Report and recommendations of the Environmental Protection Authority

Pilbara Energy Generation Power Station

Pilbara Energy (Generation) Pty Ltd

Report 1686

August 2020

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
19/06/2020	EPA decided to assess – level of assessment set	
13/07/2020	EPA received final information for assessment	3
23/07/2020	EPA board completed its assessment	1
14/08/2020	EPA provided report to the Minister for Environment	3
19/08/2020	EPA report published	3 days
02/09/2020	Close of appeals period	2

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the Environmental Protection Authority (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.

Dr Tom Hatton
Chairman

14 August 2020

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Summary

This document is an assessment report for Western Australia's Minister for Environment. It describes the outcomes of an Environmental Protection Authority (EPA) environmental impact assessment of the Pilbara Energy Generation (PEG) Power Station (the proposal). The proposal is situated at the Solomon Iron Ore Mine Site, which is about 60 kilometres north of Tom Price, in the Shire of Ashburton. The proponent is Pilbara Energy (Generation) Pty Ltd.

Proposal

The proposal is to construct and operate the PEG power station that would be located adjacent to the existing Solomon power station. The PEG power station will have the capacity to produce up to 165 megawatts and is expected to produce an average of 150 megawatts of power.

Background and Context

The proponent referred the proposal to the EPA on 22 May 2020. On 19 June 2020 the EPA decided to assess the proposal and set the level of assessment at Referral Information.

Key Environmental Factors and Relevant Principles

The EPA identified the following key environmental factors during the course of its assessment:

- **Greenhouse Gas Emissions** – emission of 670,666 tCO_2-e and potential impacts on climate.
- **Air Quality** – cumulative impacts on local receptors with the adjacent and already operating Solomon power station.

In identifying the key environmental factors, the EPA had regard to the object and principles set out in s. 4A of the *Environmental Protection Act 1986*. The EPA considered that the following principles were particularly relevant to this assessment:

1. The principle of intergenerational equity
2. The principle of waste minimisation.

Conclusion

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

- impacts to all the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- relevant *Environmental Protection Act 1986*t principles and the EPA's objectives for the key environmental factors
- EPA's view that the impacts to the key environmental factors are manageable, provided the recommended conditions are imposed.

Given the above, the EPA has concluded that the proposal may be implemented subject to the conditions recommended in Appendix 2.

Recommendations

Having assessed the proposal, the EPA recommends that the proposal may be implemented subject to conditions.

The EPA recommends that the Minister for Environment notes:

1. That the proposal is for the construction and operation of the Pilbara Energy Generation Power Station proposal, which includes 14 gas-fired reciprocating engines situated at the Solomon Iron Ore Mine about 60 kilometres north of Tom Price.
2. The key environmental factors identified by the EPA in the course of its assessment are Greenhouse Gas Emissions and Air Quality, set out in section 4.
3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 4. Matters addressed in the conditions include:
    a) implementation of the Greenhouse Gas Management condition to minimise greenhouse gas emissions (condition 6).

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1. Introduction

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for Environment on the outcomes of the EPA's environmental impact assessment of the Pilbara Energy Generation (PEG) Power Station (the proposal). The proponent of the proposal is Pilbara Energy (Generation) Pty Ltd, a wholly owned subsidiary company of Fortescue Metals Group (FMG).

The proposed power station will be located next to the existing Solomon power station and replaces the need to construct 221 megawatts (MW) of power generation at the approved North Star Magnetite Project. In conjunction with this referral Fortescue Metals Group Pty Ltd, has submitted a request for a change to proposal under s. 45C of the *Environmental Protection Act 1986* (EP Act) to remove power generation from Ministerial Statement 993, which regulates the North Star Magnetite Project.

The EPA has prepared this report in accordance with s. 44 of the EP Act. This section of the EP Act requires the EPA to prepare a report on the outcome of its assessment of a proposal and provide this assessment report to the Minister for Environment. The report must set out:

(a) what the EPA considers to be the key environmental factors identified during the assessment

(b) the EPA's recommendations as to whether or not the proposal may be implemented and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may also include any other information, advice and recommendations in the assessment report as it thinks fit.

The proponent referred the proposal to the EPA on 22 May 2020. On 19 June 2020 the EPA decided to assess the proposal and set the level of assessment at Referral Information with additional information required under section 40(2)(a) of the EP Act.

EPA Procedures

The EPA followed the procedures in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016* (State of Western Australia 2016) and the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual* (EPA 2020a).

2. The Proposal

The proponent proposes to construct and operate the PEG power station, located adjacent to the existing Solomon power station, about 60 kilometres north of Tom Price, in the Shire of Ashburton (Figure 1). The PEG power station will have the capacity to produce up to 165 MW and would produce an average of 150 MW of power. The proposal includes:

- 14 gas reciprocating engines with an installed capacity of 165 MW
- 14 exhaust stacks, approximately 18 metres in height
- self-bunded oil storage, service oil, and waste oil tanks
- transformers
- black start diesel generator
- closed circuit external engine radiator cooling systems
- oily water collection sumps and treatment plant with holding tanks
- site storm water drainage
- site access roads.

The proposal is on land previously approved for clearing as part of the Solomon Iron Ore Project - Sustaining Production proposal, and subsequently used as a laydown area under Ministerial Statement 1062. Therefore, no further approvals for clearing of native vegetation or fauna habitat are required for this proposal.

The key characteristics of the proposal are summarised in Tables 1 and 2 below. A detailed description of the proposal is provided in section 2 of the proponent's supplementary report (FMG 2020a).

Table 1: Summary of the proposal

Proposal title	Pilbara Energy Generation Power Station
Short description	The proposal is to construct and operate a gas-fired power station in the Pilbara region. The proposal will be constructed with an installed capacity of 165 MW to produce an average 150 MW of power to the North Star mining operations and the Pilbara Transmission Project.

