EPA can take consistent with its statutory role to implement the precautionary principle, including by setting out the assessment considerations for proposals, GHG management plan requirements, and public reporting.

The EPA's application of the precautionary principle, and the potential for all projects taken together to continue to this, is inherent in the GHG Guideline. It allows the EPA to consider GHG factors even where it concludes that there is no threat of serious or irreversible harm of GHG emissions from a single proposal alone. The precautionary principle was therefore practically applied through the EPA's consideration of the GHG Guideline.

It is also important to note that the EPA considered several measures that the Waitsia proposal included to minimise emissions, and recommended imposition of conditions to further minimise GHG emissions, which is consistent with application of the precautionary principle.<sup>133</sup>

#### *Proponent's advice*

In response to this issue, the proponent considered that the EPA took into account the precautionary principle, and in particular, correctly concluded:

- (a) the Proponent's investigations into the biological and physical environment provide sufficient scientific certainty to assess the risks and identify measures to avoid or minimise impacts;
- (b) measures to avoid or minimise impacts are detailed in the Proponent's management plans; and
- (c) the EPA has recommended conditions ensuring the management plans are implemented.

In those circumstances, the EPA appropriately concluded there is no threat of serious or irreversible harm.

---

<sup>130</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, paras 71-74.

<sup>131</sup> Alex Gardner, Initial Submissions in support of appeal against Report 1687, 21 September 2020, page 4.

<sup>132</sup> Ian Dunlop, Appeal 045/20.006, 21 September 2020, page 5.

<sup>133</sup> EPA, Response to appeal 045/20, 8 December 2020, page 20.

The submission of the CCWA Appeal that the EPA must require that the Proposal does not postpone reaching net zero emissions to 2050 but rather is subject to avoidance and mitigation measures from the commencement of implementation is misplaced because:

- (a) ... there are significant avoidance and mitigation measures committed to by the Proponent in the GHG Management Plan which would be required to be implemented under the Recommended Environmental Conditions from commencement of the Proposal; and
- (b) the 2050 commitment is consistent with the Paris Agreement and State Government commitment to achieve net zero greenhouse gas emissions by 2050.<sup>134</sup>

### *Appellants' reply*

In its submissions in reply, CCWA stated that the EPA had failed to address the substantial new emissions of 4.9 Mt CO<sub>2</sub>-e per annum and the IPCC 1.5's findings in concluding that there is no threat of serious or irreversible harm from the proposal:

The [EPA] does not address these concerns but instead merely states that the precautionary principle was 'practically applied through the EPA's consideration of the GHG Guideline'.

[CCWA] notes that the EPA is required to consider the objects and principles of the EP Act set out in s 4A in every assessment of a proposal, not merely in a general sense through policies such as the GHG Guideline.

[CCWA] reiterates that the impacts of climate change as a result of rising greenhouse gas emissions and warming scenarios over 1.5°C present threats of serious or irreversible damage

...

At a minimum, the Proposal should be required to achieve net zero emissions over its lifetime, not merely by 2050, and be subject to avoidance and mitigation measures from the commencement of implementation.<sup>135</sup>

A number of other appellants responded in a similar way. For example, Christie Kingston submitted:

The EPA does not have full scientific certainty that this project's residual GHGs and net zero by 2050 target will prevent environmental degradation. The Act says uncertainty should not be used as a reason for postponing measures to prevent environmental degradation. Therefore I ask ... that, if this project proceeds, it be carbon neutral from day one because this is the only practicable means of avoiding further serious and irreversible climate change harm.<sup>136</sup>

### *Consideration*

The EPA's consideration of the precautionary principle is set out in Appendix 2 of Report 1687:

In considering this principle, the EPA notes that ... Greenhouse Gas could be significantly impacted by the proposal. The assessment of these impacts is provided in this report.

Investigations into the biological and physical environment undertaken by the proponent have provided sufficient scientific certainty to assess the risks and identify measures to avoid or minimise impacts. The EPA notes that the proponent has identified measures to avoid or minimise impacts, which is detailed in the proponent's management plans. The EPA has considered these measures during its assessment.

The EPA has recommended conditions to ensure these measures are implemented.

From its assessment of this proposal the EPA has concluded that there is no threat of serious or irreversible harm.<sup>137</sup>

---

<sup>134</sup> AWE, Response to appeal 045/20, 30 October 2020, paras 57-60

<sup>135</sup> CCWA, Submissions in Response to Section 106 Report, 17 December 2020, paras 44-48.

<sup>136</sup> Christie Kingston, Reply EPA's response to appeals on EPA Report 1687, 20 December 2020, page 7.

<sup>137</sup> EPA, Report and recommendations, Waitsia Gas Project Stage 2, Report 1687, September 2020, Appendix 2.

The above is consistent with the EPA's advice that it assesses each proposal on its individual merits, and that it is not possible to directly link emissions from a single proposal to specific environmental harm or impacts. Combined with the EPA's application of the GHG Guideline to the proposal, its findings on the precautionary principle are viewed in that context.

Noting the EPA's advice that it is a matter for decision makers to determine the acceptability of the emissions from the proposal in the context of other emission sources in WA, it will be for those decision makers to consider the implications of approving residual emissions from the proposal.

### Intergenerational equity

CCWA submitted that this principle requires the present generation to 'ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations'. In that regard, CCWA submitted that:

... the Proposal will result in significant additional greenhouse gas emissions, which will contribute to global emissions and climate change [and] is not consistent with warming scenarios under 1.5°C.

Climate change and global warming over 1.5°C is predicted to have serious and irreversible impacts which will be disproportionately experienced by future generations.

Accordingly, [CCWA] submits that the Proposal is clearly not consistent with the principle of intergenerational equity.<sup>138</sup>

### *EPA advice*

In response to this issue, the EPA advised that the proponent's net zero by 2050 target, combined with the various mitigation measures developed in accordance with the GHG Guideline, are consistent with the principle of inter-generational equity:

The proposal involves several mitigation measures consistent with the aspiration of net zero by 2050 as well as offers the opportunity for improved integration of renewables. This is in line with the principle of intergenerational equity ...

This aspiration allows for GHG emission reductions over time as detailed in the GHGMP, and the GHGMP will be able to be reviewed to include additional measures to ensure innovation and improvement in best practice technology. GHG emissions will be reported on annual basis which will allow ongoing transparency and adaptive management too (e.g. if the Minister determines the GHGMP needs to be reviewed as a result of any annual report findings).<sup>139</sup>

### *Proponent's advice*

In response to this element of the appeal, the proponent advised that Report 1687:

- (a) noted that the Proponent has taken measures to avoid, minimise and rehabilitate impacts in accordance with the mitigation hierarchy;
- (b) recommended adaptive management mechanisms be implemented to maintain ecological processes; and
- (c) correctly concluded that environmental values will be protected and that the health, diversity and productivity of the environment will be maintained for the benefit of future generations.<sup>140</sup>

### *Appellant's reply*

In response to the EPA's advice, CCWA submitted:

---

<sup>138</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, para 77.

<sup>139</sup> EPA (2020) s106 Report Response to Appeals 045/20, December 2020, page 21.

<sup>140</sup> AWE, Response to appeal 045/20, 6 November 2020, para 189.

Climate change and global warming over 1.5°C is predicted to have serious and irreversible impacts which will be disproportionately experienced by future generations. While the 106 Report states that the Proposal's 'net zero by 2050 target, combined with the mitigation measures proposed, are consistent with the principle of inter-generational equity', it provides no evidence of how the 2050 net zero emissions target and mitigation measures can and will ensure the health, diversity and productivity of the environment is maintained for the benefit of future generations.  
141

AgZero similarly submitted that the EPA's advice that the net zero by 2050 target are consistent with principle of intergenerational equity is flawed:

Clearly the harm done already, plus the further harm locked in (compounding effects of past warming plus the effects of further warming locked in from future emissions of projects already approved) means that past and future generations have already missed out on the benefits of a healthy environment. If the proponent and the EPA could acknowledge these facts, they must realise that the only acceptable application of the principle of intergenerational equity in 2020 is that there should be no increase in GHGe as we turn our minds to the question of how to reduce emissions.<sup>142</sup>

Other appellant submissions in reply were of similar effect.<sup>143</sup>

### *Consideration*

As noted elsewhere in this report, the EPA has advised that it is not scientifically possible to draw a direct link between the Waitsia proposal's (or any single proposal's) emissions and a specific environmental harm or impact and that it is for the decision makers under section 45 of the EP to consider whether the residual emissions from the proposal are acceptable.<sup>144</sup>

Thus, in considering that emissions from the proposal will exclude reservoir CO<sub>2</sub>, with operational CO<sub>2</sub> reducing from 2035, the EPA is of the view that the proposal's emissions are consistent with the principle of intergenerational equity.

In this context, the EPA's advice is accepted. Other Advice below includes suggested guidance to assist the decision makers consider the implications of the proposal in the context of cumulative emissions.

### Waste minimisation

By this element of the appeal, CCWA submitted that:

... the waste minimisation principle is not an appropriate way to principally assess the acceptability of proposals with significant greenhouse gas emissions.

Rather, such proposals must be assessed against whether they can meet the EPA's objective of reducing emissions, in conjunction with the application of the precautionary principle and the principle of intergenerational equity.

Given greenhouse gas emissions cannot be avoided after fossil fuel projects are implemented, if the waste minimisation principle is to be applied to assess acceptability, [CCWA] considers that the avoidance principle must be applied at the conceptual stage. This should lead to the conclusion that significant new fossil fuel proposals cannot be considered environmentally acceptable.<sup>145</sup>

---

<sup>141</sup> CCWA (2020) Supplementary Submissions in Response to Section 106 Report, 17 December 2020, para 51.

