



**Environmental
Protection
Authority**

Kwinana Renewable Fuels Project

BP Refinery (Kwinana) Pty Ltd

Report 1754

December 2023

This assessment report has been prepared by the Environmental Protection Authority (EPA) under s. 44 of the *Environmental Protection Act 1986* (WA). It describes the outcomes of the EPA's assessment of the Kwinana Renewable Fuels proposal by BP Refinery (Kwinana) Pty Ltd.

This assessment report is for the Western Australian Minister for Environment and sets out:

- what the EPA considers to be the key environmental factors identified in the course of the assessment
- the EPA's recommendations as to whether or not the proposal may be implemented and, if it recommends that implementation be allowed, the conditions and procedures, if any, to which implementation should be subject
- other information, advice and recommendations as the EPA thinks fit.



Prof. Matthew Tonts
Chair
Environmental Protection Authority

19 December 2023

ISSN 1836-0491 (Online)
Assessment No. 2377

Contents

Summary	1
1 Proposal.....	4
2 Assessment of key environmental factors	10
2.1 Greenhouse Gas Emissions.....	10
3 Holistic assessment.....	18
4 Recommendations	19
5 Other advice.....	20
Figures	
Figure 1: Project location	8
Figure 2: Development envelope and disturbance footprint.....	9
Tables	
Table 1: Proposal content document (BP 2023c)	4
Appendices	
Appendix A: Recommended conditions.....	21
Appendix B: Decision-making authorities.....	40
Appendix C: Environmental Protection Act principles	41
Appendix D: Other environmental factors	44
Appendix E: Relevant policy, guidance and procedures	48
Appendix F: List of submitters.....	49
Appendix G: Assessment timeline	50
References	51

Summary

Proposal

The Kwinana Renewable Fuels (KRF) Project is a proposal to construct and operate a biofuels processing facility at the existing BP Kwinana oil refinery.

The proposal is in the Kwinana Industrial Area (KIA), approximately 30 kilometres south of Perth in Western Australia (Figure 1).

The proponent for the proposal is BP Refinery (Kwinana) Pty Ltd (BP).

The proposal seeks to establish the biorefinery to process vegetable oils, animal fats and other biowaste products to produce biofuels.

The existing hydrocarbon refining and processing infrastructure will be repurposed and combined with new infrastructure to facilitate the proposal.

The proposal is situated within the existing BP Kwinana Refinery boundary in the KIA and will use the existing disturbed footprint.

No clearing of vegetation is required for the proposal (Figure 2).

The EPA considers the siting of the proposal in an existing industrial area, and its repurposed use of existing facilities, are consistent with good environmental practice and with *Environmental Protection Act 1986* (the Act) objectives.

Assessment of key environmental factors

Greenhouse gas (GHG) emissions is the key environmental factor that may be impacted by the proposal.

The EPA has considered potential impacts to other environmental factors such as inland waters, benthic communities, air quality and social surroundings in Appendix D.

Environmental factor : Greenhouse gas emissions	
Residual impact on key value	Assessment finding/ environmental outcome
<p>Cumulative GHG emissions contribute to climate change, which impacts on WA's environment.</p> <p>Scope 1 greenhouse gas (GHG) emissions of 120,750 CO₂-e tonnes per annum (tpa), 2,898,000 t CO₂ e (over life of the proposal).</p> <p>Savings of up to 1,449,000 t CO₂-e of Scope 1 emissions over the life of the proposal with proponent commitments to a next zero trajectory by 2050.</p> <p>Scope 2 emissions of 47,021 t CO₂-e per annum, equal to 1,128,504 t CO₂-e over life of the proposal). Scope 2 emissions will be reduced by any proponent purchase of green power.</p> <p>Scope 3 emissions of 2,020,981 t CO₂-e per annum, equal to 48,503,544 t CO₂-e over life of the proposal.</p> <p>Biogenic emissions are not assessed, consistent with current GHG emissions accounting practice of treating biogenic emissions as carbon neutral.</p>	<p>Avoidance and minimisation measures to reduce Scope 1 emissions by 2030: The proponent has adopted some upfront avoidance and mitigation measures to reduce GHG emissions from proposal commencement. Benchmarking against biofuel facilities and the transesterification processes of making biodiesel indicates emissions intensities are best practice and at the midpoint of the general industry range for such facilities. This indicates that further measures to reduce emissions might be incorporated in the future.</p> <p>The EPA has therefore determined that emissions avoidance and mitigation measures should continue to be reviewed and implemented for the life of the proposal, through five-yearly reviews. The EPA recommends this be achieved through a standard contemporary condition B1-2 requiring a GHG Management Plan (MP) to be reviewed, approved and implemented.</p> <p>Trajectory from 2030 to net zero by 2050: The proponent has proposed a linear trajectory of emissions reductions to net zero by 2050. This is consistent with the EPA's usual minimum expectations for proposals. The EPA considers these emission reductions are reasonably achievable with a combination of new and emerging technology and offsets, and ongoing five-yearly reviews of the GHG MP. The EPA recommends the emissions reduction trajectory be required through standard contemporary condition B1-1.</p> <p>Commonwealth Safeguard operation: The proponent has not provided any information about how the Safeguard Mechanism could regulate the proposal at this stage, as it is a new entrant. The EPA recommends that to reduce the potential for future duplication of GHG emission regulation, standard contemporary condition C1-1 be included so that the Chief Executive Officer of the Department of Water and Environmental Regulation (DWER) can ensure the GHG MP is not required to be implemented under State law.</p> <p>Scope 3 emissions: The proponent has committed to review scope 3 emissions reductions in the future but has not done so yet. The scope 3 emissions arise because the proposal is to produce a fuel source that, when consumed, will lead to further emissions. The EPA is of the view that the proponent should be required to consider reasonably practicable options to reduce</p>

	<p>scope 3 emissions, through standard contemporary condition B1-2 requiring a GHG MP to be reviewed, approved and implemented.</p> <p>Offsets: The proponent has not identified the amount or type of offsets it proposes. The EPA expects that material quantities of offsets are likely to be used by the proponent to meet its trajectory of zero emissions to 2050, particularly between times of major projects which implement new avoidance and minimisation measures. The EPA considers these offsets are likely to be reasonably available and recommends standard contemporary conditions, to ensure the offsets have integrity.</p>
--	--

Units and abbreviations

CO₂-e - CO₂ equivalent

Holistic assessment

The EPA considered the connections and interactions between relevant environmental factors and values to inform a holistic view of impacts to the whole environment. The EPA formed the view that the holistic impacts would not alter the EPA's conclusions about consistency with the EPA factor objectives.

Conclusion and recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values which may be significantly affected by the proposal
- residual impacts, emissions and effects in relation to the key environmental factors, separately and holistically (this has included considering cumulative impacts of GHG emissions)
- likely environmental outcomes (and taking into account the EPA's recommended conditions), and the consistency of these outcomes with the EPA objectives for the key environmental factors
- the EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment
- principles of the *Environmental Protection Act 1986*.

The EPA has recommended that the proposal may be implemented, subject to conditions recommended in Appendix A.

1 Proposal

The Kwinana Renewable Fuels (KRF) Project is a proposal to construct and operate a biofuels processing facility and biorefinery that produces biofuel from vegetable oils, animal fats and other biowaste products. The biorefinery is located at the existing BP Kwinana oil refinery in the Kwinana Industrial Area (KIA), approximately 30 kilometres south of Perth in Western Australia (Figure 1). The proponent is BP Refinery (Kwinana) Pty Ltd.

The biorefinery will reuse the existing processing infrastructure with new infrastructure such as a hydrogen generation unit (HGU), pre-treatment unit (PTU), product fractionation unit (PFU) and anaerobic bio digestion unit. The proposal development envelope and disturbance footprint are shown in Figure 2.

The biorefinery would be capable of processing up to 1,600 m³ per day (p/d) of biofuel feedstocks such as vegetable oils, animal fats and other waste products to produce hydrotreated vegetable oil (HVO), synthetic paraffinic kerosene (SPK) and bio-naphtha. These products can be blended with mineral oil to produce biofuels known as renewable diesel and sustainable aviation fuel (SAF).

The elements of the proposal which have been subject to the EPA's assessment are included in Table 1.

Table 1: Proposal content document (BP 2023c)

Proposal element	Location	Maximum extent or range
<i>Physical elements</i>		
Overall extent of the Proposal	Figure 2	A development envelope of 250 ha. No clearing of vegetation is required.
Biorefinery		Processing up to 1,600 m ³ per day.
Infrastructure – Existing, repurposed.		<ul style="list-style-type: none"> • 29 tanks with a combined total capacity of < 200 ML • 2 hydrofiners (4,000 klpd and 2,850 klpd feed respectively).
Infrastructure - New		<ul style="list-style-type: none"> • Product fractionation unit • Hydrogen generation unit • Pre-treatment unit • Anaerobic bio digestion unit • Cooling tower.
<i>Operational elements</i>		
Gas supply (natural gas)		Up to 5,556 kg/hr.
Water supply		Sourced from the Kwinana Water Reclamation Plant.
Wastewater effluent		150 kL/day to be disposed via the existing wastewater treatment plant.
Power generation		Internal generation of 2.3 MW from bio-digester unit gas engines.