Table 2: Location and proposed extent of physical and operational elements

Element	Location	Proposed extent
Physical elements		
165 MW power station	Figure 2	No additional clearing is required for the development of the PEG power station.
Operational elements		
Power generation	-	14 gas-fired reciprocating engines with an installed capacity of up to 165 MW

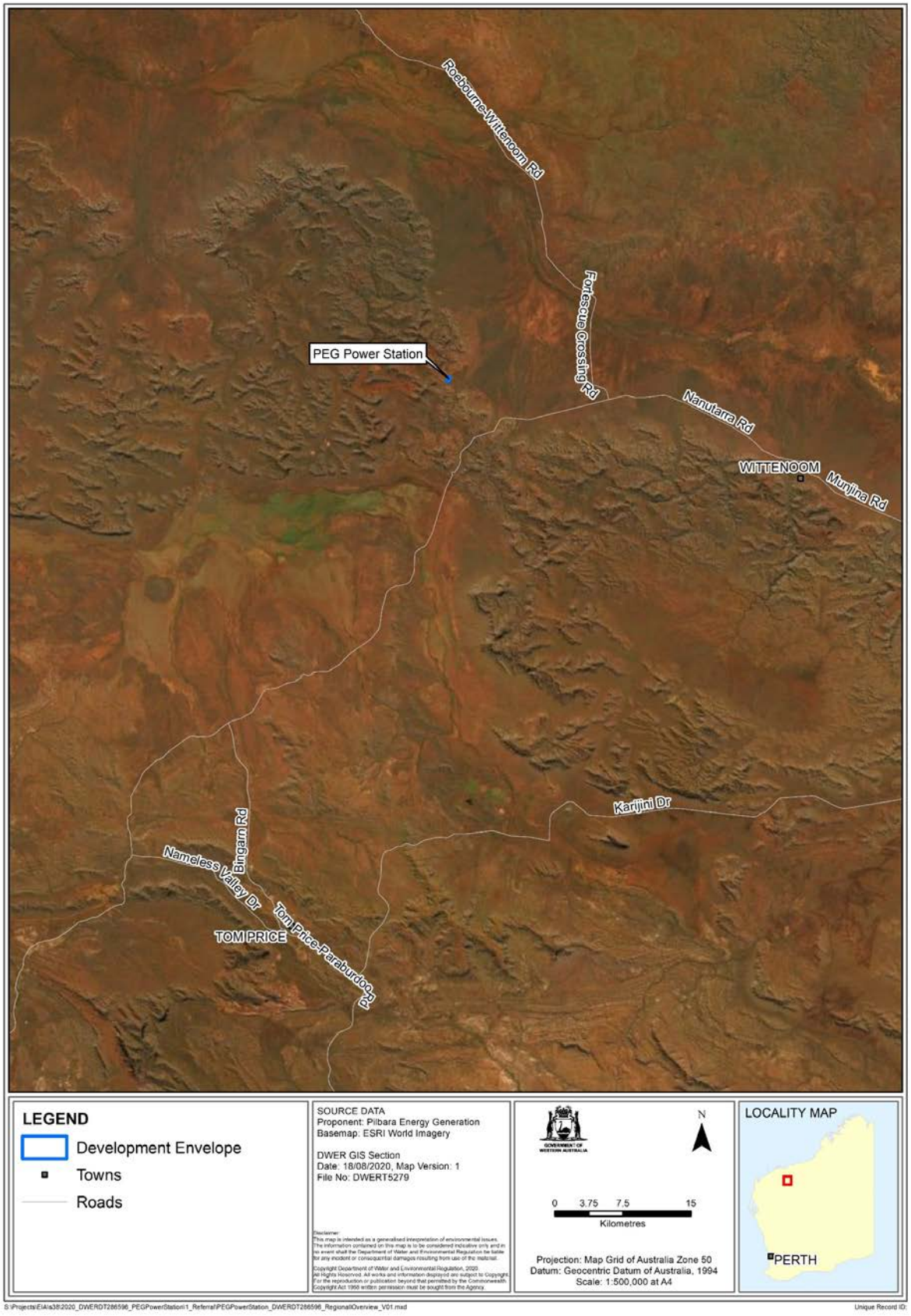

Figure 1: Regional location

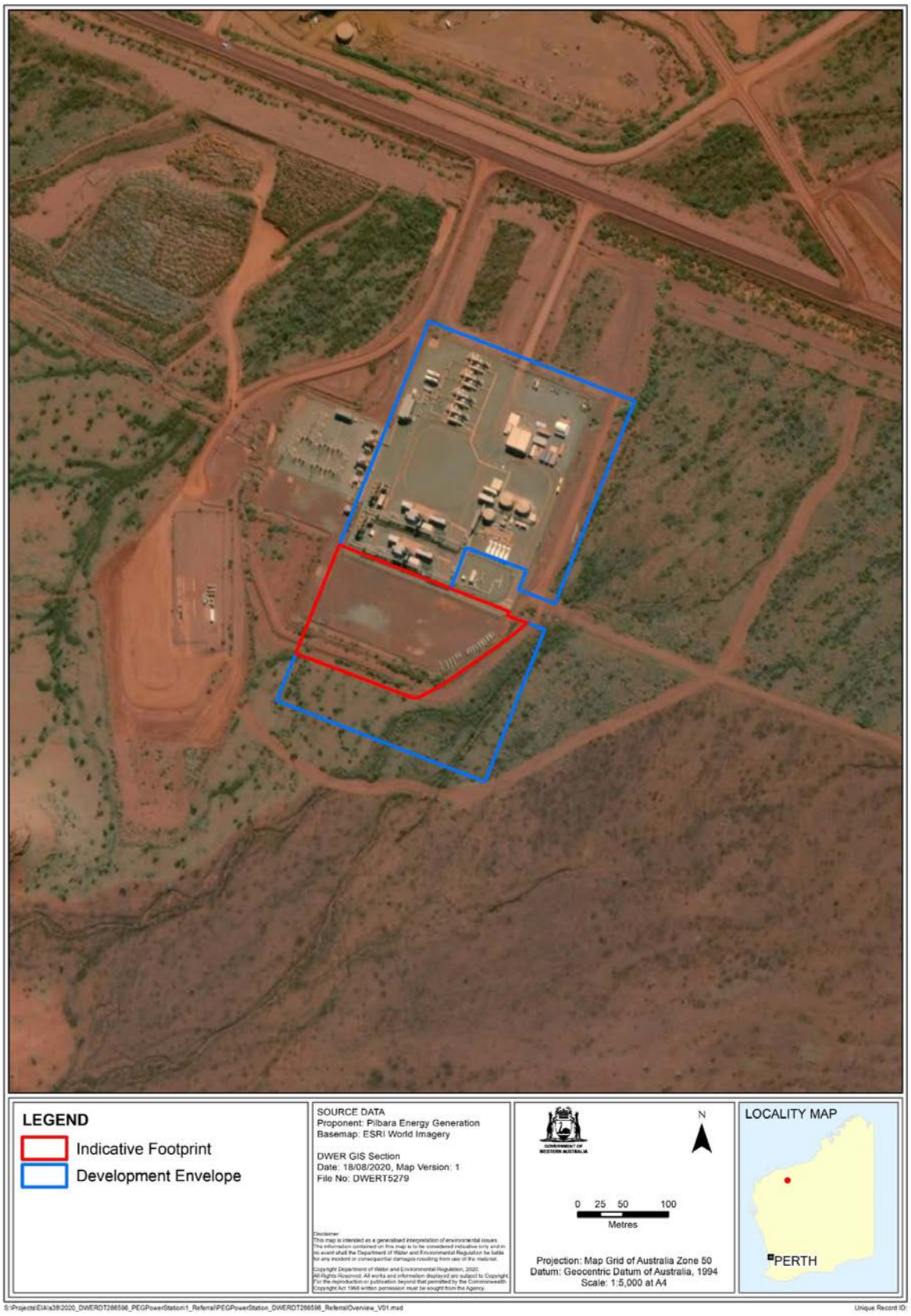

Figure 2: Indicative footprint

2.1 Context

The proposed PEG power station is situated adjacent to the power station for the Solomon mine site. It is a key component of the Pilbara Generation Project which is aimed at reducing greenhouse emissions.

The proposed 165 MW PEG power station replaces a power station and requirement to construct 221 MW of power approved through Ministerial Statement 993 (North Star Magnetite Project). This approved power station and 221 MW of power generation would be removed from Ministerial Statement 993 through an amendment under s. 45C of the EP Act if the current PEG power station is approved. The Solomon site was chosen as there is gas available, and previously cleared land could be utilised.

The Pilbara Generation Project that includes the 165 MW gas-fired PEG power station also includes 150 MW of solar photovoltaic generation which would be supplemented by large scale battery storage. The long-term aim of the proponent is also to decarbonise its fleet of vehicles using hydrogen, if it becomes available, and/or batteries.

The Pilbara Generation Project is part of FMG's overall strategy to reduce greenhouse gas emissions, which also includes the Chichester Solar Gas Hybrid project, which includes a 60 MW solar photovoltaic generation facility at its Chichester Hub iron ore operations (Cloudbreak and Christmas Creek) and a link to a gas-fired power station in Newman.

FMG is aiming to achieve net zero carbon emissions by 2040 through a reduction in greenhouse gas emissions combined with offsetting any remaining emissions.

3. Consultation

The EPA advertised the referral information for the proposal for seven days public comment in June 2020 and received one submission. The submission requested 'Assess – Public Environmental Review'.

The proponent consulted with government agencies and key stakeholders during the preparation of the supplementary report provided with the referral. The agencies and stakeholders consulted, the issues raised and the proponent's response are detailed in Table 5 of the proponent's supplementary report (FMG 2020a).

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders about the proposed development. Relevant significant environmental issues identified from this process were taken into account by the EPA during its assessment of the proposal.

4. Key Environmental Factors