<sup>142</sup> AgZero 2030, Reply to EPA's advice, Waitsia Gas Project Stage 2, 20 December 2020, page 4.

<sup>143</sup> See for example: Christie Kingston, Reply EPA's response to appeals on EPA Report 1687, 20 December 2020, page 2.

<sup>144</sup> EPA (2020) s106 Report Response to Appeals 045/20, December 2020, pages 4 and 7

<sup>145</sup> CCWA (2020) Submissions in support of appeal against Report 1687, 21 September 2020, para 81.

Regarding avoidance, CCWA submitted that if the waste minimisation principle is to be applied, it should include consideration as to whether the proposal is necessary in the first place, rather just considering what quantum of proposal emissions can be avoided. In that regard, CCWA questioned the consideration of renewable energy options, and the basis for the conclusion that they were too expensive to implement and not practical:

... it is the role of the Minister, not the EPA, to evaluate whether renewable energy measures should be imposed from an economic or otherwise "practicable" perspective; and that the EPA must consider the possible options to make the Proposal acceptable from an environmental perspective.<sup>146</sup>

Regarding reduction/minimisation, CCWA raises concerns that while the GHGMP commits to emissions reduction targets that avoid, reduce or offset the equivalent of all scope 1 reservoir CO<sub>2</sub>-e emissions, the reduction targets only apply to scope 1 reservoir CO<sub>2</sub>-e emissions, while the proposal's substantial scope 3 greenhouse gas emissions are not covered.

Finally, regarding offsets, CCWA questioned why the requirement to abate all scope 1 emissions is deferred until 2035, when options are available to avoid and offset these emissions now.<sup>147</sup>

#### *EPA advice*

In response to this element of the appeal, the EPA considered that the proponent:

... identified all reasonable and practicable measures to avoid and reduce emissions considering current conditions and circumstances (including costs) and the current state of technical knowledge (ref: definition of practicable in the EP Act). These include evaluating key waste streams and management techniques to minimise environmental impacts, such as wastewater collection and treatment via conventional methods.

The EPA also notes that all the principles were applied through the consideration of the design of the facility and in the development of management plans (e.g. adaptive improvement under the GHGMP) which the EPA has recommended be imposed as conditions.<sup>148</sup>

#### *Proponent advice*

The proponent noted that the EPA considered its proposals to minimise waste streams through implementation of management actions (which includes management actions in relation to greenhouse gas emissions).<sup>149</sup>

#### *Appellants' reply*

In its reply, CCWA reiterated its view that waste minimisation principle is not an appropriate way to assess the acceptability of proposals with additional greenhouse gas emissions:

If the principle of waste minimisation is to be applied by the EPA to assess acceptability of proposals with additional greenhouse gas emissions, [CCWA] considers that the avoidance principle must be applied at the conceptual stage and that this should lead to the conclusion that such proposals cannot be considered environmentally acceptable.

The [EPA] does not address these concerns, instead proceeding to discuss the application of the principle of waste minimisation to the Proposal on the assumption that it will be implemented.

...

---

<sup>146</sup> Ibid, para 93

<sup>147</sup> CCWA, Submissions in Response to Section 106 Report, 17 December 2020, para 67.

<sup>148</sup> EPA, Response to appeal 045/20, 8 December 2020, pages 21-22.

<sup>149</sup> AWE, Response to appeal 045/20, 6 November 2020, para 192.

[CCWA] notes that the consideration of costs and whether avoidance and minimisation measures should be imposed from an economic or otherwise “practicable” perspective is the role of the Minister and other decision-making authorities, and is outside of the EPA’s remit.<sup>150</sup>

### *Consideration*

The waste minimisation principle is stated in section 4A of the EP Act to be:

All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.

Section 3(1) of the Act defines ‘practicable’ to mean ‘reasonably practicable having regard to, among other things, local conditions and circumstances (including costs) and to the current state of technical knowledge’.

To the extent the appellants are seeking to invoke this principle to require net zero emissions (i.e. application of offsets), that question is considered below under ‘Conditions’.

### **Influence of Government policy**

By this element of the appeal, CCWA submitted that the EPA’s assessment was influenced by Government policy, contrary to its statutory role:

In the Report, the EPA states that the GHGMP ‘articulates the proponent’s commitment to delivering a net zero greenhouse emissions trajectory for the proposal by 2050’ (p 19) and that it has recommended conditions that requiring the implementation of ‘long-term emissions reduction targets aligned with net zero by 2050’ (p 23). These are references to the WA Government’s ‘Greenhouse Gas Emissions Policy for Major Projects’ which contains an aspiration of achieving net zero emissions by 2050.

Our client considers that this reflects an influence of government policy, contrary to the EP Act. The Government’s ‘Greenhouse Gas Emissions Policy for Major Projects’ policy, to the extent that it contemplates that projects will lead to increase of state’s emissions in the short-medium term, is not based on scientific consensus as to prevention of environmental harm associated with climate change but rather a tool that incorporates economic and political considerations that are outside the EPA’s remit...

...Our client submits that, in order to comply with its statutory objective and mandated independence, the EPA cannot rely on government policy which contradicts the acknowledged science of climate change and prevention of associated environmental harm.

### EPA reply

In response to this element of the appeal, the EPA advised that it considered the net zero by 2050 target was appropriate for, among other things, consistency with international agreements:

The EPA had regard to the target of net zero in the second half of the century in developing its GHG Guideline before the State policy was released (see the EPA’s Guideline March 2019). Since that time, the net zero by 2050 target has been broadly accepted by leading international scientists and policy makers as an appropriate target to limit the impacts of climate change. This target has been adopted by all other Australian States, increasingly by other major countries, the IPCC, and represents a precautionary reading of the Paris Agreement. In deciding to reference the net zero by 2050 target in its 2020 GHG Guideline, the EPA had regard to the international and Australian context, its previous Guideline, and the State Policy. No single one was determinative on its own, and the EPA did not inflexibly apply the State policy.<sup>151</sup>

The EPA added the GHG Guideline goes significantly further than the State Policy by requiring from proponents:

---

<sup>150</sup> CCWA, Submissions in Response to Section 106 Report, 17 December 2020, paras 52-57.

<sup>151</sup> EPA, Response to appeal 045/20, 8 December 2020, page 22.

- credible estimates of scope 1, scope 2 and scope 3 GHG emissions (annual and total) over the life of a proposal
- a breakdown of GHG emissions by source inclusive of, but not limited to, stationary energy, fugitives, transport, and emissions associated with changes to land use; and
- projected emissions intensity (emissions per unit of production) for the proposal and benchmarking against other comparable projects.<sup>152</sup>

As to independence, the EPA advised that it:

... cannot be directed by Government other than in particular circumstances allowed by the EP Act. However, the EPA may have regard to government policy should it consider it to be appropriate to do so. The EPA has had regard to the State Policy on greenhouse gas emissions from major proposals, in the same way as it considers the State Policy on offsets, but has then developed the standalone, independent GHG Guideline for the purpose of assessment which goes further than the State Policy.

The EPA does not consider that it has acted contrary to the EP Act in the development of the GHG Guideline or in taking the State Policy into account in its assessment of this proposal.<sup>153</sup>

### Proponent advice

In its response to this element of the appeal, the proponent stated:

There is nothing in the EPA Report which could lead to a conclusion that the EPA impermissibly relied on government policy. It clearly had regard to its own GHG Guideline (which refers to the State Greenhouse Gas Emissions Policy for Major Projects). The critical aspects of the GHG Guideline which the EPA applied were considerations of measures to avoid and mitigate greenhouse gas emissions and a consideration of whether the GHG Management Plan demonstrates a '*contribution towards the aspiration of net zero emissions by 2050*'. In fact, the Proponent says the Proposal will provide an immediate reduction of forecast emissions by ~60% from the first day of operations. This is a significant commitment, well over and above a gradual trajectory to net zero by 2050, which would be a linear average rate of approximately 3.3% per year.<sup>154</sup>

### Appellants' reply

In reply to the EPA's advice, CCWA reiterated its view that:

... the 'Greenhouse Gas Emissions Policy for Major Projects' is a tool that incorporates economic and political considerations that are outside the EPA's remit, and contradicts scientific and environmental considerations to which the EPA is limited.<sup>155</sup>

### Consideration

Underlying this element of the appeal is whether it was appropriate for the EPA to consider a target of net zero emissions by 2050, noting CCWA's contention that this indicates an unacceptable influence of government policy.

For the reasons that follow, it is considered that while the net zero by 2050 goal is consistent with the Paris Agreement, it must be viewed in the context of a trajectory towards that point, and not an end of itself.

---

<sup>152</sup> EPA, Response to appeal 045/20, 8 December 2020, pages 22-23.

<sup>153</sup> Ibid, page 23.

<sup>154</sup> AWE, Response to CCWA appeal, 30 October 2020, para 36.

<sup>155</sup> CCWA, Submissions in Response to Section 106 Report, 17 December 2020, para 16.

As noted above in respect to the use of a carbon budget, the Paris Agreement sets out a global framework to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit rises to 1.5°C.<sup>156</sup> Article 4.1 of the Agreement provides that:

In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases **in the second half of this century**. (emphasis added)

From this, it was agreed that a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases be achieved in the second half of this century, with developed countries taking the lead. Australia's commitment towards this goal is to reduce greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030.<sup>157</sup>

Also as noted above, the pathway to 'limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems'.<sup>158</sup>

Taking this into account, it is considered that while the net zero target by 2050 is consistent with the general objective of the Paris Agreement, it is the trajectory to that point which is critical to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

In its Climate Change Report 2020, BHP reflects that under existing policy trends and commitments, global warming 'tracks to approximately 3°C temperature increase above pre-industrial levels by 2100'.<sup>159</sup> To stay within a carbon budget that keeps global warming to no more than 1.5°C, BHP states:

... requires steep global annual emissions reductions, sustained for decades. ... [T]he pathway would require every sector of the economy to decarbonise, in addition to massive negative emissions contributions, particularly from forestry. Global energy system emissions would decrease by 70 per cent by 2050 (compared to the roughly 60 per cent increase from 1990-2019) and the fossil fuel share in primary energy would decline to about half by 2050.

