
28 March 2024

Mr Joe Fittell
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Energy and Resource Assessments | Planning and Assessment
Department of Planning, Housing and Infrastructure

Via Email: Joe.Fittell@planning.nsw.gov.au

Dear Joe,

Re: Request for Additional Information - Greenhouse Gas Emissions

I refer to Department of Planning, Housing, and Infrastructure's (DPHI) Request for Information (RFI) dated 11 March 2024 received in relation to HVO North (SSD 11826681) and HVO South (SSD-11826621). The RFIs sought the following additional information:

1. Consideration of the *Climate Change (Net Zero Future) Act 2023*, including the NSW emissions reduction targets and guiding principles;
2. Consideration of the reporting requirements under the Commonwealth Safeguard Mechanism for a facility proposing to offset more than 30% of its baseline, including when the project would trigger these requirements and how much above the 30% would need to be offset;
3. Indicative schedule of fleet replacement over the life of the project, in 5-yearly increments, to better understand the likelihood of implementing new technologies as they become available;
4. Consideration of new renewable diesel options which may be available during the life of the project; and
5. Any relevant updates to the economic assessment associated with the above.

The following response builds on the commitments provided in the Hunter Valley Operations Continuation Project Submissions Report (Submissions Report) (EMM 2023) submitted in November 2023.

Responses

1 Consideration of Climate Change (Net Zero Future) Act 2023

RFI: Consideration of the Climate Change (Net Zero Future) Act 2023, including the NSW emissions reduction targets and guiding principles

1.1 Federal and NSW Legislative Frameworks for Greenhouse Gas

HVO notes that there are concurrent legislative frameworks for greenhouse gas (GHG) at both the Federal and State levels.

At a Federal level, the Safeguard Mechanism (SGM) was introduced in 2014 and is the Federal Government's legislative framework for reducing emissions at Australia's largest industrial facilities. It applies to industrial facilities such as HVO that have more than 100,000 tonnes of carbon dioxide equivalent (CO₂e) scope 1 emissions per year (termed 'designated large facilities').

Reforms to the SGM took effect from 1 July 2023. Under these reforms, new baseline emissions numbers ('baselines') for designated large facilities are set on a declining trajectory aligned with achieving Australia's emissions reduction targets set out in the Climate Change Act 2022 (Cth) (CC Act) and its Nationally Determined Contribution (NDC) under the Paris Agreement, which are currently as follows:

- a) reducing Australia's net greenhouse gas emissions to 43% below 2005 levels by 2030;
- b) reducing Australia's net greenhouse gas emissions to zero by 2050.

The decline rate for Safeguard baselines is currently as follows:

- a) 4.9% per year to 2030, followed by
- b) 3.285% per year thereafter

At the NSW State level, in December 2023 the NSW Government enacted legislation that enshrined its own emissions reduction targets, through the Climate Change (Net Zero Future) Act 2023 (NZF Act).

The NZF Act legislates targets to reduce net GHG emissions in NSW:

- a) by at least 50% from the net greenhouse gas emissions in 2005 by 2030;
- b) by at least 70% from the net greenhouse gas emissions in 2005 by 2035; and
- c) to zero by 2050

The NZF Act is not prescriptive with respect to how emissions reductions targets are to be achieved and does not impose an obligation on the public to achieve these targets.

Further, the targets are applied at a whole-of-economy scale and do not specify sectoral requirements or plans to be implemented or followed.

The NZF Act sets out a number of guiding principles, including:

- A critical need to address climate change
- Action to address climate change should be taken as early as possible to minimise cost and adverse impacts of climate change
- Action to address climate change should be undertaken in a way that is fiscally responsible and promotes sustainable economic growth
- Action to address climate change should take into account the best available science, and the need to support local communities (including the impact on local employment and industries)

1.2 HVO supports consistency between Federal and State GHG legislative frameworks

HVO supports a consistent, efficient and harmonised approach to GHG regulatory policy including compliance reporting, regulatory constraints, and the utilisation of a national carbon market to avoid duplication, unnecessary additional costs and unintended consequences.

The SGM reforms were legislated after extensive consultation across the range of sectors that form Safeguard facilities. There is significant complexity in their design, to provide the fairest outcomes to emitters whilst incentivising emissions reduction, and minimising the risk of unintended consequences.