In undertaking its assessment of the proposal and preparing this report, the EPA had regard for the object and principles in s. 4A of the EP Act to the extent relevant to the particular matters that were considered.

The EPA considered the following information during its assessment:

- proponent's referral information and additional information provided in relation to greenhouse gas emissions
- public comment received on the referral, stakeholder comments received during the preparation of the proponent's documentation
- EPA's own inquiries
- *Statement of Environmental Principles, Factors and Objectives* (EPA 2020b)
- relevant principles, policy and guidance referred to in the assessment of each key environmental factor in sections 4.1 to 4.2.

Having regard to the above information, the EPA identified the following key environmental factors during the course of its assessment of the proposal:

- **Greenhouse Gas Emissions** – emission of 670,666 tCO_2-e and potential impacts on climate.
- **Air Quality** – cumulative impacts on local receptors with the adjacent and already operating Solomon power station.

Having regard to the EP Act principles, the EPA considered that the following principles were particularly relevant to its assessment of the proposal:

1. **The principle of intergenerational equity** – the proponent has undertaken measures to avoid, minimise, manage and rehabilitate impacts, including the preparation of a Greenhouse Gas Management Plan and designing the proposed power plant to minimise emissions.
2. **The principle of waste minimisation** – the proponent proposes to minimise waste by adopting the hierarchy of waste controls; avoid, minimise, reuse, recycle and safe disposal.

Appendix 1 of this report provides a summary of all the principles and how the EPA considered these principles in its assessment.

The EPA's assessment of the proposal's impacts on the key environmental factors is provided in sections 4.1 to 4.2. These sections outline whether or not the EPA considers that the impacts on each factor are manageable. Section 6 provides the EPA's recommendation as to whether or not the proposal may be implemented.

4.1 Greenhouse Gas Emissions

The EPA's environmental objective for Greenhouse Gas Emissions is *to reduce net greenhouse gas emissions to minimise the risk of environmental harm associated with climate change.*

Relevant Policy and Guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental Factor Guideline – Greenhouse Gas Emissions* (EPA 2020c).

EPA Assessment

Existing environment and benchmarking

The proposed PEG power station will be constructed on land previously approved for clearing as part of the Solomon Iron Ore Project - Sustaining Production proposal, and subsequently used as a laydown area under Ministerial Statement 1062.