This scenario represents a major departure from today's global trajectory. The model therefore assumes urgent action with major global shifts in the 2020s and 2030s.<sup>160</sup>

BHP's characterisation is consistent with IPCC 1.5 Report, considered above in respect to carbon budgets.<sup>161</sup>

Taking this into account, it is considered that while the net zero target by 2050 is consistent with the general objective of the Paris Agreement, it is the trajectory to that point which is critical to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

For these reasons, the EPA was justified in applying the 2050 target as part of its assessment. As to the trajectory, the EPA has indicated that its role is to consider and assess proposals

---

<sup>156</sup> United Nations, Framework Convention on Climate Change, Adoption of the Paris Agreement, 21st Conference of the Parties, 12 December 2015.

<sup>157</sup> Australian Government, Australia's Nationally Determined Contribution, 2020, available [here](#).

<sup>158</sup> IPCC, Summary for Policymakers in Special Report on Global Warming of 1.5°C, 2018, para C.2.

<sup>159</sup> BHP, Climate Change Report 2020, February 2020, page 14.

<sup>160</sup> *Ibid*, page 17.

<sup>161</sup> IPCC, Summary for Policymakers in Special Report on Global Warming of 1.5°C, 2018, para C.2.

against its objective for greenhouse gas emissions recognising 'that Western Australia's (WA) GHG emissions will continue to increase in the short to medium term'.<sup>162</sup>

Given this advice, it is understood that EPA considered that as reservoir emissions would be offset or avoided from commencement, with operational emissions reducing on a zero at 2050 trajectory from 2035, it was consistent with the EPA's objective.

While this is noted, consistent with the EPA's advice that it is for the decision makers under section 45 to consider whether the residual emissions from the Waitsia proposal are acceptable taking into account emissions from other proposals, the Other Advice section (below) provides general information that may be of assistance to decision makers as part of that process.

### **Alternative energy and power sources not adequately considered**

Several appellants contended that power generation for the plant will release greenhouse gas emissions from the proposal and that the proponent has not adequately investigated other (low emissions) energy sources for the proposal. Many of the appellants questioned the basis on which the EPA accepted that the cost of renewables was prohibitive.<sup>163</sup>

Mid West Geothermal Power Pty Ltd specifically identified a potential geothermal source of power near the proposal, and suggested:

This ... resource could provide reliable zero-carbon power to the Waitsia project, which would avoid the requirement to burn gas to generate electricity.<sup>164</sup>

Mid West Geothermal contended that the proponent failed to consider this option in its assessment of energy options, and requested the EPA include a condition requiring the proponent to evaluate the possibility of generating electricity for the proposal by geothermal power.<sup>165</sup>

### **EPA advice**

In response to this element of the appeal, the EPA advised that an analysis of on-site electrical power generation options and grid supply/export of power was completed for the proposal, and that this showed that 'small-scale options for renewable energy supply to offices and buildings ... was not feasible for the proposal at this stage'.<sup>166</sup>

The EPA further advised:

The analysis also considered large-scale renewable energy systems (solar, wind and battery systems, in combination with either grid connection or on-site generation) to power the Waitsia Gas Plant equipment, however this was determined by the proponent to not be feasible due to the technical and operational risk of connecting to the South West Interconnected System (SWIS). Connection with the SWIS would require twin feeders from 80 km away at Eneabba, which represents a single point of power failure for power supply to the WGP.

The proponent will be reviewing GHG abatement opportunities as part of the Greenhouse Gas Management Plan framework required by condition 8, which will involve considering incorporating renewable options as it becomes practicable to do so.

The EPA considers that the proponent has considered whether alternatives and other options to the current facility design are reasonable and practicable at this time. It also notes that there is

---

<sup>162</sup> EPA, Response to appeal 045/20, 8 December 2020, page 3.

<sup>163</sup> See for example, Jennifer Hole, Appeal 045/20.001, page 2; Alex Gardner, Initial Submissions in support of appeal against Report 1687, 21 September 2020, page 2.

<sup>164</sup> Mid West Geothermal Power Pty Ltd, Appeal 045/20.005, 21 September 2020, Ground 1.

<sup>165</sup> Ibid.

<sup>166</sup> EPA, Response to appeal 045/20, 8 December 2020, pages 16-17.

flexibility in the GHGMP and the recommended GHG condition framework to ensure the proponent can continue to explore other options to ensure it meets interim and long-term targets.<sup>167</sup>

### Proponent response

In response to the aspect of the appeal, the proponent advised that it investigated various options for providing power to the plant, including grid connections and the use of renewables, and concluded:

Renewable technology is currently not sufficiently developed to be totally relied upon to provide base load power requirements and to power the WGP with only renewables would result in a negative commercial outcome, meaning this option is not reasonable or practicable for this Proposal. Furthermore, a reliable grid connection of suitable capacity is not presently available and not forecast to be available before commencement of operations.<sup>168</sup>

In response to Mid West Geothermal appeal, the proponent advised that it had ongoing discussions with the appellant since 2018 regarding the appellant's geothermal project, however did not consider the use of this resource to be a realistic option in the near term.<sup>169</sup>

The proponent stated that consistent with its GHGMP, renewable options will be revisited as technology evolves, costs reduce and the Waitsia field matures.<sup>170</sup>

### Appellants' reply

In its submissions in reply to the EPA's advice, CCWA restated its view that there is no justification as to why the EPA determined that renewable options are not practicable in this case:

[The EPA] merely states that the Proponent 'has committed to revisiting renewable options as technology evolves and it becomes practicable to do so' [and] that an analysis of on-site electrical power generation and grid supply/export of power found that renewable energy options (geothermal, wind and solar systems) 'was not feasible for the proposal at this stage'. No reasons are provided for this conclusion.

Further, the [EPA] states that large-scale renewable energy systems (solar, wind and battery systems, in combination with either grid connection or on-site generation) are also not feasible 'due to the technical and operational risk of connecting to the South West Interconnected System (SWIS)'.<sup>171</sup>

To the extent that the EPA's conclusions were based on costs, CCWA submitted this was 'not appropriate and outside the EPA's remit'.<sup>172</sup>

### Consideration

Relevant to this element of the appeal, the GHG Guideline provides the following guidance in 'reasonable and practicable measures to mitigate harmful emissions':

Consistent with the objective of the EPA under the EP Act to use its best endeavours to protect the environment and to prevent, control and abate pollution and environmental harm, **the EPA encourages the application of all practicable measures to avoid, reduce and offset GHG emissions.** This might include facility design, technology choice, operation and closure.

EPA consideration of what information can be expected in this regard include:

---

<sup>167</sup> EPA, Response to appeal 045/20, 8 December 2020, page 17.

<sup>168</sup> AWE, Response to Appeal – General 045/20, para 196 - 202

<sup>169</sup> AWE, Response to Appeal – Mid West Geothermal 045/20.005, page 3

<sup>170</sup> AWE, Response to Appeals – General 045/20 para 203

<sup>171</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, paras 59-61.

<sup>172</sup> CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, para 62.

- identification of the latest technologies and environmental management procedures available at the scale of the relevant proposal
- evidence that the proposed technologies and procedures are capable of achieving stated GHG reductions
- evidence that proposed mitigation measures (e.g. carbon offsets) are effective
- identification of local conditions and current circumstances of the relevant proposal that might influence the choice of technologies or procedures to mitigate GHG emissions
- feasibility and availability of any additional abatement and offsets.<sup>173</sup> (emphasis added)

What is 'practicable' is not set out in the Guideline. However, in response to concerns about the application of the waste minimisation principle (above), the EPA advised:

... that the proponent has identified all reasonable and practicable measures to avoid and reduce emissions considering current conditions and circumstances (including costs) and the current state of technical knowledge (ref: **definition of practicable in the EP Act**).<sup>174</sup> (emphasis added)

Section 3(1) of the EP Act defines 'practicable' to mean:

[R]easonably practicable having regard to, among other things, local conditions and circumstances (including costs) and to the current state of technical knowledge.

To the extent the use of the phrase 'practicable' in the GHG Guideline is consistent with this definition, then 'costs' are a valid consideration.

In any event, the EPA has determined in this case that the greenhouse gas emissions from the proposal without further avoidance are manageable, and that the acceptability of the residual emissions will be determined by decision makers under section 45, taking into account the many sources of greenhouse gas emissions and reduction opportunities in the State.

## Conditions inadequate

### Net zero emissions

Several appellants submitted that if the EPA did not find the proposal to be unacceptable, it ought to have recommended conditions requiring the proponent to achieve zero net emissions from commencement, through the application of offsets.

For example, Dr Rob Phillips submitted:

If Australia is to meet its NDC conditions of a 26-28% reduction of GHG on 2005 figures by 2030, then [sic] emissions reductions should commence as soon as possible. Otherwise, there will be deleterious impacts on the environment, at odds with the EPA's mandate. There is no justification to delay offsetting direct emissions until 2035, as proposed by AWE.

Offsetting of direct emissions should commence within two years of the project being commissioned. Mechanisms are already being developed in Western Australia to provide these offsets.<sup>175</sup>

By her appeal, Christie Kingston submitted new proposals should:

... avoid and minimise GHGe as much as possible and fully offset any unavoidable Scope 1, 2 and 3 emissions, preferably locally where known regulatory controls are in place:

Nature-based climate solutions are necessary and important but are 1) reversible: able to go up in smoke, drought or heat, and 2) may add risk, insurability issues, emergency services and land use issues to communities. Proposals for offsets should include plans to manage these risks and

---

<sup>173</sup> EPA, Environmental Factor Guideline: Greenhouse Gas Emissions, April 2020, page 6.