Proposal element	Location	Maximum extent or range
Air emissions		<ul style="list-style-type: none"> SO₂ emissions approximately 150,000 kg/year. NO_x emissions approximately 150,000 kg/year.
Noise		<ul style="list-style-type: none"> < 7dB below assigned noise levels at any time of day for the nearest sensitive receptors. < 65 dB(A) for neighbouring industrial premises.
<i>Proposal elements with greenhouse gas emissions</i>		
<i>Construction elements</i>		
Scope 1	N/A	10,000 t CO ₂ -e per annum. 15,000 t CO ₂ -e (over life of the proposal)
Scope 2		None (any occurring would displace Scope 1 emissions)
Scope 3		Estimated 10,036 t CO ₂ -e.
<i>Operational elements</i>		
Scope 1	N/A	120,750 t CO ₂ -e per annum 2,898,000 t CO ₂ -e (over life of the proposal)
Scope 2		47,021 t CO ₂ -e per annum 1,128,504 t CO ₂ -e (over life of the proposal)
Scope 3		2,020,981 t CO ₂ -e per annum 48,503,544 (over life of the proposal)
<i>Timing elements</i>		
Proposal timing	Project life	Anticipated to commence in the second half of 2025 with an expected project life comprising: <ul style="list-style-type: none"> Operation phase – 20 years* Decommissioning – 5 years.

***The operational phase begins during commissioning.**

Units and abbreviations

CO ₂ – carbon dioxide	kg - kilogram
CO ₂ -e - CO ₂ equivalent	m ³ - cubic metres
dB - decibel	ML - megalitres
dB(A) – a-weighted decibel	MW – megawatts
ha – hectares	NO _x – oxides of nitrogen
hr – hour	SO ₂ – sulphur dioxide
kL – kilolitre	tpd- tonnes per day
klpd - kilolitres per day	tph- tonnes per hour

Proposal alternatives and context

The proposal is located within the KIA and existing BP Kwinana Refinery boundary. It is bounded by other industrial premises, with Cockburn Sound to the west.

The BP Kwinana Refinery was operational between 1955 and 2021 and supplied fuel and other products to the Australian market. The oil refinery was closed and converted into a fuel import terminal in 2021, due to economic factors.

Section 1.3 (proposal alternatives) of the proponent's referral supporting information document (BP 2023b) describes the alternatives considered for the proposal.

The proponent has selected the proposal location to maximise the reuse of existing infrastructure. The proponent outlines that the transition of the site to an integrated energy hub and biorefinery that provides social, economic and environmental benefits that were not available at other locations (BP 2023b).

The location of the proposal within the KIA provides a location with sufficient buffers and appropriately zoned land that is serviced by existing major transport links, including port, freight and heavy rail (BP 2023b).

The location also provides industrial synergies with neighbouring industry and access to an appropriately experienced workforce from surrounding residential areas (BP 2023b).

The proponent has selected a brownfields site with the potential to significantly reduce environmental impacts when compared to a greenfield site (BP 2023b).

The site selection leverages the use of existing infrastructure at the BP Refinery from previous and current operations. This includes pipelines from BP Kwinana to the Kewdale terminal (aviation fuel supply), oil refinery infrastructure that can be repurposed and other operations infrastructure such as jetties, supply pipelines, repurposed tanks, wastewater treatment plant, amenities and utilities.

The proponent has stated that the KRF would provide a reduced carbon fuel source for hard-to-abate sectors, including heavy industry, aviation, mining, and transport.

The proposal will produce a low carbon fuel for transportation that will support a reduction of scope 3 emissions globally.

The products produced will have a lower carbon intensity than traditional fossil refined products and the potential to reduce the lifecycle emissions by up to 80% relative to fossil fuels (BP 2023a).

The proponent's vision is for the Kwinana site to operate as an energy hub, where existing terminal operations will integrate with biofuel production and potential green hydrogen production.

The EPA considers the siting of the proposal in an existing industrial area, the proposal's repurposed use of existing facilities, and the intention to provide biofuels are consistent with good environmental practice and with EP Act objectives.

Consultation

The EPA published the proponent's referral information for the proposal on its website for seven days public comment from 12 September 2023 to 19 September 2023. The EPA considered the comments received during this public consultation period in its assessment.



Figure 1: Project location



Figure 2: Development envelope and disturbance footprint

2 Assessment of key environmental factors

This section reports the outcome of the EPA's assessment of the key environmental factors against its environmental objectives, and its recommendations on conditions the proposal should be subject to if it is implemented.

The EPA has also considered the principles of the *Environmental Protection Act 1986* (see Appendix C) in assessing whether the residual impacts will be consistent with its environmental factor objective.

The EPA evaluated the impacts of the proposal on other environmental factors and concluded these were not key factors for the assessment. This evaluation is included in Appendix D.

The EPA has had regard to its conclusions in other recent assessments, including the proposed Ammonia Expansion Project in the KIA.

2.1 Greenhouse Gas Emissions

The EPA environmental objective for flora and vegetation is *to minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable* (EPA 2023).

The proponent submitted a GHG Management Plan (GHGMP; BF002-99-EV-PLN-00001 dated 7 August 2023) with the proposal referral submission.

During the assessment process, the proponent was encouraged to revise the GHG MP to ensure alignment with the EPA's Environmental Factor Guideline – Greenhouse gas emissions (GHG Guideline; EPA 2023).

The proponent subsequently submitted a revised version of the GHG MP (Revision 3, dated 30 October 2023; BP 2023a) which the EPA has used as the basis for its assessment.

Key environmental values and context

GHG emissions from a cumulative range of sources have an impact on Western Australia's environment, even if the specific impact of a particular proposal's emissions may not be known with certainty. This is because there is an established link between GHG emissions and the risk of climate change. The EPA recognises that climate change will have an impact on Western Australia's environment and environmental values. For example, climate change has already caused a significant drying of the state's south-west, which in turn places significant additional pressures on water resources, flora and fauna, marine environmental quality, and social surroundings.

There is also an established correlation between global temperature rise and greenhouse gas emissions. The EPA advises that for every 1,000 billion (G) tonnes (t)CO₂ emitted by human activity, global surface temperature rises by 0.45°C, as a best estimate, with a likely range from 0.27°C to 0.63°C (IPCC 2023).

The EPA therefore usually assesses proposals where GHG emissions are reasonably likely to exceed 100,000 t of scope 1 or scope 2 emissions each year measured in t CO₂-e.

The EPA considers carbon budgets and percentages of Western Australia's emissions to be a tool to inform assessment, but these tools alone do not determine the assessment outcome. The best estimates of the remaining global carbon budgets from the beginning of 2020 are 500 GtCO₂ for a 50% likelihood of limiting global warming to 1.5°C (IPCC 2023). Remaining carbon budgets from 2020 depend on emissions and emissions mitigation from that time (IPCC 2023).

In the absence of any emissions reductions, a total of 2,898,000 t CO₂-e scope 1 emissions would be expected over the operating lifespan of the proposal. In comparative terms, Western Australia's yearly scope 1 emissions based on 2020–21 levels were 80.2 million tonnes (Mt) CO₂-e.

In the absence of any emissions reductions, a total of 1,128,504 t CO₂-e scope 2 and 48,503,544 t CO₂ e scope 3 emissions would be expected over the lifespan of the operation.

Any of these scope 2 or 3 proposal emissions which are emitted in Western Australia will also become an increased percentage of the State's scope 1 emissions over time as Western Australia begins its trajectory to net zero emissions by 2050 and might become a material contribution to the State's emissions at the end of proposal life.