The PEG power station would have a capacity of 165 MW and is intended to supply power to Fortescue Metals' Pilbara Transmission Project and from there to the company's wider Pilbara operations.

The EPA notes that the proposed PEG power station was compared against other gas-fired power stations, with information sourced from available data reported to the Clean Energy Regulator for 2018–19. From this data the proposed power station has a lower Greenhouse Gas intensity (0.464 tCO_2-e/MWh) than all except the 2.9 MW wind-diesel power station at Hopetoun (0.45 tCO_2-e/MWh). The proponent noted that, should a solar photovoltaic installation be constructed as part of the PEG program, this intensity would be further lowered.

Other comparable power stations in regional Western Australia include the existing 122 MW Solomon Power Station and 150 MW South Hedland Power Station which have emissions intensities of 0.628 tCO_2-e/MWh and 0.49 tCO_2-e/MWh respectively. The 221 MW of power required for North Star, no longer to be constructed, had a calculated GHG Intensity of 0.618 tCO_2-e/MWh.

The EPA understands that the AGL Barker Inlet Power Station, the first stage of which has 210 MW of reciprocal gas fired capacity, but also can be fired on diesel if required, could achieve an emissions efficiency of 0.560 tCO_2-e/MWh. The PEG power station compares favourably to this facility.

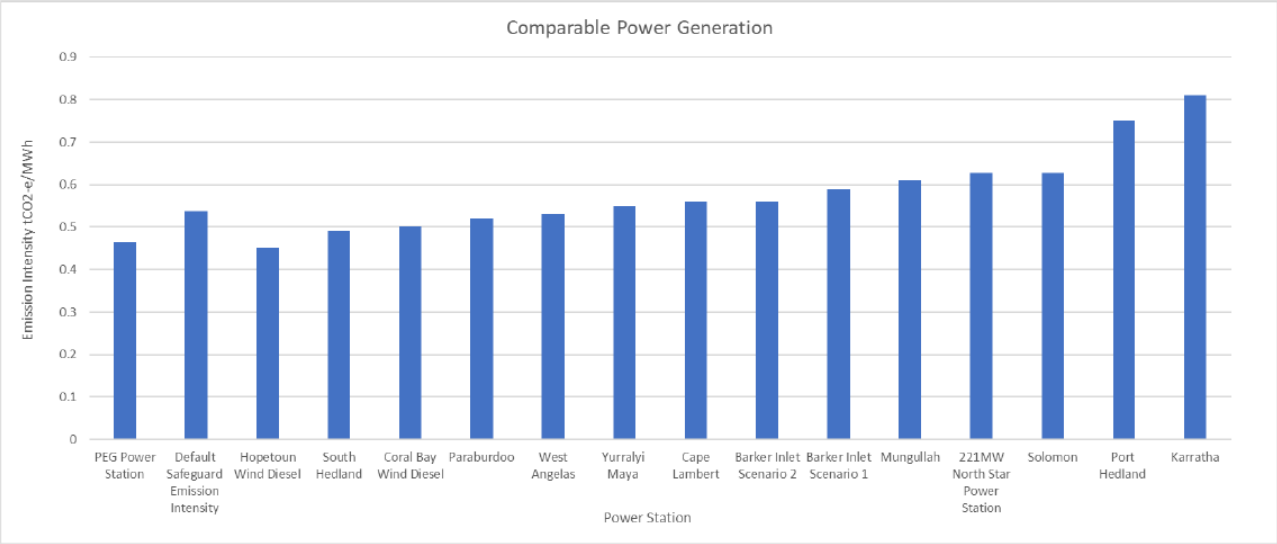

Figure 3: Comparison of power station emission intensity in Western Australia

Potential impacts

Climate change has the potential to cause impacts across Western Australia particularly to the south-west of Western Australia. The EPA recognises that there are inherent links between the Greenhouse Gas Emissions factor and other environmental factors through effects on climate and notes that the project has significant emissions and that the proponent has developed a GHG management plan that details their contribution towards achieving net zero emissions by 2050. It is acknowledged that the PEG power station proposal would result in greenhouse gas emissions that would contribute to the global emissions of carbon dioxide.

The proposed PEG power station consists of 14 gas reciprocating engines along with 14 exhaust stacks with an estimated maximum operational annual unmitigated scope 1 greenhouse gas emissions of 670,666 tCO_2-e (this represents approximately 0.7% of Western Australia's tCO_2-e emissions, based on 2018 data) with predicted lifetime emissions of 26,826,624 tCO_2-e based a 40 year operational life. Taking into account Scope 3 emissions, FMG has calculated that these emissions would be 721,399 tCO_2-e per annum and 28,855,966 tCO_2-e respectively. Scope 2 emissions would be zero for this proposal as it is a power generator and therefore not sourcing power with associated Scope 2 emissions.

Table 3: Predicted greenhouse gas emissions

Source of GHG emission	Scope 1 (tCO_2-e)	Scope 3 (tCO_2-e)	Total emissions (tCO_2-e)
Combustion of pipeline natural gas – annual emissions	670,666	50,734	721,399
Combustion of pipeline natural gas – life of project emissions with no mitigation	26,826,624	2,029,342	28,855,966
Target life of project emissions	9,617,240	2,029,342	11,646,582

Management and mitigation

The proposed PEG power plant will have Scope 1 emissions up to 670,666 tCO_2-e per annum at full capacity.

The proposed power station is being constructed instead of an approved power plant at the North Star Magnetite Project that the proponent calculates would have emitted approximately 1,196.423 tCO_2-e. The proponent contends that it has therefore avoided at least 525,757 tonnes of annual GHG emissions through changing the source of, and technology used for, power generation at the North Star Magnetite Project. This would represent a 44% decrease in predicted emissions.