<sup>174</sup> EPA, Response to appeal 045/20, 8 December 2020, page 21.

<sup>175</sup> Dr Rob Phillips, Appeal 045/20.009, 21 September 2020, Ground 4.

involve communities in their design. Offsets should only be used as a very last resort. Avoiding new GHGe is paramount.<sup>176</sup>

Alex Gardner submitted that:

... neither the Proponents' GHGMP nor the EPA Report gives any proper consideration to the nature of offsets that could be used to reach net zero scope 1 emissions from the beginning of the project. There is no discussion of geo-sequestration by carbon capture and storage, even though the proposed project is located in a long established gas field with depleted reservoirs. There is no discussion of the potential for bio-sequestration, even though the legal and technical capacity for undertaking bio-sequestration is well established in Australia and Western Australia.<sup>177</sup>

Other appellants' concerns were to similar effect.<sup>178</sup>

### *EPA advice*

In response to this element of the appeal, the EPA advised that its primary responsibility under Part IV of the EP Act is to assess proposals which by their nature are likely to have a significant impact on the environment:

In some cases, the EPA can assess that avoidance, reduction and offset measures could be practicably implemented for a proposal to ensure net zero impact to a particular environmental factor at the commencement of the proposal. However, in other cases, the EPA's best endeavours cannot achieve that standard because of the very nature of the proposal i.e. being likely to have a significant impact in the first place.

In the context of GHG, the GHG Guideline explicitly acknowledges the nature of this issue: "the EPA can consider the effects of proposals which would increase the State's emissions, and contribute to environmental harm" (pg 2), and "the EPA will have regard to this guideline when assessing new proposals... resulting in an increase in GHG emissions, which may involve the EPA in the reconsideration of GHG conditions" (pg 4).

It would not be consistent with the EPA's statutory role and responsibilities if it was only permitted to assess proposals against the objective of having no impact on the environment. Assessing against a net zero objective for GHG in all cases would also be inconsistent with the GHG Guideline...<sup>179</sup>

In relation to offsetting emissions specifically, the EPA advised that the proponent has committed to emissions reduction targets consistent with the GHG Guideline, and has committed to the achievement of these targets by proposing to offset any shortfall that cannot be met through avoidance or reduction over that period:

In determining a proponent's mechanism for delivering against these targets, the GHG Guideline explicitly acknowledges the need to have a flexible approach to delivering net emissions over time to drive innovation. The EPA also advises that it is beyond its Part IV assessment scope related to individual proposals to consider third party commercial matters such as whether there should be collaboration with rural and farming communities.

Given the evolving nature of offset opportunities [the] availability and effectiveness of mitigation and offsets are likely to increase over the life of the project which is why these are described in the GHGMP and will be required to be updated in subsequent revisions.<sup>180</sup>

---

<sup>176</sup> Christie Kingston, Waitsia Gas Project Stage 2 Appeal, 21 September 2020, pages 4-5.

<sup>177</sup> Alex Gardner, Initial Submissions in support of appeal against Report 1687, 21 September 2020, page 4.

<sup>178</sup> See for example, CCWA, Submissions in Support of Appeal Waitsia Gas Project Stage 2, 21 September 2020, para 98; AgZero2030, Appeal 045/20.016, 21 September 2020, page 2; 350 Boorloo Perth, Appeal 045/20.003, 21 September 2020, page 2.

<sup>179</sup> EPA, Response to appeal 045/20, 8 December 2020, pages 5-6.

<sup>180</sup> EPA, Response to appeal 045/20, 8 December 2020, page 12.

On this last point, the EPA advised that additional reports and conditions could be included for the purpose of increasing public transparency of, and confidence in, the GHGMP.<sup>181</sup> The EPA's recommendations in that regard are considered under 'Accountability', below.

### *Proponent advice*

In response to the appeals, the proponent submitted that the:

- (a) ... commitment to avoid, reduce and/or offset the full quantity of Reservoir Emissions from the Proposal **from commencement of operations** (which the Proponent calculates will comprise 60.8% of the Proposal's overall Scope 1 greenhouse gas emissions) is a significant commitment; and
- (b) this commitment will be bolstered by an additional 10% reduction of Proposal Emissions by 2040, consistent with the objective of net zero greenhouse gas emissions by 2050.<sup>182</sup> (original emphasis)

The proponent added that seeking a condition requiring all greenhouse gas emissions to be offset from commencement:

... is inconsistent with the obligations of the EPA under the EP Act to consider the key environmental factors in relation to each individual proposal referred to it. The EPA's assessment of the Proposal appropriately considered each of the key environmental factors and correctly recommended approval with conditions.<sup>183</sup>

### *Appellants' reply*

In its reply to the EPA's advice, CCWA stated that its concerns have not been addressed:

[T]here is no clear reason or justification for the 15 year delay in requiring the Proponent to offset its processing scope 1 emissions, which comprise 39.2% of the Proposal's scope 1 emissions. There is also no reason provided as to why the EPA has not recommended requiring the Proponent to use offsets to make the Proposal net zero over its full lifetime.<sup>184</sup>

In his reply, Alex Gardner noted that the EPA's assessment is:

... directed at the commercially available technologies for avoiding or reducing its GHGe with very little attention given to the question of offsetting residual emissions. The EPA concludes at p.22 that the "EPA considers that the proponent has designed the plant appropriately to as low as is *reasonably practical* and acknowledges the ongoing commitment to avoid, reduce and / or offset greenhouse gas emissions aligned with (at worst) a net zero by 2050 trajectory over the life of the proposal". The EPA adopts the recommended conditions mentioned above, "having regard to the relevant EP Act principles and environmental objective for greenhouse gas emissions". There is no explicit recognition of the climate change harm that will occur as a result of increasing emissions or of an articulation of the environmental principles that can be applied to address that harm, such as the precautionary principle and polluter pays principle. There is no analysis of the potential to offset the pollution / environmental harm to be caused by the residual ~120,000 tCO<sub>2</sub>-e/yr.<sup>185</sup> (original emphasis)

### *Consideration*

This element of the appeal is to the effect that the Minister should vary the EPA's recommended conditions by requiring the proposal to achieve carbon neutrality from its commencement and over its life. Such an outcome appears to be contemplated by the GHG Guideline, which states:

---

<sup>181</sup> EPA, Response to appeal 045/20, 8 December 2020, page 12.

<sup>182</sup> AWE, Response to appeal 045/20, 6 November 2020, para 227.

<sup>183</sup> AWE, Response to CCWA appeal, 30 October 2020, para 9.

<sup>184</sup> CCWA, Submissions in Response to Section 106 Report, 17 December 2020, para 67.

<sup>185</sup> Alex Gardner, Response to EPA s.106 Report, 21 December 2020, pages 5-6.

The EPA may request information on any considered and proposed mitigations that demonstrate that all reasonable and practicable measures have been applied at each step of the mitigation hierarchy, including: ...

- Offsetting emissions (carbon offsets) through the implementation of a GHG emissions offset package to offset some or all residual emissions.<sup>186</sup> (emphasis added)

The EPA did not recommend conditions requiring all residual greenhouse gas emissions to be offset. Rather, it found that greenhouse gas emissions are 'manageable', subject to the proponent adhering to the GHGMP.<sup>187</sup>

Specifically on whether a net zero condition should be applied, the EPA advised that while there may be cases where avoidance, reduction and offset measures could be practicably implemented for a proposal to ensure net zero impact, in other cases, the EPA's best endeavours cannot achieve that standard because of the very nature of a 'significant proposal'.

As noted above, the EPA advised that it is for the decision makers under section 45 of the EP Act to determine if the residual emissions from the proposal are acceptable.<sup>188</sup>

The apparent inconsistency between the EPA's conclusion that the residual greenhouse gas emissions are manageable but that the acceptability of the emissions will be determined by decision makers under section 45 is understood to reflect the EPA's position (discussed elsewhere in this report) that its role is limited to looking at the direct impacts of the proposal, and that it is not possible to directly link emissions from a single proposal to specific environmental harm or impacts.

In this context, it is taken that the EPA's conclusion that the residual emissions are not significant individually, as no direct link can be made to the WA environment. By contrast, the EPA is of the view that the decision makers can 'if the residual emissions from the proposal are acceptable and/or aligned with current policy settings, taking into account the many sources of GHG emissions and reduction opportunities in the State (many of which are outside the EPA's scope e.g. existing emissions sources).'<sup>189</sup> The EPA's advice that the (environmental) acceptability of the emissions is a matter for decision makers is framed by its finding about the significance of the proposal as an individual point source.

From this, it is considered that while the EPA has not recommended conditions requiring the proposal to be net zero from commencement, that is part of the role of the decision makers under section 45. Other Advice includes information that may be relevant to those deliberations.

### Accountability

By this element of the appeal, two appellants submitted that there was a lack of evidence around the proponent's claims, and who will hold the proponent accountable. For example, Dr Chris Johansen submitted that:

Although 'the proponent has committed to implementing operational and maintenance programs and procedures to monitor operations, improve efficiencies, reduce wastes and minimise emissions' (P.15), it is not clear who will monitor this and hold the proponent accountable, including with meaningful penalties for breaches.

---

<sup>186</sup> EPA, Environmental Factor Guideline: Greenhouse Gas Emissions, April 2020, page 5.

<sup>187</sup> EPA, Report and recommendations, Waitsia Gas Project Stage 2, Report 1687, September 2020, pages 22-23.

<sup>188</sup> EPA, Response to appeal 045/20, 8 December 2020, page 7.