Impacts from the proposal	Assessment finding, environmental outcome and recommended conditions
GHG emissions estimates	
<p>The proponent estimated GHG emissions during an 18-month construction period to be:</p> <ul style="list-style-type: none"> • Scope 1: 15,000 t CO₂-e • Scope 2: Nil t CO₂-e • Scope 3: 10,036 t CO₂-e <p>The proponent estimated GHG emissions from operation of the (without mitigation) to be:</p> <ul style="list-style-type: none"> • Scope 1: 120,750 t CO₂-e per annum • Scope 2: 47,021 t CO₂-e per annum • Scope 3: 2,020,981 t CO₂-e per annum. <p>Biogenic emissions will be in addition to the above and are estimated at 158,000 t CO₂-e per annum.</p>	<p>A GHG review for the proposal by Aurecon (2023) involved reviewing whether the proponent's emissions estimates were reasonably accurate and comprehensive. The review focused on proposal emission sources, source data, verification of calculation methods and alignment with NGER methodology and level of certainty associated with the emission estimates. The review included benchmarking of emission intensities and found the emission intensity of the proposal sits at the midpoint of the general industry range.</p> <p>The EPA considers while biogenic emissions from the proposal are in excess of the scope 1 emissions estimates, current National Greenhouse and Energy Reporting (NGER) practice is to treat these as neutral as they are part of the carbon cycle. Consistent with current emissions accounting and practice, biogenic emissions have not been further assessed.</p> <p>The EPA considers the proponent's GHG emissions estimates are a reliable basis for the assessment.</p>
Baseline emissions avoidance and minimisation, including best practise review and benchmarking	
<p>GHG emission avoidance strategies applied during the design phase that result in the avoidance and reduction of emissions are set out in the GHG MP. Material emissions reductions have been achieved from:</p> <ul style="list-style-type: none"> • Renewable off-gases generated in the process could be used as a substitute for natural gas, avoiding approximately 158,000 t CO₂-e per annum of scope 1 emissions 	<p>The EPA acknowledges there are no Australian or global facilities of the same technology to benchmark the proposal against and there is limited operational data currently available at a full scale.</p> <p>The EPA considers the Renewable Energy Directive (RED) appropriate in this case for benchmarking and comparisons of emission intensities. The RED is the legal framework for the development of clean energy across all sectors in the European Union economy (European Commission 2023).</p>

<ul style="list-style-type: none"> Hydrofiner 2 (HYD2) fired heater is only required on startup as it preheats the feed using the exothermic heat of reaction (Scope 1 avoidance of approximately 14,366 t CO₂-e per annum). PFU hot recycle to Hydrofiner 3 (HYD3) minimises heating requirements for cracking reactor and eliminates the requirement for a combustion heater (Scope 1 avoidance of approximately 11,800 t CO₂-e per annum). Counter current heat exchanger network for energy recovery and to minimise reboiler requirements (Scope 1 avoidance of approximately 17,500 t CO₂-e per annum). The proposal has been designed to avoid flaring during normal operations. Insulation and refractory, heat tracing to eliminate heat loss (Scope 1 avoidance of approximately 8,000 t CO₂-e per annum). <p>The GHG MP uses the Renewable Energy Directive (RED) for benchmarking and comparisons of emission intensities (BP 2023a).</p> <p>A GHG review was completed for the proposal by Aurecon (2023) based on the GHG MP.</p>	<p>The directive is linked to sustainability certification processes required to export renewable diesel within the European Union (BP 2023a).</p> <p>The RED benchmarking found the proposal has an expected emission intensity of 6.17 grams of carbon dioxide equivalent per megajoule of energy (g CO₂ e / MJ), with comparable facilities having an average weighted intensity of 11.3 g CO₂-e / MJ.</p> <p>The Aurecon (2023) review found as a general approximation that the CO₂ emissions from a SAF refinery can range from 0.1-0.3 t CO₂-e / kL (Rui Chen a 2021) of SPK produced. The expected emission intensity from the proposal is 0.201 t CO₂-e / kL), placing the proposal around the midpoint of intensities.</p> <p>The Aurecon (2023) review also found on average, the emissions from the transesterification process can range from 0.1 to 0.3 t CO₂-e kL (Rui Chen a 2021) of biodiesel produced.</p> <p>This benchmark provides a guide for the range to be expected. The expected emission intensity from the proposal is 0.221, placing the proposal just above the midpoint of intensities.</p> <p>The EPA considers that the proponent has adopted upfront avoidance and mitigation measures to reduce GHG emissions from proposal commencement, and based on the RED benchmarking is likely to be best practice.</p> <p>However, based on the benchmarking in the Aurecon (2023) review, further avoidance and mitigation measures are likely to become available.</p> <p>The EPA therefore considers emissions avoidance and mitigation measures should continue to be reviewed and implemented for the life of the proposal, through standard contemporary condition B1-2 requiring a GHG MP to be reviewed every five years, approved and implemented.</p>
--	---

Emissions trajectory to 2050

The proponent has proposed a linear trajectory of emissions reductions to net zero by 2050.

The proponent expects innovation in new and emerging carbon reduction technologies, which will be utilised by the proponent in achieving the emissions reductions below.

The proponent is likely to need to adopt major projects to implement such technology.

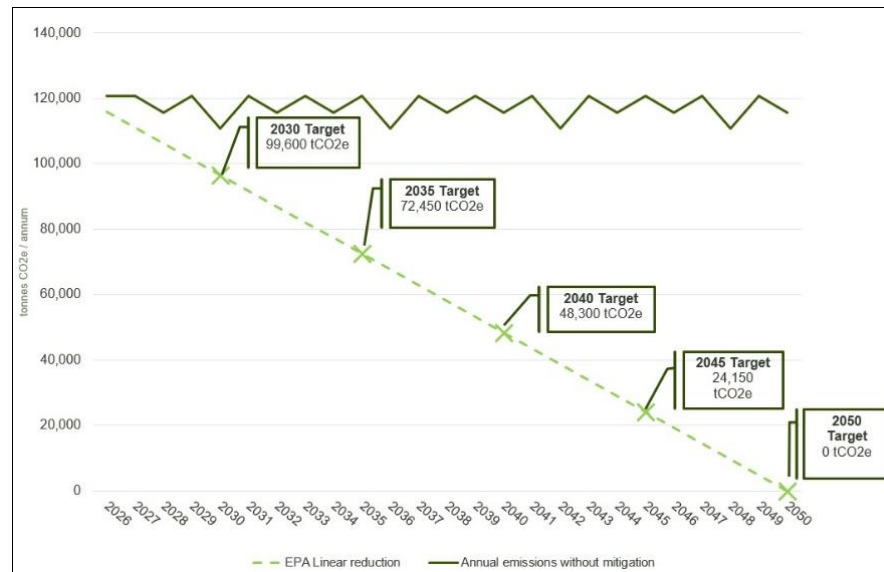


Figure 3: Annual emissions if proposed reduction targets met

The EPA notes the proposed emissions reduction trajectory will mitigate approximately 1,449,000 t CO₂-e of scope 1 emissions compared to the baseline emissions for the life of the proposal.

The EPA considers these reductions are reasonably achievable through adoption of emerging and new technology through major projects, and use of offsets in other times.

The EPA considers the emission reductions should be required through standard contemporary condition B1-1.

To provide ongoing certainty that the reductions can be achieved, the EPA also recommends a GHG MP be required in standard contemporary condition B1-2.

A GHG MP provides flexibility about how future emissions reductions are achieved.

Scope 2 emissions	
<p>The proponent has identified opportunities to reduce scope 2 emissions which it may implement in the future.</p> <p>These include purchase of green power, which the proponent states it will seek to do from the commencement of operations.</p>	<p>The EPA encourages the proponent to take all measures it can reasonably take to reduce scope 2 emissions.</p> <p>The EPA also considers the proponent should be required to review scope 2 emission reduction strategies over the life of the proposal through standard contemporary condition B1-2 requiring a GHG MP to be reviewed every five years.</p>
Scope 3 emissions	
<p>The proponent has stated that scope 3 estimates will be further refined once supply chains and project design have progressed, and when it will be evident where the largest scope 3 emissions are and where to target emission reductions.</p> <p>It states that the GHG MP will be updated to include this detail as part of its review cycle.</p>	<p>The EPA advises the proponent has not given consideration to reducing scope 3 emissions at this stage. Given the material amount of scope 3 emissions, the EPA encourages the proponent to review and reduce scope 3 emissions as soon as practicable.</p> <p>The EPA also considers the proponent should be required to review scope 3 emission reduction strategies over the life of the proposal through standard contemporary condition B1-2 requiring a GHG MP to be reviewed every five years.</p>
Offsets	
<p>The proponent has stated that should additional avoidance and reductions not be possible to meet its emissions reductions trajectory, it will propose an offset strategy to offset the residual emissions. It expects offsets will be required between major projects.</p> <p>This is consistent with offsets only being used as a last resort.</p> <p>The proponent has committed to meeting the offset integrity standards expected under Climate Active or equivalent offset standard endorsed by the Australian or West Australian governments applicable at the time.</p>	<p>The EPA considers it likely that the proponent will use some offsets to meet the emissions reduction trajectory, and that in between major projects to avoid emissions, the use of offsets may be a material portion of the emissions reductions.</p> <p>The EPA has not been able to assess the specific amount of or type of offsets at this stage.</p> <p>However, given the quantity of offsets likely involved, and the regulatory regimes governing offsets, the EPA is satisfied that the offsets are likely to be reasonably available and have sufficient integrity at the time they are required.</p>

	<p>The EPA recommends standard contemporary conditions to require the offsets have sufficient integrity at the time they are submitted.</p>
<p>Other decision-making processes, including Commonwealth Safeguard Mechanism</p>	
<p>The proponent has not provided any information about how the Commonwealth Safeguard Mechanism will regulate the proposal at this stage. It states that the Mechanism baseline is unknown as the facility will be a new entrant, and that the proponent will work with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to define appropriate production variables and best practice for this emerging industry.</p>	<p>The Commonwealth Safeguard Mechanism is expected to apply to this proposal as scope 1 emissions are greater than 100,000 t CO₂-e per annum.</p> <p>The EPA recognises that the Mechanism may require the proponent to take actions to reduce GHG emissions.</p> <p>In recognition of this, the recommended standard contemporary condition B1-1 includes emission reduction limits as an upper limit reflecting worst case scenario emission outcomes. This will avoid practical inconsistency with the Mechanism and also ensure that emissions reductions are continued to be achieved in the event of significant change to Commonwealth law or policy.</p> <p>The EPA also recommends standard contemporary condition B1-2 requiring a GHG MP, for consistency with other proposals and to ensure ongoing reviews of GHG emissions avoidance and mitigation actions.</p> <p>However, to reduce the potential for duplication of GHG emission regulation by the Commonwealth or other State laws in the future, the EPA also recommends standard contemporary condition C1-1 be included.</p> <p>This provides a mechanism for the CEO of DWER to advise the proponent the GHG MP is not required to be implemented, if the Commonwealth Safeguard Mechanism or a State law applies.</p>

In summary, the EPA considers that the emissions reductions avoidance, minimisation and offsets proposed by the proponent are generally consistent with the EPA's factor objective *to minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable*.