The reduction in lifetime emissions is estimated to be 21,030,400 tCO_2-e if the PEG power station is constructed rather than the previously approved North Star power station. The proposed engines also use less water than gas turbine systems fitted with a heat recovery steam generator, contributing to the low GHG Intensity when compared to other reciprocal engine installations in Western Australia. The use of the gas-fired reciprocating engines chosen for this proposal represent approximately a 25% improvement in gigajoules of gas consumed per MWh of electricity produced when compared to the adjacent Solomon power station.

Detailed management actions are included in the Greenhouse Gas Management Plan – PEG Power Station 2020, Rev 6 (FMG 2020b). These include:

- Committing to a 2% year-on-year net emission reduction for GHG emissions up to 2030 using a baseline of 670,666 tCO_2-e and achieving a net zero position for all Fortescue assets, including the PEG power station, by 2040.
- Benchmarking the proposal against the Default Emissions Intensity for electricity generation (currently set at 0.538 tCO_2-e/MWh - Department of Industry, Science, Energy and Resources 2020).

With these management actions, lifetime emissions are anticipated to be reduced to 9,617,240 tCO_2-e.

The proponent intends to report its progress against emissions reductions targets through reporting cumulative emissions for five year periods. In the event that

cumulative emissions are greater than the target emissions for the prescribed period, the proponent has committed to offsetting the difference through the surrender of appropriate GHG related carbon credits. Below are the emission targets committed to and reflected in recommended condition 6:

- the First Emissions Limit, for the period between the Commencement Date and 30 June 2025
- 2,912,300 tCO_2-e for the period between 1 July 2025 and 30 June 2030
- 2,443,087 tCO_2-e for the period between 1 July 2030 and 30 June 2035
- 1,040,001 tCO_2-e for the period between 1 July 2035 and 30 June 2040
- 0 tCO_2-e for every five year period from 1 July 2040 onwards.

Recommended condition 6 incorporates these targets as well as the need to offset emissions should they exceed the stated emissions targets. The terms First Emissions Limit and Commencement Date are defined in Table 3 of the draft conditions.

Summary

The EPA has paid particular attention to:

- *Environmental Factor Guideline – Greenhouse Gas Emissions* (EPA 2020c)
- incorporation of best practice technologies into the design of the proposal to avoid or minimise impacts to this factor
- potential net reductions in the proponent's GHG emissions through the development of this proposal
- proponent's commitment to achieve net zero GHG emissions by 2040
- application of the *Environmental Factor Guideline – Greenhouse Gas Emissions* (EPA 2020c) in the development of the Greenhouse Gas Management Plan.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for greenhouse gas emissions, that the impacts on this factor are manageable and would not be significant, provided there is:

- control on the maximum capacity of the power plant through the authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 2)
- a condition requiring management of GHG emissions (condition 6) consistent with the commitments in Greenhouse Gas Management Plan – PEG Power Station, July 2020 (100-PL-EN-1023 Rev 6).

4.2 Air Quality

The EPA's environmental objective for Air Quality is *to maintain air quality and minimise emissions so that environmental values are protected.*

Relevant Policy and Guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental Factor Guideline – Air Quality* (EPA 2020d).

EPA Assessment

Existing environment and potential impacts

The proposed PEG power station would be constructed adjacent to the existing Solomon power station. The PEG power station has been modelled individually, as well as cumulatively with the Solomon power station.

The main emissions from the proposed PEG Power Station would be nitrogen oxide, carbon dioxide, sulphur dioxide and particulates. Modelling has indicated that emissions during commissioning and operations will not exceed 25% of any applicable guidelines at receptor locations, even under worst case scenarios. In addition to this air emissions are unlikely to impact on the annual average PM_{10} or $PM_{2.5}$ in the region. Modelling has indicated that total cumulative downwind concentrations of particulates would not be distinguishable through an ambient air quality monitoring program.

Management and mitigation

The proponent has mitigated air quality impacts through:

- using gas rather than diesel as the fuel source
- designing the project based on appropriate specifications that ensure onsite air quality impacts will comply with regulatory requirements
- using stacks that are designed to ensure a release height for emissions that will result in appropriate dispersion.

The proponent will implement the following measures to manage air quality impacts:

- maintain efficiency and reduce fuel consumption by switching individual power generation units off to avoid running multiple units at a low load.
- conduct routine stack tests to ensure that operations are running efficiently and emissions are being minimised.

The EPA has consulted with the Department of Water and Environmental Regulation with regard to the management of emissions from the PEG power station and is

satisfied that Air Quality impacts can be managed as a prescribed premises (Category 52) through licensing under Part V of the EP Act.

Summary

The EPA has paid particular attention to:

- *Environmental Factor Guideline – Air Quality* (EPA 2020d)
- specific direct and/or indirect impacts (including cumulative) to specific significant environmental values.
- application of the mitigation hierarchy.
- the PEG Power Station being able to be licensed through Part V of the EP Act.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Air Quality that the impacts to this factor are manageable and would no longer be significant, provided there is:

- licensing of emissions of the PEG power station, a prescribed premises (Schedule 1 - Category 52) through Part V of the EP Act.

5. Conclusion

The EPA has considered the proponent's proposal to construct the Pilbara Energy Generation Power Station at the Solomon Iron Ore Mine approximately 60km north of Tom Price.

Application of the Mitigation Hierarchy

Consistent with relevant policies and guidance, the proponent has addressed the mitigation hierarchy by identifying measures to avoid, minimise and rehabilitate environmental impacts including:

- avoiding at least 525,757 tonnes of annual GHG emissions through changing the source of, and technology used for, power generation to feed into the Pilbara Transmission Project, and
- minimising impacts through the implementation of a Greenhouse Gas Management Plan to achieve net zero GHG Emissions by 2040.

Conclusion

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

1. That the proposal is for the construction and operation of the Pilbara Energy Generation Power Station proposal, which includes 14 gas-fired reciprocating engines with a capacity of 165 MW, to produce an average 150 MW, situated at the Solomon Iron Ore Mine Site approximately 60 kilometres north of Tom Price.
2. The key environmental factors identified by the EPA in the course of its assessment are Greenhouse Gas Emissions and Air Quality, as set out in section 4.
3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 2. Matters addressed in the conditions include:
    a) Implementation of the Greenhouse Gas Management condition to minimise GHG emissions (condition 6).