<sup>189</sup> EPA, Response to appeal 045/20, 8 December 2020, page 7.

One is reminded of the delay of implementation in the promised carbon and capture facility at the Gorgon gas plant.

Of particular concern is the reliance on self-reporting for declaration of emissions. There is every financial incentive to under-report emissions, to minimize offset obligations and rigor of equipment monitoring and maintenance<sup>190</sup>.

By its appeal, Sustainable Energy Now submitted that based on what it regarded as historic underestimation of methane emissions from the oil and gas industry, increased scrutiny around emissions monitoring and assumptions is required. The appellant requested that 'real-time, independent monitoring from pre-drilling baselines to drilling, fracking and production detection [including] airborne and satellite detection methods.'<sup>191</sup>

### *EPA advice*

In response to these concerns, the EPA advised that its recommended conditions require:

... the proponent to submit a report to the CEO each year by 31 March, verifying for the previous financial year various items, including but not limited to, the quantity of proposal emissions, the number of terajoules of gas processed at the proposal facility, and the total emissions intensity. Condition 8-4(1) requires the proponent to submit to the CEO by 31 March 2026, and every fifth 31 March thereafter, a report including but not limited to the amount of Non-Reservoir Emissions that have been avoided or reduced, the progress towards meeting interim and long-term reduction targets, and any measures that have been implemented to avoid or reduce proposal emissions. In addition, Condition 8-4(2) requires the proponent to submit an audit and peer review of the report, carried out by an independent person or independent persons with suitable technical experience to determine whether the report is accurate and whether the report is supported by credible evidence.<sup>192</sup>

The EPA nonetheless advised that additional reports and conditions could be included for the purpose of increasing public transparency of, and confidence in, the GHGMP, as follows:

- Provide a publicly available GHGMP summary plan and progress statement, updated each time the GHGMP is revised under condition 8-6, and each time a five yearly report is submitted under condition 8-4. The summary document would require the proponent to outline key information from the GHGMP (and reports to that time), in an accessible form which can be easily reviewed by third parties for transparency, for example to compare the proposal against other proposals, and against relative contributions to the achievement of EPA objectives for the State. The summary must include:
  - a graphical comparison of emission reduction commitments in the GHGMP with 'actual' emissions for compliance periods,
  - proposal performance against benchmarking for comparable facilities,
  - emissions intensity,
  - a summary of emission reduction measures undertaken by the proponent, and
  - a clear statement as to whether interim targets have been achieved.
- Clarifying that the audit and peer review under condition 8-4(2) is to be made publicly available.
- Require that the GHGMP be reviewed by the proponent if there is a change to the proposal which means there is a material risk that condition 8-1 will not be achieved.<sup>193</sup>

### *Proponent advice*

In its response to these concerns, the proponent considered that:

... the monitoring and reporting requirements prescribed by the EPA in the Recommended Environmental Conditions are appropriate to the Proposal and will complement the range of

<sup>190</sup> Dr Chris Johansen, Appeal 045/20.002 18 September 2020 page 4

<sup>191</sup> Sustainable Energy Now, Appeal 045/20.020, 22 September 2020, Ground 2.

<sup>192</sup> EPA, Response to appeal 045/20, 8 December 2020, page 15.

<sup>193</sup> EPA, Response to appeal 8 December 2020 pages 15-16

monitoring and reporting requirements that will apply to the Proposal under other State and Commonwealth legislation.<sup>194</sup>

### *Consideration*

The EPA's recommended condition 8-4 requires the proponent to prepare a report every five years (commencing March 2026) specifying (among other things):

- quantity of non-reservoir emissions that have been avoided or reduced through certified improvements
- details of retirement or cancellation of any offsets
- progress towards meeting interim and long term reduction targets
- measures that have been implemented to avoid or reduce greenhouse gas emissions.

The five yearly report is subject to an 'audit and peer review' by an independent person or persons.

Condition 8-3 additionally requires the proponent to provide an annual report showing (among other things):

- quantity of greenhouse gas emissions
- number of terajoules of gas processed at the facility
- total emissions intensity that year.

Condition 8-8 requires the proponent to make the reports publicly available for the life of the proposal.

The EPA has also recommended changes to the conditions including a new summary plan each time the GHGMP is updated and at the time of each five yearly report. The conditions (as recommended to be changed by the EPA) require the GHGMP to be reviewed in the following circumstances:

1. if directed to by the Minister, within the time specified by the Minister
2. if there is a change to the proposal which means there is a material risk that condition 8-1 will not be achieved.

Condition 8-1 provides:

For the period ending 30 June 2025, and for every subsequent period of five financial years, the proponent shall avoid, reduce and/or offset the quantity of Reservoir Emissions released to the atmosphere in that period.

The intent of this condition is to require that 100 per cent of the reservoir emissions to be offset.

There is no requirement to review the plan at set time intervals.

In the GHG Guideline, the EPA:

... acknowledges that this is a rapidly moving subject area and a comprehensive review [of the EFG] will be undertaken within three years to ensure it remains contemporary within the policy environment at that time.<sup>195</sup>

The acknowledgement in the GHG Guideline that this is a rapidly evolving area, and that the policy as a whole will be reviewed in full before April 2023, is considered germane to the content of GHGMP developed under the GHG Guideline. This is consistent with the EPA's

<sup>194</sup> AWE, Response to appeal 045/20, 6 November 2020, para 115.

<sup>195</sup> EPA, Environmental Factor Guideline: Greenhouse Gas Emissions, April 2020, page 6.

advice in response to the appeals that 'the GHGMP can be updated to include more information if that becomes necessary or convenient to ensure the EPA's objectives for greenhouse are met.'<sup>196</sup>

For consistency with this guidance, it is recommended that in addition to the two triggers reflected above, the conditions be amended to require the proponent to update its GHGMP at least every five years, aligning with the five yearly reporting requirements specified in condition 8-4. This change will require the entire content of the plan to be reviewed, and that that review be conducted in the context of any updated policy and contemporary scientific information, including progress to limit warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

## Conclusion

From the information presented in respect to this ground of appeal, it is considered that the EPA assessed the proposal with a focus on the greenhouse gas emissions of the referred proposal (and cumulatively with Waitsia Stage 1), and found that the proposal is consistent with its objective for greenhouse gases, subject to its recommended conditions. In this context, and for the reasons stated above, the EPA's position is accepted.

As a result of the appeals and the EPA's recommendations it is recommended that this ground of appeal be allowed to the extent that condition 8 is amended as follows

- require a summary plan and progress statement to be prepared each time the GHGMP is revised,
- require the GHGMP be reviewed by the proponent if there is a change to the proposal which means there is a material risk that condition 8-1 will not be achieved
- ensure that all report and plan (including revised GHGMPs) associated with greenhouse gas management are made publicly available
- condition 8 is further modified to require the proponent to update its GHGMP at least every five years, aligning with the five yearly reporting requirements specified in condition 8-4.

As previously stated in this report, and consistent with the EPA's advice, and subject to the following ground of appeal, it will be a matter for the decision makers under section 45 of the EP Act to consider whether the residual emissions from the proposal (including scope 3 emissions) are acceptable taking into account emissions from other proposals.

## Other advice

As described above, in its response to the appeals, the EPA advised:

The State Government will now determine if the residual emissions from the proposal are acceptable and/or aligned with current policy settings, taking into account the many sources of GHG emissions and reduction opportunities in the State (many of which are outside the EPA's scope e.g. existing emissions sources).<sup>197</sup>

This advice is understood to reflect section 45 of the EP Act – the decision-making process whereby the Minister seeks agreement with relevant decision-making authorities to whether the proposal may be implemented, with or without conditions.

The effect of the EPA's advice is taken to be thus:

---

<sup>196</sup> EPA, Response to appeal 045/20, 8 December 2020, page 15.

<sup>197</sup> EPA, Response to appeal 045/20, 8 December 2020, page 7.

- it is confined to report to the Minister on the environmental factors relevant to the assessed proposal
- it cannot consider matters that are not related to the proposal, such as emissions from other proposals elsewhere in WA
- in this case, it found that the greenhouse gas emissions from the proposal would be manageable subject to its recommended conditions
- it is ultimately a matter for decision makers under section 45 to determine the acceptability of the residual emissions having regard to reduction opportunities elsewhere in WA.

On this basis, to assist the decision makers in considering the acceptability of the residual emissions in this case, they may wish to have regard to:

- scale of the proposal emissions
- opportunities for reductions elsewhere in WA to offset new emissions
- short, medium and long-term climate change policies of other gas producers in WA
- relevant policy
- latest scientific information
- implications of new emissions from this proposal in the context of the Commonwealth's target of reducing emissions below 26 to 28 per cent against 2005 levels by 2030.<sup>198</sup>

## GROUND 2: AIR QUALITY

One appellant submitted that monitoring air emissions for a nine-month period may not be adequate to establish background concentrations of pollutants as these may vary from changes to meteorological conditions.

Another appellant submitted that the EPA's assessment of Social Surrounds did not address potential health impacts of flaring. They requested that the EPA impose a condition requiring the design of the plant and wells be in accordance with the Zero Routine Flaring by 2030 (ZRF 2030) initiative.

Leslie McNulty submitted that the EPA has not accurately assessed the health risk associated with residences within 5 km of flaring and highlights the following concerns:

Recent research published by the University of California Los Angeles and the University of Southern California found exposure to flaring from oil and gas development may have a significant adverse effect on birth outcomes of pregnant women. Specifically, exposure to flaring from oil and gas development is associated with an increased risk of preterm birth in woman living within 5km of flaring events<sup>199</sup>.

## Consideration

This ground of appeal largely relates to the Environmental Factor for Air Quality. The EPA's environmental objective for Air Quality is to *maintain air quality and minimise emissions so that environmental values are protected*.