With scope 1 emissions reductions proposed by the proponent to 2050, emissions reduction actions will mitigate approximately 1,449,000 t CO₂-e of scope 1 emissions over the life of the proposal.

However, as with all new proposals, the proposal will add to WA's scope 1 emissions. Whether the overall state of global and Western Australia's emissions is reduced to the extent needed to minimise the risk to climate change impacts to Western Australia's environment, depends on the state of cumulative emissions over time.

This in turn depends on the emissions from existing and new proposals at any time, and the remaining carbon budget at that time. The EPA notes there are social and economic consequences of decisions about the implementation of existing and new proposals which are beyond the scope of the EPA's assessment of individual proposals.

The state of the science about the climate change risks to Western Australia's environment and any projections of Western Australia emissions are, however, within the EPA's scope to consider, and the EPA will do so as new science on these matters becomes available. The EPA also expects the Minister will be advised of these matters through DWER.

In the meantime, the EPA notes the science and policy of GHG emissions and climate change is rapidly evolving. The EPA's recommended GHGMP conditions are expected to be able to be responsive to this, particularly by enabling reviews and reporting of the proposal to reflect any significant changes. This may include if there are material changes to relevant State, Commonwealth or international GHG science or reports, policy, or other mechanisms to support the achievement of net zero emissions. The EPA believes the recommended GHG emissions condition (condition B1) will be responsive enough to take account of changes in this evolving area as well as provide the need for innovation and improvement in best practice technologies. The condition is also consistent with the GHG Emissions Guideline which is based on a continuous improvement approach to emissions reduction. The EPA also notes the Minister can direct the EPA to inquire into Ministerial Statement conditions (including GHG conditions) at any time.

3 Holistic assessment

While the EPA assessed the impacts of the proposal against the key environmental factors and environmental values individually in the key factor assessments above, given the link between the key environmental factors and other environmental factors described in Appendix D, the EPA also considered connections and interactions between them to inform a holistic view of impacts to the whole environment.

There is an established link between GHG emissions and the risk of climate change. The EPA recognises that climate change will impact on Western Australia's environment and environmental values. GHG emissions have the potential to impact on all other environmental factors through the effects of climate change. The EPA considers that the proposed mitigation conditions to regulate GHG emissions will also mean that the impacts to other factors and values of the environment are likely to be consistent with the EPA environmental factor objectives.

4 Recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values likely to be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- EPA's confidence in the proponent's proposed mitigation measures
- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with the EPA's objectives for the key environmental factors
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment and
- principles of the EP Act.

The EPA recommends that the proposal may be implemented, subject to the conditions recommended in Appendix A.

5 Other advice

The EPA may, if it sees fit, include other information, advice or recommendations relevant to the environment in its assessment reports, even if that information has not been taken into account by the EPA in its assessment of a proposal. The EPA provides the following information for consideration by the Minister.

The EPA recognises that the Department of Water and Environmental Regulation (DWER) has a long history of managing potential environmental impacts associated with the operation of industrial facilities in KIA. This is achieved through the regulation of emissions and discharges associated with activities that are prescribed under Part V of the EP Act. The EPA notes that the following emissions and discharges of the BP proposal can be regulated through Part V of the EP Act:

- emissions and discharges including noise, odour and emissions to air (point source and fugitive)
- discharges to water via the existing wastewater treatment plant and Sepia Depression Ocean Outfall Landline (SDOOL)
- spills and leaks associated with containment infrastructure.

The emissions and discharges associated with the proposal will be adequately regulated and managed under Part V of the EP Act to meet the EPA's environmental factor objectives and relevant standards. The SDOOL is also regulated under Part IV of the EP Act (Ministerial Statement 665) through which the Water Corporation manages cumulative industrial wastewater discharge from several industries.

The EPA notes that the BP Kwinana site is currently classified as 'contaminated – remediation required' under the *Contaminated Sites Act 2003* (CS Act) and managed in accordance with legal requirements. The risk assessment under Part V of the EP Act will include existing contaminated soil and groundwater and specify conditions on a works approval where required.

Appendix A: Recommended conditions

Section 44(2)(b) of *Environmental Protection Act 1986* specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This appendix contains the EPA's recommended conditions and procedures.

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED **(*Environmental Protection Act 1986*)**

BP KWINANA RENEWABLE FUELS PROJECT

Proposal: The Proposal is for the construction and operation of a biofuels processing facility in the Kwinana Industrial Area approximately 30 kilometres south of the Perth Central Business.

Proponent: BP Refinery (Kwinana) Proprietary Limited
Australian Business Number 008689763

Proponent address: Lot 18 Mason Road, Kwinana
Kwinana WA 6167

Assessment number: 2377

Report of the Environmental Protection Authority: 1754

Introduction: Pursuant to section 45 of the *Environmental Protection Act 1986*, it has been agreed that the proposal entitled bp Kwinana Renewable Fuels Project described in the 'Proposal Content Document' attachment of the referral of 5 April 2023, may be implemented and that the implementation of the proposal is subject to the following implementation conditions and procedures.

Conditions and procedures

Part A: Proposal extent

Part B: Environmental outcomes, prescriptions and objectives

Part C: Environmental management plans and monitoring

Part D: Compliance and other conditions

PART A: PROPOSAL EXTENT

A1 Limitations and Extent of Proposal

A1-1 The proponent must ensure that the proposal is implemented in such a manner that the following limitations or maximum extents / capacities / ranges are not exceeded:

Proposal element	Location	Maximum extent
Physical elements		
Overall extent of the Proposal	Within the development envelope shown in Figure 1	No clearing within a Development Envelope of 250 ha
Operational Elements		
Renewable fuels plant	Within the development envelope shown in Figure 1	Up to 1,600 m ³ per day
Timing elements		
Proposal time	Operation	Up to 20 years
	Decommissioning	Up to 5 years

Table note: **Operation** is from the date of the commencement of commissioning.

PART B – ENVIRONMENTAL OUTCOMES, PRESCRIPTIONS AND OBJECTIVES

B1 Greenhouse Gas Emissions

B1-1 Subject to condition B1-1(7), the proponent shall take measures to ensure that **net GHG emissions** do not exceed:

- (1) 531,300 tonnes of **CO₂-e** for the period from which this statement is issued until 30 June 2030;
- (2) 410,550 tonnes of **CO₂-e** for the period between 1 July 2030 and 30 June 2035;
- (3) 289,800 tonnes of **CO₂-e** for the period between 1 July 2035 and 30 June 2040;
- (4) 169,050 tonnes of **CO₂-e** for the period between 1 July 2040 and 30 June 2045;
- (5) 48,300 tonnes of **CO₂-e** for the period between 1 July 2045 and the end of the proposal operations and decommissioning, including up until 30 June 2050;
- (6) zero tonnes of **CO₂-e** for every consecutive five (5) year period from 1 July 2050 onwards, should a proposal time extension be approved; and
- (7) Where the time between the **commencement of operations** and the end of a period specified in condition B1-1(1) is less than five (5) years, the **net GHG emissions** limit for that period is to be determined in accordance with the following formula:

$$\text{Reduced net GHG emissions limit} = (A \div 1825) \times B$$

Where:

A is the **net GHG emissions** limit for the period as specified in condition B1-1.

B is the number of days between the **commencement of operations** and the end of the relevant period specified in condition B1-1.