Given the above, the EPA recommends that the proposal may be implemented subject to the conditions recommended in Appendix 2.

6. Recommendations

The EPA recommends that the Minister for Environment notes:

1. The proposal assessed is for the construction and operation of the Pilbara Energy Generation Power Station proposal, which includes 14 gas-fired reciprocating engines situated at the Solomon Iron Ore Mine about 60 kilometres north of Tom Price.
2. The key environmental factors identified by the EPA in the course of its assessment are Greenhouse Gas Emissions and Air Quality, set out in section 4 of this report.
3. The EPA has recommended that the proposal may be implemented, provided that implementation is carried out in accordance with the recommended conditions and procedures set out in Appendix 2. Matters addressed in the conditions include:
    a) implementation of a greenhouse gas management condition (condition 6).

References

Department of Industry, Science, Energy and Resources 2020, *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.* (https://www.legislation.gov.au/Details/F2020C00399)

EPA 2020a, *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual,* Environmental Protection Authority, Perth, WA.

EPA 2020b, *Statement of Environmental Principles, Factors and Objectives*, Environmental Protection Authority, Perth, WA.

EPA 2020c, *Environmental Factor Guideline – Greenhouse Gas Emissions*, Environmental Protection Authority, Perth, WA.

EPA 2020d, *Environmental Factor Guideline – Air Quality*, Environmental Protection Authority, Perth, WA.

FMG 2020a, *Section 38 Referral Supporting Document – Pilbara Energy Generation Power Station*, May 2020.

FMG 2020b, Greenhouse Gas Management Plan – PEG Power Station, July 2020, 100-PL-EN-1023 Rev 6.

State of Western Australia 2016, *Western Australian Government Gazette, No. 223,* 13 December 2016.

Appendix 1: Consideration of Environmental Protection Act Principles

EP Act Principle	Consideration
1. The precautionary principle *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. In application of this precautionary principle, decisions should be guided by –* *a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *b) an assessment of the risk-weighted consequences of various options.*	The EPA notes that the proponent has identified measures to avoid or minimise impacts. The EPA has considered these measures during its assessment. The EPA notes that the proposal will result in decreased greenhouse gas emissions as a result of it replacing a previously approved power station with significantly higher emissions, reducing impacts on the climate. From its assessment the EPA concluded that there is no threat of serious or irreversible harm.
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*	This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors of Greenhouse Gas Emissions and Air Quality. The EPA notes that the proponent has identified measures to avoid or minimise impacts. The EPA has considered these measures during its assessment. The proponent has undertaken measures to avoid, minimise, manage and rehabilitate impacts, including the preparation of a Greenhouse Gas Management Plan, and has designed the proposed power plant to minimise emissions, to maintain the environment for the benefit of future generations. The environmental values will be protected and that the health, diversity and productivity of the environment will be maintained for the benefit of future generations.

EP Act Principle	Consideration
3. The principle of the conservation of biological diversity and ecological integrity *Conservation of biological diversity and ecological integrity should be a fundamental consideration.*	In considering this principle, the EPA notes that Greenhouse Gas Emissions and Air Quality could be significantly impacted by the proposal. The assessment of these impacts is provided in this report. The EPA noted that no additional clearing of native vegetation and fauna habitat would be required for the implementation of this proposal. The proposal would not compromise the biological diversity and ecological integrity of the affected areas.
4. Principles relating to improved valuation, pricing and incentive mechanisms *(1) Environmental factors should be included in the valuation of assets and services.* *(2) The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.* *(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 waste.* *(4) Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solution and responses to environmental problems.*	In considering this principle, the EPA notes that the proponent would bear the cost relating to mitigation and management of Greenhouse Gas and Air Quality impacts. The proponent has considered incentives to reduce the environmental footprint and costs through promoting increased economic activity in the region, minimising emissions generated from the proposal through the assessment of operational efficiency of a wide range of processing technologies, consideration of the use of renewables to reduce the operational emissions and the investigation into greenhouse gas abatement opportunities. The EPA has had regard to this principle during the assessment of the proposal.
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*	In considering this principle, the EPA notes that the proponent has adopted, in order of priority: • Avoidance and re-use at source • Reuse and recycle

EP Act Principle	Consideration
	• Treatment and/or dispose of waste. Specific actions highlighted include minimising air emissions through the use of a battery for reserve purposes, as well as using closed cooling systems to minimise waste water and hydrocarbons. The EPA has had regard to this principle during the assessment of the proposal.

Appendix 2: Identified Decision-Making Authorities and Recommended Environmental Conditions

Identified Decision-Making Authorities

Section 44(2) 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.

Section 45(1) of the *Environmental Protection Act 1986* requires the Minister for Environment to consult with decision-making authorities (DMAs), and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following DMAs have been identified:

Decision-Making Authority	Legislation (and Approval)
1. Chief Executive Officer, Department of Water and Environmental Regulation	*Environmental Protection Act 1986* (Works approval and licence / Clearing permit)
2. Executive Director, Environment Resources and Environmental Compliance Division, Department of Mines, Industry Regulation and Safety	*Mining Act 1978* (Approval of mining proposal)
3. Mining Registrar	*Mining Act 1978* (Miscellaneous licences)
4. Chair, Energy Regulation Authority	*Electricity Industry Act 2004* *(Electricity Generation Licence)*

Recommended Environmental Conditions

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

PILBARA ENERGY GENERATION POWER STATION

Proposal: The proposal is for the construction and operation of a gas-fired power station in the Pilbara bioregion of Western Australia. The proposal will supply up to 165MW of power to produce an average 150 MW of power to the North Star mining operations and the Pilbara Transmission Project.