HVO recognises that State governments may choose to legislate their own respective emission reduction targets, however, in doing so any State based emission reduction targets must be implemented in a manner that is aligned to the Federal legislative architecture including the National Greenhouse and Energy Reporting Scheme (NGERS) and the SGM.

HVO's principal position is that facilities that are covered by the SGM should not be subject to additional state-based requirements. The SGM applies to all designated large facilities across Australia, providing important consistency across each State and Territory in terms of how high-emitting facilities are regulated and managed. Through the SGM and NGERS regimes, the Federal Government receives emissions data to manage Australia's national GHG inventory and track progress against the emissions reduction targets in the CC Act and Australia's NDC.

In recognition of the targets in the NZF Act, HVO proposes emissions reduction measures for the Project that align with the NSW targets, as well as being consistent with its obligations under the SGM. More detail is set out below.

1.3 HVO's Proposal

HVO proposes that the Project emissions be managed in a way that is consistent with HVO's obligations under the SGM while at the same time implementing measures that go beyond its SGM obligations to make an additional, voluntary contribution towards the NSW emissions reduction targets. With this in mind, HVO proposes that the emissions of the Project are aligned, so far as practicable, with the NZF Act emission reduction targets, including by using offsets to reduce the Project's net GHG emissions.

In effect, HVO would implement a net emissions decline rate for the Project that is more ambitious than the SGM requirements, taking into account HVO's desire to contribute to the NZF Act emission reduction targets of 50% by 2030 and 70% by 2035. This would not only maintain compliance with the SGM through undertaking any necessary surrender of ACCUs and/or SMCs to meet a baseline exceedance, but deliver an additional ~2.6MtCO₂e of emissions reduction for the HVO Project through the voluntary surrender of additional ACCUs towards the NZF Act targets.

Figure 1 depicts the Project's Scope 1 emissions profile (columns) in comparison to the Project's Federal SGM baseline (green dashed line), and the proposed net GHG emissions for the Project (red dashed line) to reflect the additional contribution proposed by HVO.

Table 1 details HVO's proposed decline rates for its net emissions.

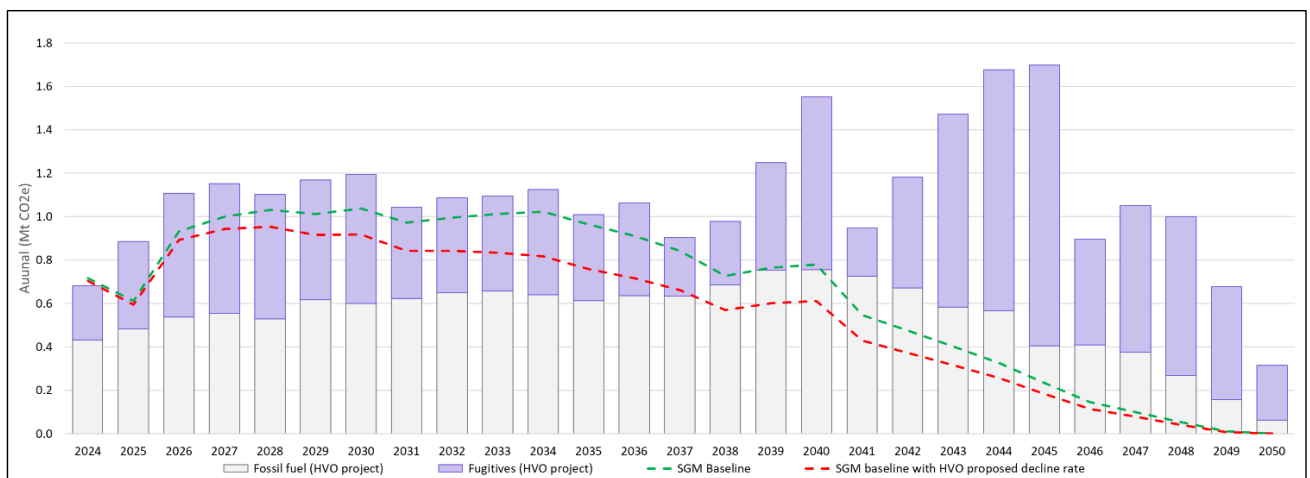


Figure 1 HVO Scope 1 Project Emissions Profile vs Indicative Baselines¹

¹ HVO site-specific EI = 0.0346 t CO₂e/ROM tonne based on FY18 - 22 data (indicative, subject to approval from CER)