B1-2 The proponent must implement the **Greenhouse Gas Environmental Management Plan** to:

- (1) be consistent with the achievement of the **net GHG emissions** limits in condition B1-1 subject to the adjustment provided for in condition B1-1(7) (or achievement of emission reductions beyond those required by those emission limits);

- (2) specify the estimated **proposal GHG emissions** and **emissions intensity** for the life of the proposal;
- (3) include a comparison of the estimated **proposal GHG emissions** and **emissions intensity** for the life of the proposal against other relevant emissions reduction practices, pathways and comparable facilities;
- (4) identify and describe any measures that the proponent will implement to avoid, reduce and/or offset **proposal GHG emissions** and/or reduce the **emissions intensity** of the proposal; and
- (5) provide a program for the future review of the plan to:
 - (a) assess the effectiveness of measures referred to in condition B1-2(4); and
 - (b) identify and describe options for future measures that the proponent may or could implement to avoid, reduce, and/or offset **proposal GHG emission** and/or reduce the **emissions intensity** of the proposal;
 - (c) consider reasonably practicable options for reductions in **scope 3 emissions**; and
 - (d) consider reasonably practicable options to achieve net zero **scope 2 emissions**.

B1-3 Within twenty (20) business days of:

- (1) any subsequent version of the **confirmed Greenhouse Gas Environmental Management Plan** submitted under condition C1-2 which satisfies the requirements of condition B1-2,

the proponent must submit a separate summary of the relevant plan to the **CEO**, which must:

- (2) include a summary of the matters specified in conditions B1-2(1) to condition B1-2(4); and
- (3) be published as required by condition B1-7.

B1-4 The proponent shall submit an annual report to the **CEO** each year by 31 March, commencing on the first 31 March after the **commencement of operations**, or such other date within that financial year as is agreed by the **CEO** to align with other reporting requirements for **GHG**, specifying for the previous financial year:

- (1) the quantity of **proposal GHG emissions**; and
- (2) the **emissions intensity** for the proposal.

B1-5 The proponent shall submit to the **CEO** by 31 March 2030 or such other date within that financial year as is agreed by the **CEO** to align with other reporting requirements for **GHG**, and every five (5) years thereafter:

- (1) a consolidated report specifying:
 - (a) for each of the preceding five (5) financial years, the matters referred to in condition B1-4(1) and condition B1-4(2);
 - (b) for the period specified in condition B1-1 that ended on 30 June of the year before the report is due:
 - (i) the quantity of **proposal GHG emissions**;
 - (ii) the **net GHG emissions**;
 - (iii) any measures that have been implemented to avoid or reduce **proposal GHG emissions**;
 - (iv) the type, quantity, identification or serial number, and date of retirement or cancellation of any **authorised offsets** which have been retired or cancelled and which have been used to calculate the **net GHG emissions** referred to in condition B1-5(1)(b)(ii), including written evidence of such retirement or cancellation; and
 - (v) the amount of **proposal GHG emissions** that have been avoided or reduced through a **Certified Improvement**, including a description of any **Certified Improvement** that caused the avoidance or reduction.
 - (vi) a comparison of the **proposal GHG emissions** for the proposal against **international industry best practice** for comparable facilities
- (2) an audit and peer review report of the consolidated report required by condition B1-5(1), carried out by an independent person or independent persons with suitable technical experience dealing with the suitability of the methodology used to determine the matters set out in the consolidated report, whether the consolidated report is accurate and whether the consolidated report is supported by credible evidence.

B1-6 A consolidated report referred to in condition B1-5(1) must be accompanied by:

- (1) a revision of the **confirmed Greenhouse Gas Environmental Management Plan** required under condition B1-2 and B1-8; and

-
- (2) a separate summary report, for the period specified in condition B1-1 that ended on 30 June of the year before the report is due and any previous periods specified in condition B1-1, and which includes:
- (a) a graphical comparison of **net GHG emissions** with the **net GHG emissions** limits detailed in condition B1-1(subject to the adjustment provided for in condition B1-1(7));
 - (b) proposal **emissions intensity** compared to comparable facilities;
 - (c) a summary of measures to reduce the **proposal GHG emissions** undertaken by the proponent for compliance periods detailed in condition B1-1; and
 - (d) a clear statement as to whether limits for **net GHG emissions** set out in condition B1-1 have been met, and whether future **net GHG emissions** limits are likely to be met, including a description of any reasons why those limits have not been, and/or are unlikely to be met.

B1-7 In addition to the requirements of condition C1-6 about publication of the **confirmed Greenhouse Gas Environmental Management Plan**, the proponent shall make the summary of the **confirmed Greenhouse Gas Environmental Management Plan**, and all reports required by this condition B1 publicly available on the proponent's website within the timeframes specified below, or in any other manner or time specified by the **CEO**:

- (1) the summary of the **confirmed Greenhouse Gas Environmental Management Plan** within twenty (20) business days of submitting the document to the **CEO** in accordance with condition B1-3; and
- (2) the reports referred to in condition B1-4, condition B1-5, and condition B1-6 within twenty (20) business days of submitting the document to the **CEO**, and they shall remain published for the life of the proposal.

B1-8 In addition to the requirements of condition C1-2, the proponent must revise and submit to the **CEO** the **confirmed Greenhouse Gas Environmental Management Plan** by the date that the first five (5) yearly consolidated report is required to be submitted under condition B1-5 and every five (5) years after that date.

PART C – ENVIRONMENTAL MANAGEMENT PLANS AND MONITORING

Environmental Management Plans: Conditions Relating to Approval, Implementation, Review and Publication

C1-1 Upon being required to implement an environmental management plan under Part B, the proponent must:

- (1) implement the most recent version of the **confirmed** environmental management plan; and
- (2) continue to implement the **confirmed** environmental management plan referred to in condition C1-1(1), other than for any period which the **CEO** confirms by notice in writing that it has been demonstrated that the relevant requirements for the **confirmed** environmental management plan have been met, or are able to be met under another statutory decision-making process, in which case the implementation of the environmental management plan is no longer required for that period.

C1-2 The proponent:

- (1) may review and revise a **confirmed** environmental management plan provided it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan;
- (2) must review and revise a **confirmed** environmental management plan and ensure it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan, as and when directed by the **CEO**; and
- (3) must revise and submit to the **CEO** the **confirmed** environmental management plan if there is a material risk that the **outcomes** or **objectives** it is required to achieve will not be complied with, including but not limited to as a result of a change to the proposal.

C1-3 Despite condition C1-1, but subject to conditions C1-4 and C1-5, the proponent may implement minor revisions to an environmental management plan if the revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, **outcomes** or **objectives** which the environmental management plan is required to achieve.

C1-4 If the proponent is to implement minor revisions to an environmental management plan under condition C1-3, the proponent must provide the **CEO** with the following at least twenty (20) business days before it implements the revisions:

- (1) the revised environmental management plan clearly showing the minor revisions;
- (2) an explanation of and justification for the minor revisions; and
- (3) an explanation of why the minor revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, **outcomes** or **objectives** which the environmental management plan is required to achieve.

C1-5 The proponent must cease to implement any revisions which the **CEO** notifies the proponent (at any time) in writing may not be implemented.

C1-6 **Confirmed** environmental management plans, and any revised environmental management plans under condition C1-4(1), must be published on the proponent's website and provided to the **CEO** in electronic form suitable for on-line publication by the Department of Water and Environmental Regulation within twenty (20) business days of being implemented, or being required to be implemented (whichever is earlier).

C2 Conditions Related to Monitoring

C2-1 The proponent must undertake monitoring capable of:

- (1) substantiating whether the proposal limitations and extents in Part A are exceeded; and
- (2) **detecting** and substantiating whether the environmental **outcomes** identified in Part B are achieved (excluding any environmental **outcomes** in Part B where an environmental management plan is expressly required to monitor achievement of that **outcome**).

C2-2 The proponent must submit as part of the Compliance Assessment Report required by condition D2, a compliance monitoring report that:

- (1) outlines the monitoring that was undertaken during the implementation of the proposal;
- (2) identifies why the monitoring was capable of substantiating whether the proposal limitation and extents in Part A are exceeded;
- (3) for any environmental **outcomes** to which condition C3-1(2) applies, identifies why the monitoring was scientifically robust and capable of **detecting** whether the environmental **outcomes** in Part B are met;
- (4) outlines the results of the monitoring;
- (5) reports whether the proposal limitations and extents in Part A were exceeded and (for any environmental **outcomes** to which condition C3-

- 1 (2) applies) whether the environmental **outcomes** in Part B were achieved, based on analysis of the results of the monitoring; and
- (6) reports any actions taken by the proponent to remediate any potential non-compliance.

PART D – COMPLIANCE, TIME LIMITS, AUDITS AND OTHER CONDITIONS

D1 Non-compliance Reporting

D1-1 If the proponent becomes aware of a potential non-compliance, the proponent must:

- (1) report this to the **CEO** within seven (7) days;
- (2) implement **contingency measures**;
- (3) investigate the cause;
- (4) investigate environmental impacts;
- (5) advise rectification measures to be implemented;
- (6) advise any other measures to be implemented to ensure no further impact; and
- (7) provide a report to the **CEO** within twenty-one (21) days of being aware of the potential non-compliance, detailing the measures required in conditions D1-1(1) to D1-1(6) above.

D1-2 Failure to comply with the requirements of a condition, or with the content of an environmental management plan required under a condition, constitutes a non-compliance with these conditions, regardless of whether the **contingency measures**, rectification or other measures in condition D1-1 above have been or are being implemented.