Proponent: Pilbara Energy (Generation) Pty Ltd
Australian Company Number 631 303 305

Proponent Address: Level 2, 87 Adelaide Terrace
East Perth, 6004

Assessment Number: 2250

Report of the Environmental Protection Authority: 1686

Pursuant to section 45 of the *Environmental Protection Act 1986,* it has been agreed that the proposal described and documented in Table 2 of Schedule 1 may be implemented and that the implementation of the proposal is subject to the following implementation conditions and procedures:

1 Proposal Implementation

1-1 When implementing the proposal, the proponent shall not exceed the authorised extent of the proposal as defined in Table 2 of Schedule 1, unless amendments to the proposal and the authorised extent of the proposal have been approved under the EP Act.

2 Contact Details

2-1 The proponent shall 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.

3 Time Limit for Proposal Implementation

3-1 The proponent shall not commence implementation of the proposal after five (5) years from the date of this Statement, and any commencement, prior to this date, must be substantial.

3-2 Any commencement of implementation of the proposal, on or before five (5) years from the date of this Statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of five (5) years from the date of this Statement.

4 Compliance Reporting

4-1 The proponent shall prepare, and maintain 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 4-6, or prior to the commencement date of the proposal, whichever is sooner.

4-2 The Compliance Assessment Plan shall indicate:

(1) the frequency of compliance reporting;

(2) the approach and timing of compliance assessments;

(3) the retention of compliance assessments;

(4) the method of reporting of potential non-compliances and corrective actions taken;

(5) the table of contents of Compliance Assessment Reports; and

(6) public availability of Compliance Assessment Reports.

4-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 4-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 4-1.

4-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 4-1 and shall make those reports available when requested by the CEO.

4-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.

4-6 The proponent shall submit to the CEO the first Compliance Assessment Report on 31 March following the date of issue of this Statement addressing period from the date of issue of this Statement to 1 March following the date of issue of this Statement, and then annually on 31 March, or as otherwise agreed in writing by the CEO.

The Compliance Assessment Report shall:

(1) be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;

(2) include a statement as to whether the proponent has complied with the conditions;

(3) identify all potential non-compliances and describe corrective and preventative actions taken;

(4) be made publicly available in accordance with the approved Compliance Assessment Plan; and

(5) indicate any proposed changes to the Compliance Assessment Plan required by condition 4-1.

5 Public Availability of Data

5-1 Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal, the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

5-2 If any data referred to in condition 5-1 contains particulars of:

(1) a secret formula or process; or

(2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

6 Greenhouse Gas Management

6-1 The proponent shall take measures to ensure that **Net GHG Emissions** do not exceed:

(1) the **First Emissions Limit**, for the period between the **Commencement Date** and 30 June 2025;

(2) 2,912,300 tCO_2-e for the period between 1 July 2025 and 30 June 2030;

(3) 2,443,087 tCO_2-e for the period between 1 July 2030 and 30 June 2035;

(4) 1,040,001 tCO_2-e for the period between 1 July 2035 and 30 June 2040; and

(5) 0 tCO_2-e for every five year period from 1 July 2040 onwards.

6-2 The proponent shall submit a report to the CEO each year by 31 March, commencing on the first 31 March after the date of this statement specifying for the previous financial year:

(1) the quantity of **Proposal GHG Emissions** and electricity produced; and

(2) the **Emissions Intensity** for the proposal.

6-3 The proponent shall submit to the CEO by 31 March 2026, and every fifth 31 March thereafter:

(1) a report specifying:

(a) for each of the preceding five financial years, the matters referred to in conditions 6-2(1) and (2);

(b) for the period specified in condition 6-1(1), (2), (3), (4), or (5) 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. 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 6-3(1)(b)(ii), including written evidence of such retirement or cancellation; and

iv. any measures that have been implemented to avoid or reduce **Proposal GHG Emissions.**

(2) an audit and peer review of the report required by condition 6-3(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 report, whether the report is accurate and whether the report is supported by credible evidence.

6-4 Subject to, and consistently with condition 6-1, the proponent shall implement:

(1) Greenhouse Gas Management Plan revision 6 dated July 2020; or

(2) if that plan has been revised, the latest version of the plan that the Minister has confirmed in writing meets the requirements of condition 6-6.

6-5 The proponent:

(1) may revise a **Greenhouse Gas Management Plan** at any time; and

(2) must revise a **Greenhouse Gas Management Plan** if directed to by the Minister, within the time specified by the Minister.

6-6 If the proponent wishes to or is directed to revise a **Greenhouse Gas Management Plan**, it shall submit a revised plan to the Minister that:

(1) is not inconsistent with condition 6-1;

(2) specifies the estimated **Proposal GHG Emissions** and **Emissions Intensity** for the remainder of the life of the proposal;

(3) includes comparison of the estimated **Proposal GHG Emissions** and **Emissions Intensity** for the remainder of the life of the proposal against other comparable projects;

(4) identifies and describes any measures that the proponent will implement to avoid, reduce and/or offset **Proposal GHG Emissions** or reduce the **Emissions Intensity** of the proposal; and

(5) provides for a program for the future review of the plan to:

(a) assess the effectiveness of measures referred to in condition 6-6(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 Emissions** or reduce the **Emissions Intensity** of the proposal.

6-7 The proponent shall make all **Greenhouse Gas Management Plans** and the reports referred to in condition 6-2, condition 6-3(1) and 6-3(2) publicly available for the life of the proposal:

(1) on the proponent's website within two weeks from the issue of this statement; and

(2) in any other manner specified by the Minister, within a time specified by the Minister.

Schedule 1

Table 1: Summary of the proposal

Proposal title	Pilbara Energy Generation Power Station
Short description	The proposal will be constructed with an installed capacity of 165 MW to produce an average 150 MW of power to the North Star mining operations and the Pilbara Transmission Project.