---

<sup>198</sup> Department of Industry, Science, Energy and Resources, Australia's emissions projections 2020, December 2020, page 18 (available [here](#)), provides that emissions from electricity generation in mining and remote communities are projected to decline by 1 Mt CO<sub>2</sub>-e by 2030. Noting the Greenhouse Gas Emissions Policy for Major Projects commits the State Government to working with the Commonwealth to achieve the target of reducing greenhouse gas emissions by 26 to 28 per cent by 2030, the 2020 projections may provide useful context for decision makers (Western Australian Government, 28 August 2019, page 1).

<sup>199</sup> Leslie McNulty, Appeal 045/20.010 page 1

### *Background concentrations of pollutants*

The EPA identified potential impacts on air quality from construction and operation of the gas plant.

The proponent advised that it commissioned modelling related to air quality<sup>200</sup> and advised that the impact of the operation of the proposal, including the flaring of gas will:

- (a) comply with NEPM targets, demonstrated by modelling both normal operations and emergency operations scenarios; and
- (b) maintain air quality such that environmental values of the region are protected.

In regard to the modelling, the EPA advised:

The proponent has used both background concentrations of pollutants from the Caversham Air Quality Monitoring Station and additionally undertook background ambient air quality monitoring between July 2019 and March 2020.

Results of the air dispersion modelling and additional air quality monitoring determined that predicted ground level concentrations at nominated sensitive receptors for the proposal emissions (in isolation and cumulatively) were below ambient air quality and workplace exposure standard criteria<sup>201</sup>.

In response to the appellants' concerns that the information relied on in the monitoring was insufficient, the EPA advised;

Review of the 2019 air quality data for Caversham identified that the average annual concentrations of PM<sub>2.5</sub> were above the National Environment Protection (Ambient Air Quality) Measure (NEPM), however this exceedance occurs over much of the South West of WA and is the result of hazard reduction burning and bushfires.

The background concentrations were used to inform the cumulative air impact assessment for the proposal. This included consideration of cumulative impacts from other emission sources in the area as part of the impact assessment, including the Mondarra Gas Storage Facility, the Xyris Production Facility and the Patience Bulk Haulage sand quarry operation. The assessment analysed emission source, including current and potential future emission rates (Ramboll 2019). The EPA considers that the assessment has accounted for cumulative emissions from larger emission sources in the area.

Due to the lack of site specific background monitoring data and the exceedance of the PM<sub>2.5</sub> standard at the Caversham reference site, the proponent undertook additional background ambient air quality monitoring from July 2019 to March 2020 in addition to using the Caversham Air Quality Monitoring Station to more accurately determine background pollutant concentrations. This additional monitoring confirmed that the annual average concentrations of all pollutants from the proposal and other sources will meet the relevant air quality criteria at sensitive receptors. The EPA notes that the proponent has confirmed the use of background air quality data from Caversham and identified that emissions would meet the relevant air quality criteria at sensitive receptors.

It is noted that the proponent has used both background concentrations of pollutants from the Caversham Air Quality Monitoring Station and undertook background ambient air quality monitoring between July 2019 and March 2020. The EPA advised that it considered that this was appropriate to inform the air dispersion modelling, and that it had enough information to assess against its Air Quality factor objective and relevant technical guidance.

---

<sup>200</sup> Ramboll (2018) Waitsia Gas Project – Stage 2 Air Dispersion Modelling

<sup>201</sup> EPA, Response to Appeals 045/20 page 17

### Health risks

In regard to health risks, the proponent advised that it will not routinely vent gas directly to the atmosphere or undertake routine flaring of gas as part of the proposal, and that it has designed the [proposal] to adhere to the ZRF 2030 initiative<sup>202</sup> and compliance with the Western Australian Government's position on "no routine flaring".

It is understood that some oil and gas developments regularly (or 'routinely') vent or flare gas because it is not economically feasible to recover the gas. The appellant's supporting information on health risks of gas flaring relies on this assumption. While the concerns are acknowledged, the proponent and the EPA have confirmed that routine flaring of gas directly to the atmosphere will not occur at the proposal.

In response to this appeal, the proponent has confirmed:

Flaring is only expected to occur for safety and non-routine flaring purposes and the Proponent will minimise flaring for these purposes.

The proponent provided further detail on its expected flaring, including:

- flaring emissions from wells are expected to be limited to a 24-48 hour period per well site;
- flaring emissions from wells are insubstantial and will (through disbursement [*sic*] and dilution) not be discernible against background levels within approximately <1.5km from well flares; and
- the WGP has been designed to minimise emissions including a control system for flare emission variables.<sup>203</sup>

The proponent also advised that flaring is considered in its Management of Flaring management plan<sup>204</sup> which outlines how flaring will be managed as part of the proposal, and addresses visual amenity and air quality impacts. Several design elements have been incorporated into the proposal to reduce impacts to air quality, including those related to flaring, detailed in the EPA's report.

In assessing the proposed flaring in the context of the Air Quality environmental factor, the EPA identified:

- (a) that emissions to air have been reduced through design and planning of the Proposal, including by the use of combustion or flaring instead of cold venting;
- (b) that the Proponent has incorporated design elements to reduce impacts to air quality, including:
  - (i) incineration of the CO<sub>2</sub> rejection stream from the Amine regeneration process to thermally destroy contaminants such as hydrogen sulphide (H<sub>2</sub>S), BTEX and other VOCs
  - (ii) re-circulation of start-up and off-specification exported gas to avoid the need for flaring;
  - (iii) produced water reinjection preference over pond evaporation (though evaporation ponds will be required for operational reliability), reducing emissions to air from evaporation; and
  - (iv) use of remote control for the operation and monitoring of well sites to reduce the frequency for operational visits, reducing vehicle emissions.
- (c) a plant control system and safety system will be installed to monitor all plant operations, including flaring during operations;

---

<sup>202</sup> AWE, General Appeal Response 045/20, 6 November 2020

<sup>203</sup> AWE, Appeal Response 045/20.010 page 7

<sup>204</sup> AWE, Management of Flaring Plan P-WGP2-058 Rev 1, May 2020, AWE Perth Pty Ltd

(d) the results of air dispersion modelling and additional air quality monitoring determined that predicted ground level concentrations at nominated sensitive receptors for the Proposal emissions (in isolation and cumulatively) were below ambient air quality and workplace exposure standard criteria; and

(e) it has consulted with the DWER and confirmed the impacts to the Air Quality factor from the WGP can be managed under a works approval and operating licence issued under Part V of the EP Act<sup>205</sup>.

The EPA advised that it assessed potential impacts of flaring and considered those impacts are manageable and would not be significant.

EPA also advised gas flaring for safety and non-routine purposes will be regulated under other approvals, including by the DWER pursuant to Part V, Division 3 of the EP Act and the Department of Mines, Industry Regulation and Safety (DMIRS) under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 (WA) (PGER Regulations).

## Conclusion

Having regard for the EPA's assessment that the proposed design, regulation and operation of the plant meets its objective for air quality, and the advice that it considered the proponent's monitoring was appropriate to inform the air dispersion modelling, it is considered that the EPA's conclusion that the proposal meets the Environmental Objective for Air Quality is appropriate.

## GROUND 3: SOCIAL SURROUNDINGS

One appellant raised concern about the potential impacts of flaring on visual amenity, in particular, they questioned whether the flaring would be visible from nearby town sites.

Gas-field Free Irwin submitted in their appeal:

There is insufficient information about this [flaring] in the EPA's report. Will flaring be visible and audible from Irwin town site, will we have impacts to our air quality?<sup>206</sup>

## Consideration

Potential impacts to air quality are addressed under Appeal Ground 2 above. The concern of the appellant about visual and noise impacts relate to the EPA Environmental Factor Social Surroundings. The EPA's environmental objective for Social Surroundings is *to protect social surroundings from significant harm*.

The EPA assessed Social Surroundings as a Key Environmental Factor because it identified the following potential impacts to social surroundings associated with the proposal:

- disturbance to Aboriginal heritage from construction activities and operation of the proposal
- reduced visual amenity from construction and operation of the gas plant
- increased noise emissions during construction and operation of the gas plant.

The EPA's Report 1687 states:

As part of the assessment of the proposal, the EPA have considered visual amenity, and the ability for people to live and recreate within their surroundings without any unreasonable interference with their health, welfare, convenience and comfort.

<sup>205</sup> AWE, Response to Appeal 045/20.010

<sup>206</sup> Gas-filed Free Irwin, Appeal 045/20.011 page 4

The EPA's Report describes the proposal's flaring:

As part of the process of gas production, gas plants flare unburnt gas for maintenance or shutdown purposes or when a well is being tested, maintained or brought into production. This is undertaken for safety reasons and allows the controlled release of gas from the collection and processing system. The EPA understands that this differs from the practice of routine flaring of gas, which is flaring during normal gas or oil production operations in the absence of sufficient facilities or geology to re-inject the produced gas, use it on-site, or send it to market...

...The proposal includes an enclosed flare which allows more efficient combustion of gas by maintaining temperature, air flow and more stable combustion conditions, maximising the conversion of methane to carbon<sup>207</sup>.

### *Visual Amenity*

The proposal is located 16 km east-south-east of the Dongara-Port Denison town sites. The EPA advised that the location was selected following consultation with relevant stakeholders. The proposed site is situated in an undulating landscape and in an area of low population density. The EPA advised that the layout of the proposal has been designed to reduce potential impacts to visual amenity.

The proponent has prepared a management plan for flaring<sup>208</sup>, which addresses associated impacts to visual amenity. The EPA has recommended implementation of the management plan through recommended condition 9 to ensure that there would be no adverse impact on visual amenity resulting from implementation of the proposal.