Table 1 The HVO Project's proposed decline rates for net emissions

Financial Year beginning	National Greenhouse and Energy Reporting (SGM) Rule 2015 – decline rates as per Clause 32 (result in the green dashed line)	HVO Proposed Decline Rates for HVO Project (result in the red dashed line)
1 July 2023 to 1 July 2029	4.9%	5.9%
1 July 2030 to 1 July 2034	3.285%	4.0%
1 July 2035 to a later 1 July	3.285%	2.58%

Figure 2 below is repeated from Figure 4.2 of our Submissions Report and depicts that the Scope 1 average emissions intensity for the HVO Project is low relative to other Australian coal operations. The continuation of mining at a comparatively low emission intensity site such as HVO would be beneficial to local employment and industries that are currently reliant on HVO.

HVO's proposal is consistent with several guiding principles from the NZF Act, reflecting action to address climate change in a way that is fiscally responsible and promotes sustainable economic growth, considers the best available science, and the need to support local communities (including the impact on local employment and industries) by providing continuing employment opportunities to 2050.

We consider this proposal, which ensures consistency with the SGM but seeks to make an additional, voluntary contribution to reduce the emissions profile of the Project in light of the NSW emissions reduction targets under the NZF Act, demonstrates HVO's consideration of the NZF Act and upholds its guiding principles.

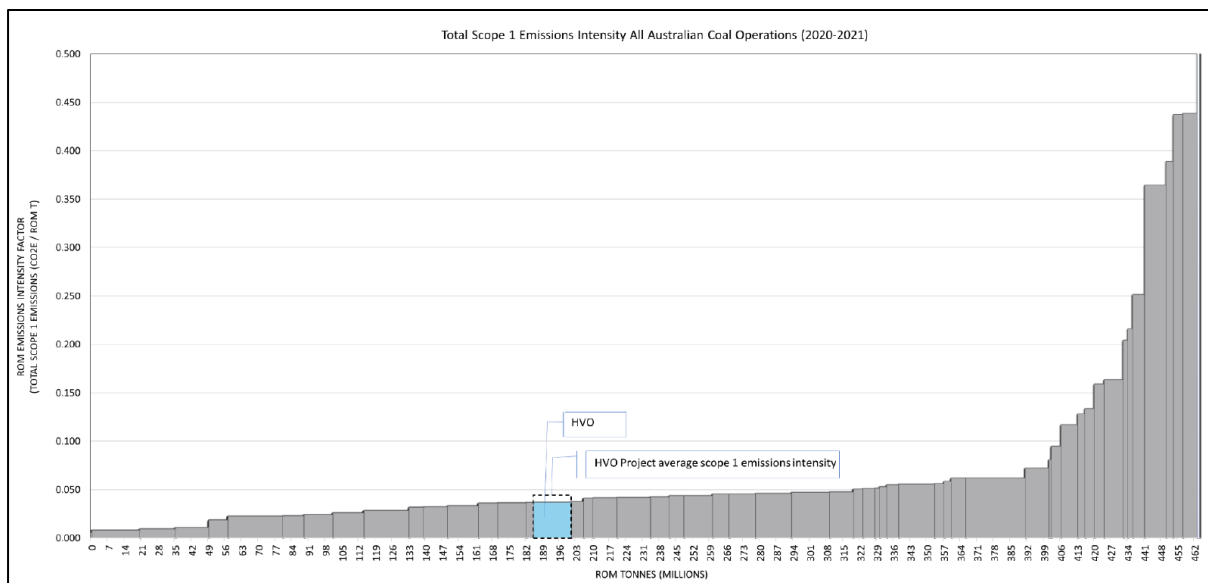


Figure 2 Scope 1 emissions intensity - all Australian Coal Operations (2020-2021)

2 Consideration of the reporting requirements under the Commonwealth SGM for a facility proposing to offset more than 30% of its baseline

RFI: Consideration of the reporting requirements under the Commonwealth Safeguard Mechanism for a facility proposing to offset more than 30% of its baseline, including when the project would trigger these requirements and how much above the 30% would need to be offset.