D2 Compliance Reporting

D2-1 The proponent must provide an annual Compliance Assessment Report to the **CEO** for the purpose of determining whether the implementation conditions are being complied with.

D2-2 Unless a different date or frequency is approved by the **CEO**, the first annual Compliance Assessment Report must be submitted within fifteen (15) months of the date of this Statement, and subsequent reports must be submitted annually from that date.

D2-3 Each annual Compliance Assessment Report must be endorsed by the proponent's Chief Executive Officer, or a person approved by proponent's Chief Executive Officer to be delegated to sign on the Chief Executive Officer's behalf.

D2-4 Each annual Compliance Assessment Report must:

- (1) state whether each condition of this Statement has been complied with, including:

-
- (a) exceedance of any proposal limits and extents;
 - (b) achievement of environmental **outcomes**;
 - (c) achievement of environmental **objectives**;
 - (d) requirements to implement the content of environmental management plans;
 - (e) monitoring requirements;
 - (f) implement **contingency measures**;
 - (g) requirements to implement adaptive management; and
 - (h) reporting requirements;
- (2) include the results of any monitoring (inclusive of any raw data) that has been required under Part C in order to demonstrate that the limits in Part A, and any **outcomes** or any **objectives** are being met;
 - (3) provide evidence to substantiate statements of compliance, or details of where there has been a non-compliance;
 - (4) include the corrective, remedial and preventative actions taken in response to any potential non-compliance;
 - (5) be provided in a form suitable for publication on the proponent's website and online by the Department of Water and Environmental Regulation;
 - (6) be prepared and published consistent with the latest version of the Compliance Assessment Plan required by condition D2-5 which the **CEO** has confirmed by notice in writing satisfies the relevant requirements of Part C and Part D.

D2-5 The proponent must prepare a Compliance Assessment Plan which is submitted to the **CEO** at least six (6) months prior to the first Compliance Assessment Report required by condition D2-2, or prior to implementation of the proposal, whichever is sooner.

D2-6 The Compliance Assessment Plan must include:

- (1) what, when and how information will be collected and recorded to assess compliance;
- (2) the methods which will be used to assess compliance;
- (3) the methods which will be used to validate the adequacy of the compliance assessment to determine whether the implementation conditions are being complied with;

- (4) the retention of compliance assessments;
- (5) the table of contents of Compliance Assessment Reports, including audit tables; and
- (6) how and when Compliance Assessment Reports will be made publicly available, including usually being published on the proponent's website within sixty (60) days of being provided to the **CEO**.

D3 Contact Details

D3-1 The proponent must notify the **CEO** of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

D4 Time Limit for Proposal Implementation

D4-1 The proposal must be **substantially commenced** within five (5) years from the date of this Statement.

D4-2 The proponent must provide to the **CEO** documentary evidence demonstrating that they have complied with condition D4-1 no later than fourteen (14) days after the expiration of period specified in condition D4-1.

D4-3 If the proposal has not been **substantially commenced** within the period specified in condition D4-1, implementation of the proposal must not be commenced or continued after the expiration of that period.

D5 Public Availability of Data

D5-1 Subject to condition D5-2, within a reasonable time period approved by the **CEO** upon the issue of this Statement and for the remainder of the life of the proposal, the proponent must make publicly available, in a manner approved by the **CEO**, all validated environmental data collected before and after the date of this Statement relevant to the proposal (including sampling design, sampling methodologies, monitoring and other empirical data and derived information products (e.g. maps)), environmental management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

D5-2 If:

- (1) any data referred to in condition D5-1 contains trade secrets; or
- (2) any data referred to in condition D5-1 contains particulars of confidential information (other than trade secrets) that has commercial value to a person that would be, or could reasonably be expected to be, destroyed or diminished if the confidential information were published,

the proponent may submit a request for approval from the **CEO** to not make this data publicly available and the **CEO** may agree to such a request if the **CEO** is satisfied that the data meets the above criteria.

- D5-3 In making such a request the proponent must provide the **CEO** with an explanation and reasons why the data should not be made publicly available.

D6 Independent Audit

- D6-1 The proponent must arrange for an independent audit of compliance with the conditions of this statement, including achievement of the environmental **outcomes** and/or the environmental **objectives** and/ or environmental performance with the conditions of this statement, as and when directed by the **CEO**.
- D6-2 The independent audit must be carried out by a person with appropriate qualifications who is nominated or approved by the **CEO** to undertake the audit under condition D6-1.
- D6-3 The proponent must submit the independent audit report with the Compliance Assessment Report required by condition D2-1, or at any time as and when directed in writing by the **CEO**. The audit report is to be supported by credible evidence to substantiate its findings.
- D6-4 The independent audit report required by condition D6-1 is to be made publicly available in the same timeframe, manner and form as a Compliance Assessment Report, or as otherwise directed by the **CEO**.

Table 1: Abbreviations and definitions

Acronym or abbreviation	Definition or term
Adverse impact / adversely impacted	Negative change that is neither trivial nor negligible that could result in a reduction in health, diversity or abundance of the receptor/s being impacted, or a reduction in environmental value. Adverse impacts can arise from direct or indirect impacts, or other impacts from the proposal.
Authorised offsets	Units representing GHG emissions issued under one of the following schemes and cancelled or retired in accordance with any rules applicable at the relevant time governing the cancellation or retiring of units of that kind: <ul style="list-style-type: none"> (a) Australian Carbon Credit Units issued under the <i>Carbon Credits (Carbon Farming Initiative) Act 2011</i> (Cth); (b) Verified Emission Reductions issued under the Gold Standard program; (c) Verified Carbon Units issued under the Verified Carbon Standard program; or (d) other offset units that the Minister has notified the proponent in writing meet integrity principles and are based on clear, enforceable and accountable methods.
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the <i>Environmental Protection Act 1986</i> , or the CEO's delegate.
Certified Improvement	An improvement to technology and/or processes approved in writing by the CEO as an improvement that was or would be unlikely to occur in the ordinary implementation of the proposal (disregarding the effect of these conditions), and which is the subject of a report that: <ul style="list-style-type: none"> (a) describes the improvement; (b) demonstrates that the improvement was or would be unlikely to occur in the ordinary implementation of the proposal (disregarding the effect of these conditions); and (c) has been reviewed by a suitably qualified peer reviewer, who has been approved by the CEO, and who confirms that he or she agrees with the conclusions set out in the report.
CO₂-e	Carbon dioxide equivalent
Confirmed	In relation to a plan required to be made and submitted to the CEO , means, at the relevant time, the plan that the CEO confirmed, by notice in writing, meets the requirements of the relevant condition. In relation to a plan required to be implemented without the need to be first submitted to the CEO , means that plan until it is revised, and then means, at the relevant time, the plan that the CEO

	confirmed, by notice in writing, meets the requirements of the relevant condition.
Contingency measures	Planned actions for implementation if it is identified that an environmental outcome , environmental objective , threshold criteria , or management target are likely to be, or are being, exceeded. Contingency measures include changes to operations or reductions in disturbance or adverse impacts to reduce impacts and must be decisive actions that will quickly bring the impact to below any relevant threshold , management target and to ensure that the environmental outcome and/or objective can be met.
Emissions intensity	Proposal GHG emissions per tonnes per annum of product produced.
Environmental value	A beneficial use, or ecosystem health condition.
GHG emissions	Greenhouse gas emissions expressed in tonnes of carbon dioxide equivalent (CO ₂ -e) as calculated in accordance with the definition of 'carbon dioxide equivalence' in Section 7 of the <i>National Greenhouse and Energy Reporting Act 2007 (Cth)</i> , or, if that definition is amended or repealed, the meaning set out in an Act, regulation or instrument concerning greenhouse gases as specified by the Minister.
Greenhouse Gas Environmental Management Plan	BP Kwinana Renewable Fuels Project Greenhouse Gas Management Plan (Version 3, 30 October 2023).
Greenhouse gas or GHG	Has the meaning given by Section 7A of the <i>National Greenhouse and Energy Reporting Act 2007 (Cth)</i> or, if that definition is amended or repealed, the meaning set out in an Act, regulation or instrument concerning greenhouse gases as specified by the Minister.
ha	Hectare(s)
International industry best practice	A method, process, or technique employed within a particular industry that has consistently shown through research and experience results superior to those achieved by applying other means and can be used as a benchmark.
Management action	The identified actions implemented with the intent of to achieving the environmental objective .
Management target	A type of indicator to evaluate whether an environmental objective is being achieved.
Net GHG emissions	Proposal GHG emissions for a period less any reduction in GHG Emissions represented by the cancellation or retirement of authorised offsets which:

	<p>(a) were cancelled or retired between the first day of the period until 1 March in the year after the period has ended;</p> <p>(b) have been identified in the report for that period as required by condition B1-5(1)(b)(iv);</p> <p>(c) have not been identified as cancelled or retired in the report for that period as required by condition B1-5(1)(b)(iv);</p> <p>(d) have not been used to offset GHG emissions other than proposal GHG emissions; and</p> <p>(e) were not generated by avoiding proposal GHG emissions.</p>
Objective(s)	An objective is the proposal-specific desired state for an environmental factor/s to be achieved from the implementation of management actions
Operations / Commencement of operations	Operation of the plant infrastructure for the proposal and includes pre-commissioning, commissioning, start-up and operation of the plant infrastructure for the proposal.
Outcome(s)	A proposal-specific result to be achieved when implementing the Proposal.
Proposal GHG emissions	<p>Scope 1 GHG Emissions released to the atmosphere as a direct result of an activity or series of activities that comprise/s or form/s part of the proposal, calculated in accordance with:</p> <p>(a) the <i>National Greenhouse and Energy Reporting Act 2007</i> (Cth) and its subsidiary legislation; or</p> <p>(b) if that Act or the relevant subsidiary legislation is amended or repealed such that it does not provide a mechanism for calculating the Proposal Emissions, any other Act, regulation or instrument concerning greenhouse gases as specified by the CEO.</p>
Scope 2 emissions	Scope 2 emissions of greenhouse gas , in relation to a facility, means the release of greenhouse gas into the atmosphere as a direct result of one or more activities that generate electricity, heating, cooling or steam that is consumed by the facility but that do not form part of the facility
Scope 3 emissions	Scope 3 emissions are indirect greenhouse gas emissions other than scope 2 emissions that are generated in the wider economy. They occur as a consequence of the activities of a facility, but from sources not owned or controlled by that facility's business.
Substantially commenced	Physical construction activities for, and progress of an important or essential element or elements of the Proposal scope
Threshold criteria	The indicators that have been selected to represent limits of impact beyond which the environmental outcome is not being met.

Figures (attached)

Figure 1 Development envelope (This map is a representation of the co-ordinates referenced in Schedule 1)

Schedule 1

All co-ordinates are in metres, listed in Map Grid of Australia Zone 50 (MGA Zone 50), datum of Geocentric Datum of Australia 2020 (GDA 2020).

Spatial data depicting the figures are held by the Department of Water and Environmental Regulation (DWER) Environment Online.



Figure 1: Development envelope and disturbance footprint for the proposal.

Appendix B: Decision-making authorities

Table B1: Identified relevant decision-making authorities for the proposal

Decision-Making Authority	Legislation (and approval)
1. Minister for State Development	State Agreement Act - <i>State Agreement Oil Refinery (Kwinana) Agreement Act 1952</i>
2. Chief Dangerous Goods Officer Department of Mines, Industry Regulation and Safety	<i>Dangerous Goods Safety Act 2004</i> - storage and handling of dangerous goods
3. Chief Executive Officer, Department of Water and Environmental Regulation	<i>Environmental Protection Act 1986</i> - part V works approval and licence - part V clearing permit - approval for noise management plans for construction outside of prescribed hours - part IV compliance (Ministerial Statements)
4. Chief Executive Officer City of Kwinana	<i>Planning and Development Act 2005</i> - extractive industries licence
5. Chairman, Western Australian Planning Commission	<i>Planning and Development Act 2005</i> - s. 135 subdivision or amalgamation of land - s. 115 development approval within planning control area - approval for developments in areas reserved under the Metropolitan Region Scheme

Appendix C: Environmental Protection Act principles

Table C1: Consideration of principles of the *Environmental Protection Act 1986*

EP Act principle	Consideration
<p>1. The precautionary principle</p> <p><i>Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</i></p> <p><i>In application of this precautionary principle, decisions should be guided by –</i></p> <p><i>(a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and</i></p> <p><i>(b) an assessment of the risk-weighted consequences of various options.</i></p>	<p>The EPA has considered this, with particular regard to the precautionary principle in its assessment of GHG emissions.</p> <p>The EPA notes that climate change, as a result of cumulative GHG emissions, has the potential to cause damage to WA's environment. The specific impacts of any single proposal's GHG emissions are not able to be known with certainty at this time. However, the EPA has not used this as a reason for postponing assessment of the proposal's contribution to the State's GHG emissions or recommending practicable conditions to reduce emissions in order to minimise the risk of environmental harm associated with climate change.</p> <p>The objective of the GHG MP for the proposal is to avoid, reduce or mitigate 100% of scope 1 GHG emissions from the proposal by 2050. Consistent with this the EPA has recommended conditions to ensure the achievement and reporting of net zero GHG emissions limits.</p>
<p>2. The principle of intergenerational equity</p> <p><i>The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.</i></p>	<p>The EPA has noted that GHG emissions pose a risk to future generations, however, also notes that the proponent has committed to following a linear trajectory to net zero emissions by 2050 consistent with the Paris Agreement and IPCC 1.5 report, and to use offsets should these targets not be met by continuous improvement. The EPA has recommended conditions to ensure this outcome will be met.</p> <p>In considering this principle, the EPA has had particular regard to the principle of intergenerational equity in its assessment of GHG emissions. The EPA considers consistency with this principle could be achieved with the implementation of its recommended conditions on GHG.</p>
<p>3. The principle of the conservation of biological diversity and ecological integrity</p>	<p>The EPA has had particular regard to the principle of conservation of biological diversity and ecological integrity in its assessment of greenhouse gas emissions and other factors.</p>

EP Act principle	Consideration
<p><i>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</i></p>	<p>The EPA has considered the extent of potential impacts from the proposal to flora and vegetation and terrestrial fauna to ensure consistency with the principle of conservation of biological diversity and ecological integrity.</p> <p>The proposal does not require the clearing of native vegetation and the proponent has selected an existing disturbed site for the proposal to reduce potential impacts from the proposal. In addition, the EPA has considered the emission reductions proposed for GHG emissions and how this may impact biodiversity holistically.</p> <p>The EPA has concluded that given the nature of the impacts, the proposal is not likely to reduce the extent of any biological or ecological values with the area to a significant degree. The EPA is satisfied the proposal is not likely to be inconsistent with the EPA objectives and is consistent with the principles of the conservation of biological diversity and ecological integrity.</p>
<p>4. Principles relating to improved valuation, pricing and incentive mechanisms</p> <p><i>(1) Environmental factors should be included in the valuation of assets and services.</i></p> <p><i>(2) The polluter pays principle — those who generate pollution and waste should bear the cost of containment, avoidance or abatement.</i></p> <p><i>(3) The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.</i></p> <p><i>(4) Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.</i></p>	<p>In considering this principle, the EPA notes that the proponent will bear the costs relating to implementing the proposal to achieve environmental outcomes, and management and monitoring of environmental impacts during construction, operation and decommissioning of the proposal.</p> <p>The proponent will be responsible for bearing the costs of implementing measures to reduce and offset GHG emissions, including the costs of adopting advances in process management and other measures in the future to further reduce and offset GHG emissions to achieve net zero by 2050.</p>

EP Act principle	Consideration
<p>5. The principle of waste minimisation</p> <p><i>All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</i></p>	<p>The EPA notes that waste will be minimised through the life of the proposal by adopting the hierarchy of waste controls of avoid, reuse, recycle, recover energy and safe disposal. The proposal is located in an area with sufficient internal and external waste management infrastructure to allow the above waste management hierarchy to be implemented.</p>

Appendix D: Other environmental factors

Table D1: Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
Land			
Terrestrial environmental quality	Contamination of soils and land.	<p><u>Public comments</u></p> <ul style="list-style-type: none"> No public comments were received. <p><u>Agency comments</u></p> <ul style="list-style-type: none"> No agency comments were received. 	The proposal would not result in any additional contamination of the site and the site is being repurposed for an industrial landuse consistent with the purpose of the KIA. As a result, it is not likely that the proposal will have a significant impact on terrestrial environmental quality, and the proposal is likely to be consistent with the EPA factor objective. Accordingly, the EPA did not consider air quality to be a key environmental factor at the conclusion of its assessment.
Water			
Inland waters	<p>Discharges that may result in contamination of stormwater, groundwater and land.</p> <p>Water use for construction, hydrotesting and operations.</p>	<p><u>Public comments</u></p> <ul style="list-style-type: none"> No public comments were received. <p><u>Agency comments</u></p> <ul style="list-style-type: none"> No agency comments were received. 	<p>No discharge to inland water is proposed for the proposal. Since no additional product and feed tanks are proposed, the risk of a spill and response remains unchanged onsite and is managed under existing management plans.</p> <p>Groundwater use for construction and hydrotesting purposes are predicted to be well within the proponent's licenced allocation under a current RIWI Act licence GWL60605(6). Proposal operations will use industry recycled water from the Kwinana Water Reclamation Plant.</p> <p>Approvals required under Part V of the EP Act consider discharges that have the potential to cause significant impact to the environment.</p>