The EPA advised that it assessed potential impacts of flaring and considered those impacts are manageable and would not be significant.

EPA also advised gas flaring for safety and non-routine purposes will be regulated under other approvals, including by the DWER pursuant to Part V, Division 3 of the EP Act and the Department of Mines, Industry Regulation and Safety (DMIRS) under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 (WA) (PGER Regulations).

The EPA also noted that other Social Surroundings issues will be regulated through other decision making processes, for example, the design of the proposal can be regulated through Part V of the EP Act, and will be licensed under the provisions of the PGER Act.

### *Noise*

The nearest sensitive premises are located 2.8 km to the west southwest of the proposal. The proponent has undertaken noise modelling, which demonstrated that the proposal would comply with the Environmental Protection (Noise) Regulations 1997 at all times.

### **Conclusion**

The appellant stated that there was insufficient information in the EPA's report about flaring and its impact on visual amenity and noise impacts.

Having regard for the EPA's assessment of Social Surroundings as a Key Environmental Factor, and its advice that:

- the location was decided in consultation with relevant stakeholders,

---

<sup>207</sup> EPA, Report 1687 Waitsia Gas Project Stage 2, page 20

<sup>208</sup> AWE, Management of Flaring Plan P-WGP2-058 Rev 1, May 2020, AWE Perth Pty Ltd

- the proposed site is situated in an undulating landscape and in an area of low population density,
- the layout of the proposal has been designed to reduce potential impacts to visual amenity, and
- the proponent has proposed management measures for flaring, and that flaring for safety and non-routine purposes will be managed by other regulatory mechanisms
- noise modelling has demonstrated that the proposal would comply with the Environmental Protection (Noise) Regulations 1997 at all times

it is considered that the EPA adequately assessed the proposal against this factor, and its advice that the impacts are not likely to be significant is considered reasonable.

Notwithstanding, it is noted that the EPA has recommended a condition to prevent any adverse impacts to visual amenity.

#### **GROUND 4: INLAND WATERS**

Appellants raised concerns about the impact of the proposal on water availability, water quality and impacts to groundwater dependant ecosystems (GDEs). The appellants contend that the EPA did not adequately assess the potential impacts, in particular:

- The extent of groundwater depletion to superficial and Yarragadee aquifers
- impacts to Ejarno Spring
- Impacts to GDEs at the Yandanogo Nature Reserve
- potential economic loss arising from groundwater depletion
- Potential contamination of water and risks from water re-injection
- impacts to surrounding bore users.

For example, Dr Chris Johansen raised concerns about the proposal's impact on the local environment:

The proposed extraction and contamination of water from the target region over an extended period indeed seems to be a threat to the local hydrology and ecology<sup>209</sup>.

Similarly, Gas-Free Irwin raised concerns about the adequacy of the conditions to provide sufficient protection for the superficial and Yarragadee aquifers and the Ejarno Spring.

It does not appear that the EPA has sufficiently considered the economic loss arising from groundwater depletion, as well as impacts to GDE like the Yandanogo Nature Reserve<sup>210</sup>.

#### **Consideration**

This ground of appeal relates to the Environmental Factor for Inland Waters. The EPA's environmental objective for Inland Waters is to *maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected*.

Due to the potential impacts of the proposal associated with groundwater abstraction and reinjection, the EPA assessed Inland Waters as a Key Environmental Factor, for the following reasons:

---

<sup>209</sup> Chris Johansen, Appeal 045/20.002, page 3

<sup>210</sup> Gas-filed Free Irwin, Appeal 045/20.011 page 4

Potential contamination of groundwater or surface water from construction and operation of production wells, reinjection of produced formation water and drawdown impacts from groundwater abstraction.

The EPA's Report 1687 states that the proposal is located above the Yarragadee Aquifer, and approximately 500m from Ejarno Spring, the nearest surface water body. It identified the following possible impacts on Inland Waters resulting from the proposal:

- the degradation of surface and groundwater quality
- the lowering of groundwater levels
- impacts to water levels in Ejarno Spring.

In response to the appeals, the EPA summarised its assessment of this factor:

the EPA has had regard to the relevant environmental factor guideline, studies undertaken within the local and regional context, the potential impacts of re-injection water impacting on groundwater resources, drawdown impacts associated with groundwater abstraction, potential cumulative impacts and the proposed management measures. The EPA considers it has appropriately considered the impacts on Inland Waters from the proposal and notes it recommended a condition to ensure implementation of the proposal is consistent with its objectives for this factor.

#### *Water availability*

Several appellants raised concerns about the amount of water required for the proposal during operations, and the impact this may have on surface and groundwater, GDE and nearby users.

The EPA's Report confirmed the volume of water required:

The Waitsia Gas Project will require water abstraction from the Yarragadee aquifer for operational use. It is estimated that up to 60 megalitres per year (equivalent to 60,000 kilolitres per annum (kL/a)) is required for the life of the proposal.

Regarding potential impacts of this drawdown, the proponent undertook modelling<sup>211</sup> to determine the potential impact of groundwater abstraction drawdown on existing groundwater users and the nearby Ejarno Spring. The modelling incorporated cumulative groundwater drawdown impacts from neighbouring licenced abstractions bores with annual abstraction rates greater than 50,000 kL/a. The modelled change to the Yarragadee water levels demonstrated a decline of 19 cm, which the EPA advised would have a negligible effect on neighbouring licensed bores due to the distance from the project site.

Regarding impacts to GDEs, the EPA advised the impacts to Yandanogo Nature Reserve were addressed under the key environmental factor of Flora and Vegetation. In its assessment, the EPA noted the presence of GDEs at the Ejarno Spring. The modelling of the potential changes in the superficial aquifer at the western edge of the Ejarno Spring indicated a maximum decline in groundwater levels of 6 cm after five years of abstraction. Fluctuations in water levels in the superficial aquifer range from about 0.3 m to about 1.7 m in response to rainfall. The EPA advised that based on the anticipated seasonal fluctuations and likelihood that Ejarno Spring discharges into a perched aquifer, it anticipated that a 6 cm decline in groundwater levels will have a negligible effect on Ejarno Spring.

The EPA advised that it considered the potential cumulative impacts from groundwater drawdown because of the proposal, including the existing Stage 1 project, to be minimal. In any event, to safeguard the drawdown impact, the EPA recommended condition 7 which

---

<sup>211</sup> Waitsia Gas Project Stage 2: Water Management Plan (Rev 1)

requires that there be no adverse impact to Ejarno Spring and no adverse impact to groundwater levels or quality as a result of implementation of the proposal.

In addition, it is understood that the proponent will be required to obtain an abstraction licence from the Department of Water and Environmental Regulation under the *Rights in Water and Irrigation Act 1914 (WA)* (RIWI Act) to authorise the proposed abstraction. It is expected that any groundwater licence would contain limits on the extent of drawdown, abstraction limits and monitoring requirements.

Having regard for the above, the EPA concluded that potential impacts related to water availability can be adequately managed through the recommended conditions and the groundwater abstraction licence.

#### *Water quality*

Several appellants raised concerns about the proposal's impact on the groundwater quality including potential contamination from operations, and the impacts on surrounding bore users.

The EPA's Report articulates the expected volume of water to be disposed of via reinjection:

The Total Produced Water volume required to be disposed of over the 20-year life of the operation will be about 1 gigalitre which equates to about 142 kilolitres (kl) per day in the initial stages, and is expected to peak at about 381 kl per day after about four years. Following this initial four-year period, it will reduce back to 142 kl per day.

It is understood that this water will be reinjected into existing petroleum wells to a petroleum reservoir 2km below the surface (700 m beneath the Yarragadee aquifer). If required, water will be temporarily stored in double-lined evaporation ponds prior to reinjection.

In response to the appeals, the EPA advised that it considered it highly unlikely that the reinjected water would impact bore users in Yarragadee, as the Yarragadee aquifer is separated from the petroleum reservoir by more than 700 m, with a geological confining layer in between.

The proponent's Water Management Plan also contains measures to manage potential direct and indirect impacts on groundwater and surface water, for example, a commitment to use low toxicity drilling fluids while constructing the top section of production wells.

In addition, the proponent advised that a water monitoring program will be implemented in accordance with environmental approvals, including pursuant to a licence granted under Part V of the EP Act and an environment plan under the PGER Regulations.

The EPA advised that it considers that the proponent has appropriately addressed potential impacts to water quality through its management measures. Notwithstanding, the EPA recommended conditioning the Water Management Plan to ensure that adverse impacts to groundwater quality and groundwater levels are prevented.

Finally, the EPA noted that conditions on the proposal may also be imposed on water quality through the Part V license or a *Petroleum and Geothermal Energy Resources Act 1967 (PGERA Act)* approval but considers that the confining layer is likely to avoid the need for detailed regulatory controls.

## Conclusion

The EPA's assessment identified the volume of water that will be abstracted from groundwater and reinjected through the life of the proposal. For the following reasons, the EPA determined that the impacts to surface and groundwater availability and quality were not significant:

- Modelling of Yarragadee water levels demonstrated a decline of 19 cm, which is expected to have a negligible effect on neighbouring licensed bores
- Modelling of superficial aquifers and surface water indicated a maximum decline in groundwater levels minor compared to seasonal fluctuations would have a negligible effect on Ejaro Spring.
- potential cumulative impacts from groundwater drawdown because of the proposal, including the existing Stage 1 project, to be minimal.
- reinjected water is highly unlikely to would impact bore users, as the Yarragadee aquifer is separated from the petroleum reservoir by more than 700 m, with a geological confining layer in between.

In addition, the proponent's Water Management Plan includes management and monitoring measures to protect existing systems as well as the GDEs of the Ejaro Spring adjacent to the proposal.