2.1 Surrendering offsets for SGM compliance

The SGM does not impose emissions reduction obligations on designated large facilities, but instead incentivises low-cost abatement by requiring the surrender of ACCUs or SMCs where a facility's scope 1 emissions exceed its baseline emissions number in a particular period. Indeed, both before and after SGM reforms took effect, designated large facilities have been able to comply with their obligations under the SGM by surrendering ACCUs.²

The ability of SGM facilities to comply with their obligations through surrendering offsets has been a critical element of the regime since its inception: the SGM covers various 'hard-to-abate' sectors (such as open-cut coal mining), which provide significant benefits to the economy and local communities, however a large proportion of emissions arise from processes that are difficult to avoid, and cost effective abatement technologies to reduce onsite emissions may not be readily available.³

Providing facilities with different mechanisms for compliance (including the ability to offset baseline exceedances) is important for reducing compliance costs for facilities while also ensuring that emissions targets are met.⁴ This was highlighted in the Minister's Statement of Reasons accompanying the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Reforms) Rules 2023* (Cth).⁵

2.2 Explanation required where ACCUs constitute 30% or more of the facility's baseline

Section 72C(4) of the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 (Cth) (Safeguard Rule) requires that where the ACCUs surrendered amount to 30% or more of the facility's baseline emissions number in a compliance year, then the responsible emitter for the facility must give the Clean Energy Regulator (Regulator) a

² *National Greenhouse and Energy Reporting Act 2007* (Cth) s 22XN.

³ See page 4 and 14 of Safeguard Mechanism Reforms Position Paper (January 2023) https://storage.googleapis.com/files-au-climate/climate-au/p/prj23cd662ff4387d8c254ae/public_assets/Safeguard%20Mechanism%20Reforms%20Position%20Paper.pdf

⁴ Australian Government Department of Climate Change, Energy, the Environment and Water, Safeguard Mechanism Reforms (Position Paper, January 2023) 2–3.

⁵ Australian Government Department of Climate Change, Energy, the Environment and Water, *Statement of reasons under s 22XS(1B) of the National Greenhouse and Energy Reporting Act 2007 (NGER Act) – How the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 as amended delivers the legislated safeguard outcomes.* (Statement, May 2023) (**Statement of Reasons**).

written explanation of why more carbon abatement was not undertaken at the facility during the period. This explanation must:⁶

- a) *be given to the Regulator in the form approved, in writing, by the Regulator; and*
- b) *address the following matters:*
 - i. *whether limitations in available technologies affected the level of carbon abatement undertaken at the facility during the period;*
 - ii. *whether there are barriers, including regulatory barriers, to undertaking carbon abatement at the facility; and*
- c) *include information about future opportunities for undertaking carbon abatement at the facility; and*
- d) *identify any information included in the explanation that is commercially sensitive.*

The Regulator must publish this explanation on its website as soon as practicable after receiving it.⁷

It is important to note that these requirements do not introduce any cap or limit on the number of ACCUs that a responsible emitter may surrender for the purposes of SGM compliance. Additionally, no State or Territory has implemented any such caps or limits under relevant legislation.

Instead, as the Explanatory Statement makes clear, these requirements 'are intended to provide an additional incentive for onsite abatement and require the responsible emitter to consider why onsite emissions are not being reduced. The identification of barriers to such abatement will also assist governments prioritise actions to address these limitations.⁸ The new requirements are expected to lead to prioritisation of onsite abatement where it is technologically feasible and available at a price broadly relative or less than ACCUs.⁹

Additionally, given the SGM reforms effect a continuous decline to the emission intensity of production, all facilities may trigger the 30% explanation requirement over time as their baselines approach zero. This is another driver for the 30% not representing a cap or limit on the number of ACCUs that a responsible emitter may surrender.

The requirement for the Regulator to publish the explanation promotes transparency and allows for public scrutiny of the facility's pathway to net zero by 2050.¹⁰

⁶ *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 (Cth) (Safeguard Rule) s72C(5).*

⁷ *Ibid s 72C(6).*

⁸ *Explanatory Statement, National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Reforms) Rules 2023 (Cth) [256] (Explanatory Statement).*

⁹ *Statement of Reasons (n 5).*

¹⁰ *Explanatory Statement (n 8) [260].*

2.3 HVO Project emissions and potential for Scope 1 emissions to be 30% over the Safeguard Baseline

The HVO Project’s Scope 1 emissions are currently hard-to-abate due to the limited availability of technically and commercially feasible measures for emissions reduction.