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			<p>It is considered that other decision-making authorities will adequately regulate this proposal under:</p> <ul style="list-style-type: none"> • Part V of the EP Act will mitigate impacts to land and water quality • the RIWI Act will mitigate impacts to groundwater supplies in aquifers <p>in a manner that will meet the EPA objectives for these factors and that these factors do not require further assessment under Part IV of the EP Act.</p> <p>Accordingly, the EPA did not consider inland waters to be a key environmental factor at the conclusion of its assessment.</p>
Sea			
<p>Benthic communities and habitats; Marine environmental quality; and Marine fauna</p>	<p>The western boundary of BP Kwinana is located adjacent to Cockburn Sound. Changes to the marine environment could impact the biodiversity and ecosystems within Cockburn Sound.</p>	<p><u>Public comments</u></p> <ul style="list-style-type: none"> • No public comments were received. <p><u>Agency comments</u></p> <ul style="list-style-type: none"> • No agency comments were received. 	<p>The existing BP wastewater treatment plant has sufficient capacity to treat the expected 150 kL/day of wastewater from the proposal. The wastewater plant, licensed under the existing Part V Licence (L5938/1967/12), discharges via Sepia Depression Ocean Outlet Landline (SDOOL). Water Corporation manages cumulative industrial wastewater discharge from several industries via the SDOOL under MS 665.</p> <p>It is considered that other decision-making authorities will adequately regulate impacts to marine environmental quality to meet EPA objectives for these factors. Accordingly, the EPA did not consider benthic communities and habitats to be a key environmental factor at the conclusion of its assessment.</p>
Air			
<p>Air quality</p>	<p>The proposal will produce air emissions from the production of</p>	<p><u>Public comments</u></p>	<p>The local airshed receives pollutants from various industry sources within the Kwinana Industrial Area. In addition to the</p>

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
	<p>renewable fuels. The nearest residential area to the proposal is located at Medina approximately 3 kilometres (km) to the east. The nearest sensitive receptors to the proposal include Wells Park (recreation and heritage) approximately 2.2 km to the south, Perth Motorplex some 2.2 km northeast and the Thomas Oval approximately 2.5 km southeast.</p>	<ul style="list-style-type: none"> No public comments were received. <p><u>Agency comments</u></p> <ul style="list-style-type: none"> No agency comments were received. 	<p><i>National Environment Protection Measures (NEPMs)</i>, the air shed is also regulated through the <i>Environmental Protection (Kwinana) (Atmospheric Wastes) Policy 1999</i> and <i>Environmental Protection (Kwinana) (Atmospheric Wastes) Regulations 1992</i>.</p> <p>The proponent has air quality modelling, which indicates that impacts to air quality will be well within ambient air quality standards and lower than the previous oil refinery modelling.</p> <p>The separation distance between the proposal and sensitive receptors aligns with the Separation Distances between Industrial and Sensitive Land Uses (EPA, 2005) which stipulates a 2 km generic distance for oil and gas refining.</p> <p>Approvals required under Part V of the EP Act can consider emissions and discharges to air, including all discharges that have the potential to cause significant impact to the environment.</p> <p>It is considered that other decision-making authorities will adequately assess and regulate this proposal under Part V of the EP Act and will mitigate impacts to Air Quality in a manner that will meet the EPA objective for this factor and that it does not require further assessment under Part IV of the EP Act.</p> <p>Accordingly, the EPA did not consider air quality to be a key environmental factor at the conclusion of its assessment.</p>
People			
Social surroundings	The proposal has the potential to impact social surroundings via emissions of noise and odour to nearby industrial and residential receptors. Nearby sensitive receptors include sensitive receptors identified above (under	<p><u>Public comments</u></p> <ul style="list-style-type: none"> No public comments were received. <p><u>Agency comments</u></p>	<p>The noise from the proposal has been modelled and shows predicted noise levels are:</p> <ul style="list-style-type: none"> at least 7dB below assigned noise levels at any time of day for the nearest sensitive receptors below 65 dB(A) for neighbouring industrial premises

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
	<p>Air quality). The nearest registered Aboriginal heritage site is Thomas Oval approximately 2.5 km southeast of the proposal.</p>	<ul style="list-style-type: none"> No agency comments were received. 	<p>The impact from noise from the previous crude oil refinery was fully compliant with the <i>Environmental Protection (Noise) Regulations 1997</i>. The proponent has stated noise emissions from this proposal will be less than the previous oil refinery.</p> <p>The proponent stated that a detailed odour assessment with reference to <i>Guideline: Odour Emissions (DWER, 2019)</i> showed that the odour risk from the proposal will have low impacts.</p> <p>Approvals required under Part V of the EPA Act consider emissions and discharges to air, odour and noise.</p> <p>It is considered that other decision-making authorities will adequately assess and regulate this proposal under Part V of the EP Act and will mitigate impacts to Air Quality in a manner that will meet the EPA objective for this factor and that the factor does not require further assessment under Part IV of the EP Act.</p> <p>Accordingly, the EPA did not consider social surroundings to be a key environmental factor at the conclusion of its assessment.</p>

Appendix E: Relevant policy, guidance and procedures

The EPA had particular regard to the policies, guidelines and procedures listed below in the assessment of the proposal.

- *Environmental factor guideline – Air quality (EPA 2020)*
- *Environmental factor guideline – Benthic communities and habitats (EPA 2016)*
- *Environmental factor guideline – Flora and vegetation (EPA 2016a)*
- *Environmental factor guideline – Greenhouse gas emissions (EPA 2023)*
- *Environmental factor guideline – Marine environmental quality (EPA 2016b)*
- *Environmental factor guideline – Social surroundings (EPA 2016c)*
- *Environmental impact assessment (Part IV Divisions 1 and 2) procedures manual (EPA 2021a)*
- *Statement of environmental principles, factors, objectives and aims of EIA (EPA 2021b)*
- *Environmental impact assessment (Part IV Divisions 1 and 2) administrative procedures 2021 (State of Western Australia 2021)*

Appendix F: List of submitters

7-day comment on referral

Organisations and public

- Submitter 1
- Submitter 2

Government agencies

- Department of Water and Environmental Regulation

Appendix G: Assessment timeline

Date	Progress stages	Time (weeks)
27 September 2023	EPA decided to assess – level of assessment set	
17 October 2023	EPA requested additional information	20 days
30 October 2023	EPA received final information for assessment	13 days
16 November 2023	EPA completed its assessment	17 days
19 December 2023	EPA provided report to the Minister for Environment	5
2 January 2024	EPA report published	12 days
23 January 2024	Appeals period closed	3

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the EPA met its timeline objective to complete its assessment and provide a report to the Minister.

References

Aurecon Australasia Pty Ltd (Aurecon; 2023) *Kwinana Renewable Fuels project. GHG Review BP. Reference: P523583. Revision 4. 2023-10-25.*

BP (2023a) *Greenhouse Gas Management Plan. Kwinana Renewable Fuels Project. BP Kwinana energy hub. BP Refinery Kwinana Pty Ltd. Document Number: BF002-99-EV-PLN-00001.*

BP (2023b) *Kwinana Renewable Fuels s. 38 Referral Supporting Document BP Reference: 522051, Revision: 3, 2023-04-03. Prepared by Aurecon for BP.*

BP (2023c) *Proposal Content Form. Kwinana Renewable Fuels.*

Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Odour Emissions Activities regulated under the Environmental Protection Act 1986, Environmental Protection Regulations 1987.* June 2019

EPA 2016a, *Environmental factor guideline – Flora and vegetation*, Environmental Protection Authority, Perth, WA.

EPA 2016b, *Environmental factor guideline – Marine environmental quality*, Environmental Protection Authority, Perth, WA.

EPA 2016c, *Environmental factor guideline – Social surroundings*, Environmental Protection Authority, Perth, WA.

EPA 2020, *Environmental factor guideline – Air quality*, Environmental Protection Authority, Perth, WA.

EPA 2021a, *Environmental impact assessment (Part IV Divisions 1 and 2) procedures manual*, Environmental Protection Authority, Perth, WA.

EPA 2021b, *Statement of environmental principles, factors, objectives and aims of EIA*, Environmental Protection Authority, Perth, WA.

EPA 2023, *Environmental factor guideline – Greenhouse gas emissions*, Environmental Protection Authority, Perth, WA.

EPA 2005, *Guidance for the Assessment of Environmental Factors (in accordance with the Environmental Protection Act 1986) Environmental Protection Authority No. 3 June 2005 Separation Distances between Industrial and Sensitive Land Uses.* June 2005. Western Australia.

European Commission 2023. *Renewable Energy Directive.* https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en (accessed November 2023).

Government of Western Australia 2011, *WA Environmental Offsets Policy*, Government of Western Australia, Perth, WA.

Government of Western Australia 2014, *WA Environmental Offsets Guidelines*, Government of Western Australia, Perth, WA.

IPCC 2023. *Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001.

Rui Chen a, Z. Q. 2021, *Life cycle energy and greenhouse gas emission effects of biodiesel in the United States with induced land use change impacts. Bioresource Technology*.

State of Western Australia 2021, *Western Australia Government Gazette, No. 180, Environmental impact assessment (Part IV Divisions 1 and 2) administrative procedures 2021, 22 October 2021*.