To provide further protection to inland waters, the EPA recommended the following condition: *implementation of the Water Management Plan to minimise impacts to groundwater and surface water (condition 7).*

Having regard for the EPA's assessment that the impacts of the proposal on inland waters is not significant and noting the EPA's recommended condition and the other statutory approvals required, it is recommended that this ground of appeal be dismissed.

## OTHER MATTERS

### Hydraulic Fracturing (fracking)

A number of appeals raise concerns that hydraulic fracture stimulation (fracking) will occur as part of the proposal. Appellants requested a condition be imposed to prohibit hydraulic fracturing.

Lock the Gate requested an additional condition:

... expressly prohibiting the proponent from using hydraulic fracturing in relation to the proposal to provide greater certainty and public confidence in the project going ahead.<sup>212</sup>

In response to the appeals, the proponent advised:

The scope of the Proposal is set out [in the EPA's report]. Fracking does not form part of the proposal. The Waitsia Gas Field is a free-flowing reservoir. The gas extraction method is conventional, meaning gas flows to the production wells and surface under extraction. As stated in the Supporting Report, *'no hydraulic fracture stimulation is proposed given the free-flowing nature of the Waitsia gas field'*.

The EPA further advised:

The proposal is for a conventional gas reserve and does not involve hydraulic fracturing. Undertaking hydraulic fracturing activities would be implementing a significant proposal without approval and is an offence under the EP Act. Should hydraulic fracturing be required in future,

---

<sup>212</sup> Lock the gate alliance, Appeal 045/20.013

any person could refer the proposal separately to the EPA for consideration, and proponents would be required to refer to the EPA under regulation 2C of the EP Regulations 1987.<sup>213</sup>

### Health impacts of domestic gas use

The Doctors for Environment contend that gas use in homes is linked health impacts from pollutants:

Gas use in homes is linked with several health impacts. These arise from a range of pollutants including carbon monoxide, nitrogen dioxide, fine particles (PM 2.5 and smaller particles), volatile organic compounds and polycyclic aromatic hydrocarbons.

Carbon monoxide poisoning is a well-known complication of burning gas indoors.

Studies have shown associations of indoor gas usage with increased asthma in children living in homes with gas cooking appliances, increased cough and wheeze in children exposed to open flued gas space heaters in classroom and increased hospitalisations for acute respiratory tract infections in young children living with flued or un-flued gas heaters. There is also concern around brain development in children in homes with gas cooking appliances<sup>214</sup>.

The EPA advised:

The potential health impacts from gas use in homes is a broader issue outside of the scope of the EPA's assessment. However, when considering the potential impacts from gas use in homes, the EPA notes this is regulated through other legislation such as the *Gas Standards (Gas Supply and System Safety) Regulations 2000*. The regulations were introduced to ensure the safety of the public, gas consumers, and gas workers in the vicinity of gas distribution assets, and that the gas supplies conform to acceptable standards of quality to protect ordinary gas consumers. Part 2 of the regulations specify the standards for natural gas and liquefied petroleum gas supply to customers, including the requirement to odorise natural gas and liquefied petroleum gas. The regulations also mandate a range of Australian Standards, including AS 4564:2020 General-purpose natural gas. This Standard sets out the requirements for providing natural gas, suitable for both transportation and general-purpose use and provides the range of gas properties consistent with safe operation of the natural gas appliance.<sup>215</sup>

### The necessity of the proposal

Dr Chris Johansen submitted that new gas extraction is not necessary:

It is no longer necessary to continue expansion of gas extraction to meet industrial and household demand. Most uses of gas can now be economically replaced by electrification and renewable hydrogen is now becoming feasible in the medium term future. Considering the urgent need to act on climate change, the most rational course to follow is to transition from gas use to renewable electricity, scaling down existing gas supplies, and certainly not introducing new ones<sup>216</sup>.

Dr Rob Phillips agreed:

International sources predict that global demand for gas will reduce substantially over the next decade. Fuels of any type (including fossil gas) are not required for bulk electricity generation as this can be economically and reliably provided by renewable electricity with storage. Increasingly, industrial demand for fossil gas will be replaced by alternative energy sources.<sup>217</sup>

Sustainable Energy Now recommended the EPA consider 'that the fiction of needing to produce more gas, is just that, just one bad pathway to a modern economy in a carbon constrained world.'<sup>218</sup>

---

<sup>213</sup> EPA, Response to appeal 045/20, 8 December 2020, page 20.

<sup>214</sup> Doctors for Environment Australia, Appeal 045/20.014 page 2

<sup>215</sup> EPA, Response to appeal 045/20, 8 December 2020, page 19.

<sup>216</sup> Dr Chris Johansen, Appeal 045/20.002 page 2

<sup>217</sup> Dr Rob Phillips, Appeal 045/20.009, 21 September 2020, Ground 1.

<sup>218</sup> Sustainable Energy Now, Appeal 045/20.020 page 2

The proponent responded to this issue by stating that the:

... 'need' for a proposal is not a relevant consideration for the EPA in exercising its functions under the EP Act.

The task for the EPA is to assess, in the framework of the principles of section 4A of the EP Act, the impact of the Proposal on the environment, and in light of that assessment, to make a recommendation as to whether or not the proposal should be implemented and, if so, on what conditions and procedures.<sup>7</sup>

The EPA clearly considered the environmental factors, including Greenhouse Gas Emissions, relevant to the Proposal and decided that the Proposal was acceptable

Consideration of the Proposal in the context of the SWIS involves larger economic and policy questions, matters of which are not appropriate for the Proponent to be required to address or for the EPA to assess.<sup>219</sup>

While the EPA did not respond to this issue directly, its advice that it is for the decision makers to 'determine if the residual emissions from the proposal are acceptable and/or aligned with current policy settings, taking into account the many sources of GHG emissions and reduction opportunities in the State (many of which are outside the EPA's scope e.g. existing emissions sources)<sup>220</sup> is relevant here.

### WA Climate Change Policy

Midwest Carbon Zero highlights that at the time of the EPA's assessment, the State Government's Western Australian Climate Policy had not been published, and requested that the proposal's assessment should be delayed until the release of the policy.

That policy has now been published,<sup>221</sup> and will likely form part of the decision makers' considerations under section 45 of the EP Act.

## **CONCLUSION AND RECOMMENDATIONS**

On the information available in respect to these appeals, it is considered that the EPA correctly identified the relevant environmental factors, and that its assessment of those factors in accordance with relevant policy.

In relation to greenhouse gas emissions specifically, the following advice of the EPA is noted:

- its assessment against its objective for greenhouse gas emissions related to the Waitsia Stage 2 proposal; and
- it is not possible to draw a link between the proposal's emissions and the environmental impacts associated with climate change in WA; and
- the acceptability of the residual emissions is a matter for decision makers having regard to current policy settings and the many sources of greenhouse emissions and reductions opportunities in the State (many of which are outside the EPA's scope)

It is recommended that the Minister accept this advice, and determine that no further assessment or reassessment by the EPA is required.

If that is the Minister's view, then it is recommended that the appeals be allowed to the extent that the EPA's recommended conditions are varied to reflect the EPA's recommended changes, namely:

---

<sup>219</sup> AWE, Response to Appeal 045/20.020, para 9-12

<sup>220</sup> EPA, Response to appeal 045/20, 8 December 2020, page 7.

<sup>221</sup> Government of Western Australia, Western Australian Climate Policy, November 2020, available [here](#).

- provide a publicly available GHGMP summary plan and progress statement, updated each time the GHGMP is revised under condition 8-6, and each time a five yearly report is submitted under condition 8-4. The summary document would require the proponent to outline key information from the GHGMP (and reports to that time), in an accessible form which can be easily reviewed by third parties for transparency, for example to compare the proposal against other proposals, and against relative contributions to the achievement of EPA objectives for the State. The summary must include:
  - a graphical comparison of emission reduction commitments in the GHGMP with 'actual' emissions for compliance periods
  - proposal performance against benchmarking for comparable facilities
  - emissions intensity
  - a summary of emission reduction measures undertaken by the proponent
  - a clear statement as to whether interim targets have been achieved.
- clarifying that the audit and peer review under condition 8-4(2) is to be made publicly available.
- require that the GHGMP be reviewed by the proponent if there is a change to the proposal which means there is a material risk that condition 8-1 will not be achieved.

In addition, it is recommended that the GHGMP should also be updated at least every five years to align with the five yearly reporting requirements specified in condition 8-4.

It is otherwise recommended that the appeals be dismissed.

#### **Consultation under section 45(1)**

If the Minister determines the appeals by not remitting the proposal to the EPA, consultation under section 45(1) of the EP Act is required.

Noting the EPA's advice that it is for the decision makers under section 45 to determine if the residual emissions from the proposal (including scope 3 emissions) are acceptable and/or aligned with current policy settings, taking into account the many sources of greenhouse emissions and reductions opportunities in the State (many of which are outside the EPA's scope e.g. existing emissions sources), the Other Advice presented in this report is suggested for consideration through that process.

Emma Gaunt  
APPEALS CONVENOR

## APPENDIX 1 – APPELLANTS

1. Ms Jennifer Hole
2. Dr Chris Johansen
3. 350 Boorloo Perth
4. Midwest Carbon Zero
5. Mid West Geothermal Power Pty Ltd
6. Mr Ian Dunlop
7. Dr Carmen Lawrence
8. Mr Ben Lawrence
9. Dr Rob Phillips
10. Ms Leslie McNulty
11. Gasfield Free Irwin
12. Mr Philip Warren Gardiner
13. Lock the Gate Alliance
14. Doctors for the Environment Australia
15. Conservation Council of Western Australia Inc
16. Mr Simon Wallwork
17. Ms Christie Kingston
18. Mr Dale Park
19. Prof Alex Gardner
20. Sustainable Energy Now
21. Mr Wayne Pech