Additionally, due to uncertainty in the availability and timing of the development of emerging technologies for emissions reduction, we’ve refrained from applying emissions reductions from any potential future technologies in our emissions estimates for the Project. As such, over the Project’s life, we currently forecast an increasing reliance on offsets to manage our Scope 1 emissions.

If the Project is unable to adopt technically and commercially feasible emissions reductions, then we forecast that Scope 1 emissions would initially exceed 30% of its Safeguard Baseline in 2025, but then would not trigger this reporting threshold again until 2038. Over the 2038 to 2050 period (assuming no new technically and commercially feasible emissions abatements are then available), the HVO Project may exceed the Safeguard Baseline + 30% reporting threshold by a total of ~8.8MtCO₂e.

Figure 3 depicts the Project’s Scope 1 emissions profile (columns) in comparison to the Project’s Federal SGM baseline (green dashed line), the proposed net GHG emissions for the Project (red dashed line) to reflect the higher decline rates proposed by HVO, as well as the 30% baseline exceedance trigger for an explanation requirement (blue dashed line).

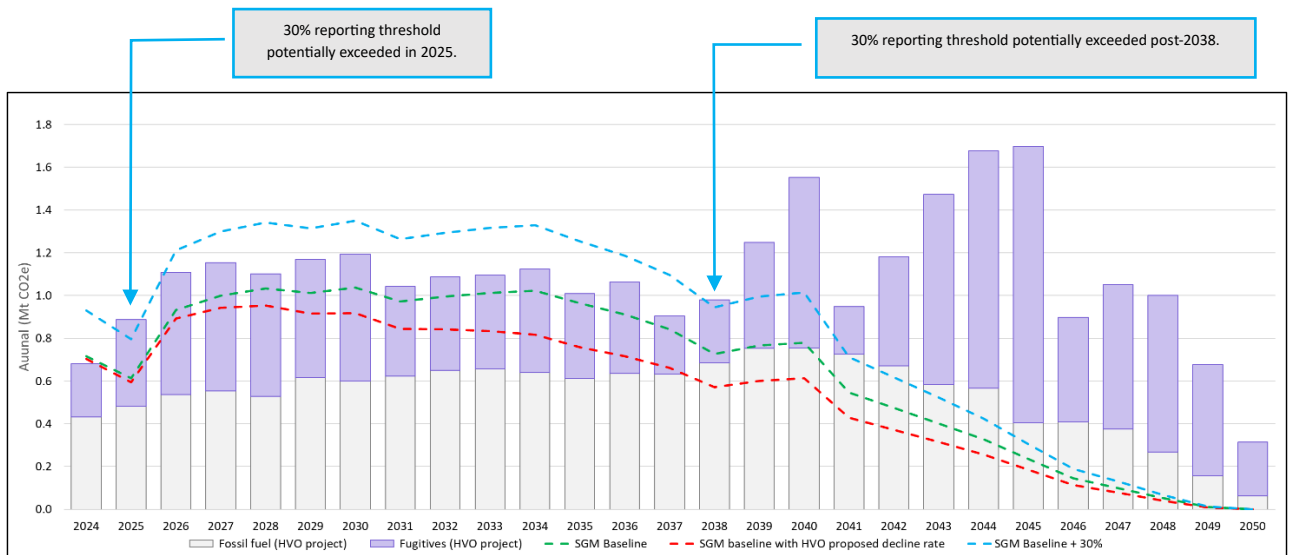


Figure 3 HVO Scope 1 Project Emissions Profile vs Indicative Baselines (including Safeguard baseline plus 30%)

3 Fleet Replacement Strategy

RFI: Indicative schedule of fleet replacement over the life of the project, in 5-yearly increments, to better understand the likelihood of implementing new technologies as they become available

3.1 Fleet Replacement

HVO is a large mining operation with a large fleet of haul trucks and support diesel mining equipment such as excavators, dozers, graders, and water carts. HVO also utilises several electric shovels. Given the proposed life of HVO there will be equipment replacement periodically throughout the mine life. As such, the replacement schedule for the HVO mining fleet needs to be considered to understand opportunities to implement new technologies that may reduce GHG emissions. It is reasonable to expect that over the Project life to 2050, technology will develop, and that equipment replaced later in the mine life may be more efficient and/or have lower GHG emissions than equipment currently available. This section considers the drivers for replacing mining fleet, the anticipated fleet replacement opportunities at HVO to 2050, and the potential for technology development to reduce GHG emissions as fleet is replaced.

3.2 Drivers for Fleet Replacement

Mining equipment is replaced periodically throughout mine life and economics is the key driver for equipment replacement. Purchase of fleet is comprehensively assessed by mining operations and a range of considerations are examined including technology development in machine efficiency or productivity, machine capacity, life cycle, and environmental and safety performance.

Replacing a machine, particularly if it is nearing a major expenditure point such as an engine change, with a new model that has improved operational productivity, larger capacity or better fuel efficiency can make economic sense even though the full life of the machine, as anticipated when it was first purchased, has not yet been fulfilled. The economic benefit to replacing the machine can outweigh the cost of upgrading or maintaining the existing one.

The drivers for fleet replacements are always evolving. Whilst the economic model prepared for the Project application considers a fleet replacement schedule which is described below, it is a forecast that will change. Changing economics, changing technology, and changing legislation can all drive changes to the equipment replacement forecast.

3.3 Forecast Equipment Replacement Schedule

Below is a graph (**Figure 4**) of forecast equipment replacements for the duration of the proposed mining schedule. Note that this forecast is an indicative estimate only. It is based on the known assumptions at the time of EIS preparation. It has been developed considering current expectations for chassis life, engine life, overhaul costs and new equipment purchase costs. It has not factored in developments in technology either for

productivity or efficiency as they are not known with enough confidence to be considered in a mine schedule. Therefore, for all the reasons described above, the forecast will change over time.

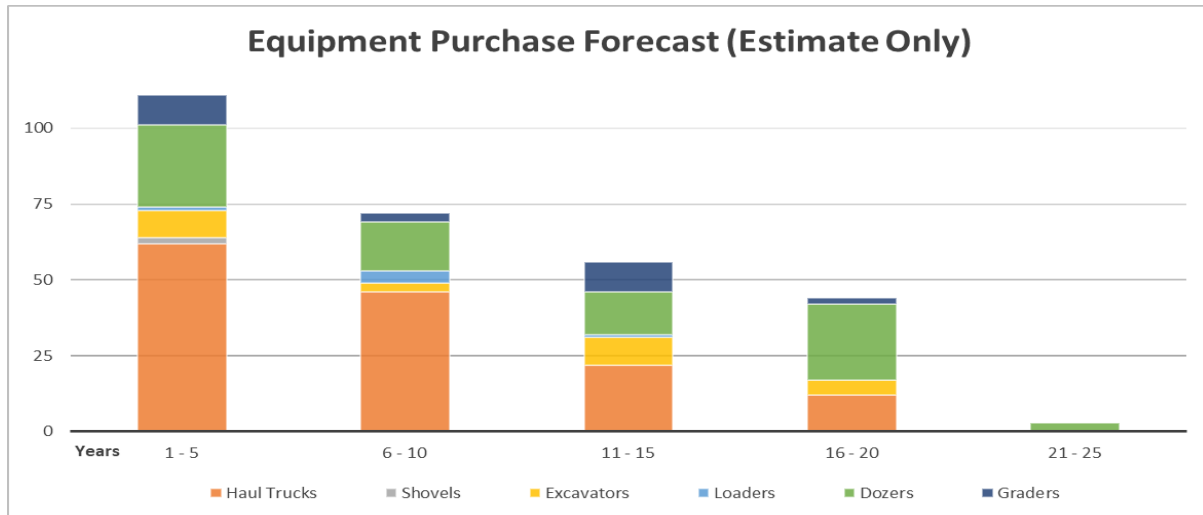


Figure 4 Estimate of Equipment Purchase (Year 1 is 2025)

3.4 Opportunities to Reduce Emissions Through the Replacement Schedule

Detailed discussion regarding the potential implementation of improved technology to reduce overall diesel emissions was provided in Section 4.2.7 of the Submissions Report. This section outlined the current technological development state for low emissions mining equipment. It also discussed in detail the process by which HVO follow the technology readiness and commercial readiness levels of emerging technologies so that they can be assessed for implementation. This section demonstrates that there is significant work underway across industry and equipment manufacturers to develop technologies to reduce emissions from mining equipment and HVO actively follows the progress of these technologies. For the emerging technologies discussed in Section 4.2.7, it will take time to develop to maturity and be commercially available at scale. There are currently no commercially available technologies that could be implemented or be confidently forecast to be implemented at HVO. Given this uncertainty, HVO's emissions forecasts do not include any potential future emissions reduction benefit from emerging technologies.

Figure 4 above shows that there are considerable fleet replacement purchases scheduled throughout the life of the Project. Each one of these purchases is an opportunity to upgrade to the latest technology to reduce emissions. The practicality and economic value of the technology at that time will be key considerations in the purchase evaluation of the options. Another key factor in the economic assessment of alternatives will be the cost of carbon e.g. the cost of ACCUs. Additionally, as discussed previously, the productivity or efficiency value of new equipment could bring forward the anticipated equipment replacement timing.

3.5 HVO's commitment (from Submissions Report) to conduct a 3 yearly review of current technologies and abatement measures and whether those technologies are reasonable and feasible

As stated in Section 4.2.9 of the Submissions Report, HVO will continue to undertake regular reviews of technologies and abatement measures to reduce GHG emissions from the Project, including whether these measures are reasonable and feasible to implement at HVO. These reviews will be undertaken every three years and will include consideration of the use of alternate fuels including biofuels and hydrogen, and the transition to an electric powered fleet, as these technologies advance and more information becomes available. Consistent with the above commitment, in response to this RFI, HVO will ensure to include discussion on the equipment replacement or upgrade opportunities as part of the periodic review process.

3.6 Opportunities to Reduce Emissions Outside Equipment Replacement

Equipment replacement is not the only pathway to reducing mining equipment emissions. Other pathways include:

- Renewable/sustainable fuels is another opportunity to mitigate emissions and does not require replacement equipment. This is discussed further in **Section 4**.
- Retrofit / upgrades of existing equipment is another opportunity.

HVO is currently studying conceptual opportunities to reduce diesel emissions from its mining fleet. All emerging technologies need to undergo significant testing and assessment as part of progressing their technological and commercial readiness for deployment.

4 New Renewable Diesel Options

RFI: Consideration of new renewable diesel options which may be available during the life of the project

There are a range of sustainable fuel options which are commercially available as well as under development¹¹. Such fuels can be used in conventional internal combustion engines (ICE) across sectors including mining, road transport, rail, maritime, aviation, and as chemical feedstocks.

Sustainable fuels can be blended with fossil fuels to a blend limit (fatty acid methyl ester - FAME and ethanol) or to any ratio up to 100% (hydrogenated vegetable oil, synthetic), without requiring any technical adjustments to the vehicle. The use of 100% renewable diesel, such as hydrogenated vegetable oil, in ICE vehicles could achieve a 100% reduction in Scope 1 emissions.

¹¹ McKinsey & Company, 2022, *Sustainable Fuels: Supply - Demand Perspective*

The use of sustainable fuels is expected to grow significantly over the next 20 years, decreasing fossil fuel consumption in hard-to-abate sectors, driven by regulatory mandates, particularly in the road transport and aviation sectors.

Currently, there are significant barriers to the use of sustainable fuels including cost and limited availability. Sustainable fuels also face issues of ethical provenance as their feedstocks may have the potential to displace food-growing activities and have land use impacts e.g. deforestation. Sustainable fuels also differ in their extent of application or the ability to “drop-in” or substitute fossil fuel diesel use.

5 Economic Assessment

RFI: Any relevant updates to the economic assessment associated with the above

The HVO Continuation Project Environmental Impact Statement (EMM 2022) was supported by an Economic Impact Assessment (EIA) (Ernst & Young 2022). The Project is currently undertaking an update of the EIA in consideration of policy and legislative changes that have been enacted since its drafting including, relevantly to this correspondence, the NZF Act. A revised EIA for the Project will be provided to DPHI separately.

Should you wish to discuss the content of this letter please contact me on the details below.

Yours sincerely,



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