Table 2: Location and authorised extent of physical and operational elements

Element	Location	Authorised extent
Physical elements		
165 MW power station	Figure 2	No additional clearing is required for the development of the PEG power station.
Operational elements		
Power generation		14 gas-fired reciprocating engines with an installed capacity of up to 165 MW

Table 3: Abbreviations and definitions

Acronym or abbreviation	Definition or term
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: (a) Australian Carbon Credit Units issued under the Carbon Credits (Carbon Farming Initiative) Act 2011 (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 *Environmental Protection Act 1986*, or his delegate.
Commencement Date	The date on which a licence under Part V of the EP Act is granted for the operation of the power station that is the subject of this proposal.
Emissions Intensity	**Proposal GHG Emissions** per MWh of electricity produced.
EP Act	Environmental Protection Act 1986
First Emissions Limit	The limit on **Net GHG Emissions** for the period between the **Commencement Date** and 30 June 2025 calculated as follows:

	670,666 divided by 365 multiplied by the number of days in the 2020/2021 financial year that are on or after the **Commencement Date;** plus 657,253 divided by 365 multiplied by the number of days in the 2021/2022 financial year that are on or after the **Commencement Date**. plus 644,108 divided by 365 multiplied by the number of days in the 2022/2023 financial year that are on or after the **Commencement Date**. plus 631,225 divided by 365 multiplied by the number of days in the 2023/2024 financial year that are on or after the **Commencement Date**. plus 618,601 divided by 365 multiplied by the number of days in the 2024/2025 financial year that are on or after the **Commencement Date**.
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 National Greenhouse and Energy Reporting Act 2007 (Cth), 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 or GHG	Has the meaning given by section 7A of the National Greenhouse and Energy Reporting Act 2007 (Cth) 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 Management Plan	Greenhouse Gas Management Plan – PEG Power Station, 6 July 2020 and any subsequent version of the plan that the Minister has confirmed in writing meets the requirements of condition 6-6.
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: (a) were cancelled or retired between the first day of the period until 1 March in the year after the period has ended; (b) have been identified in the report for that period as required by condition 6-3(1)(b)(iii); (c) have not been identified as cancelled or retired in the report for that period as required by condition 6-3(1)(b)(iii); (d) have not been used to offset **GHG Emissions** other than **Proposal GHG Emissions**; and

	(e) were not generated by avoiding **Proposal GHG Emissions.**
Proposal GHG Emissions	**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.

Figures (attached)

Figure 1 Regional location
Figure 2 Indicative footprint

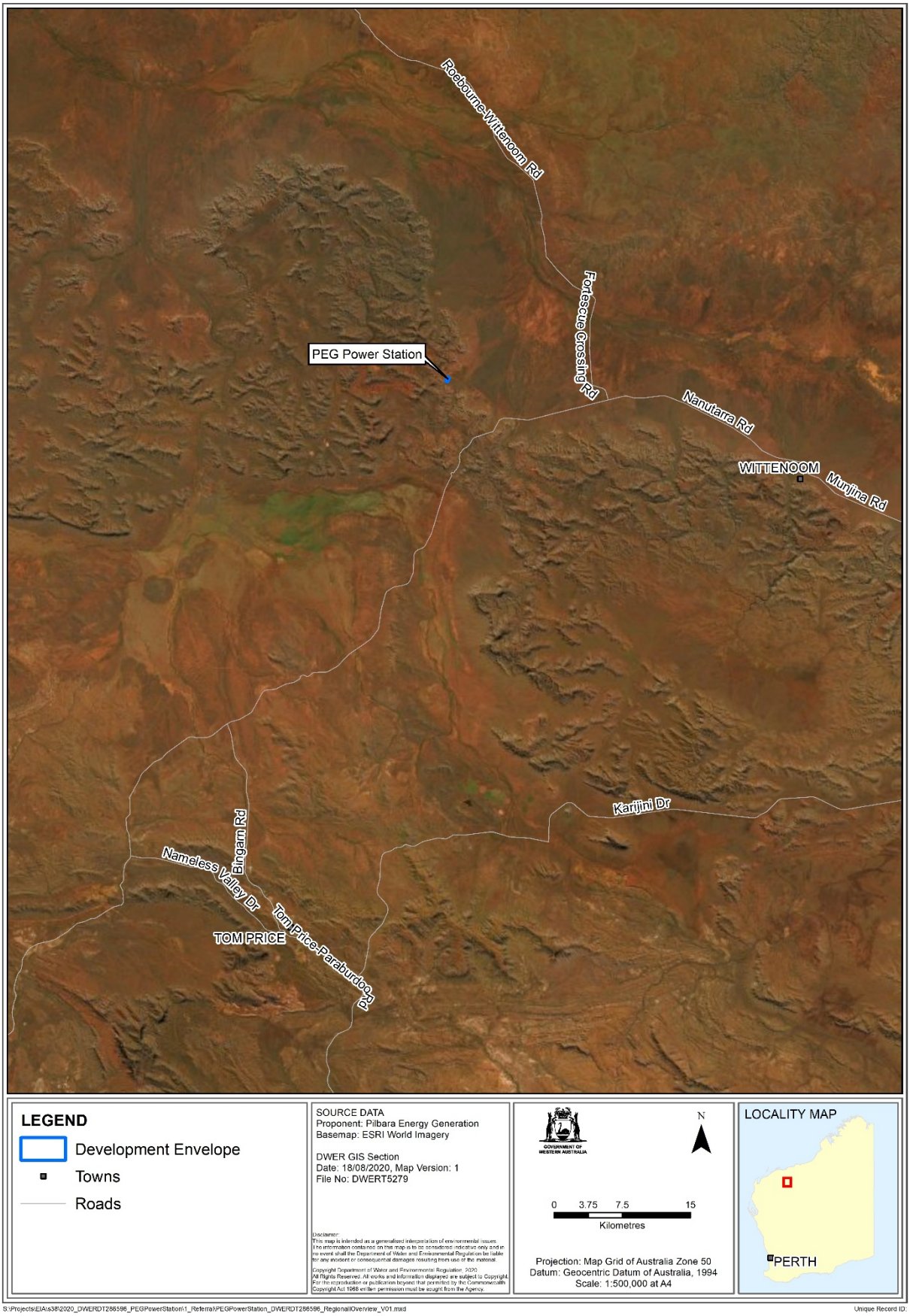

Figure 1: Regional location

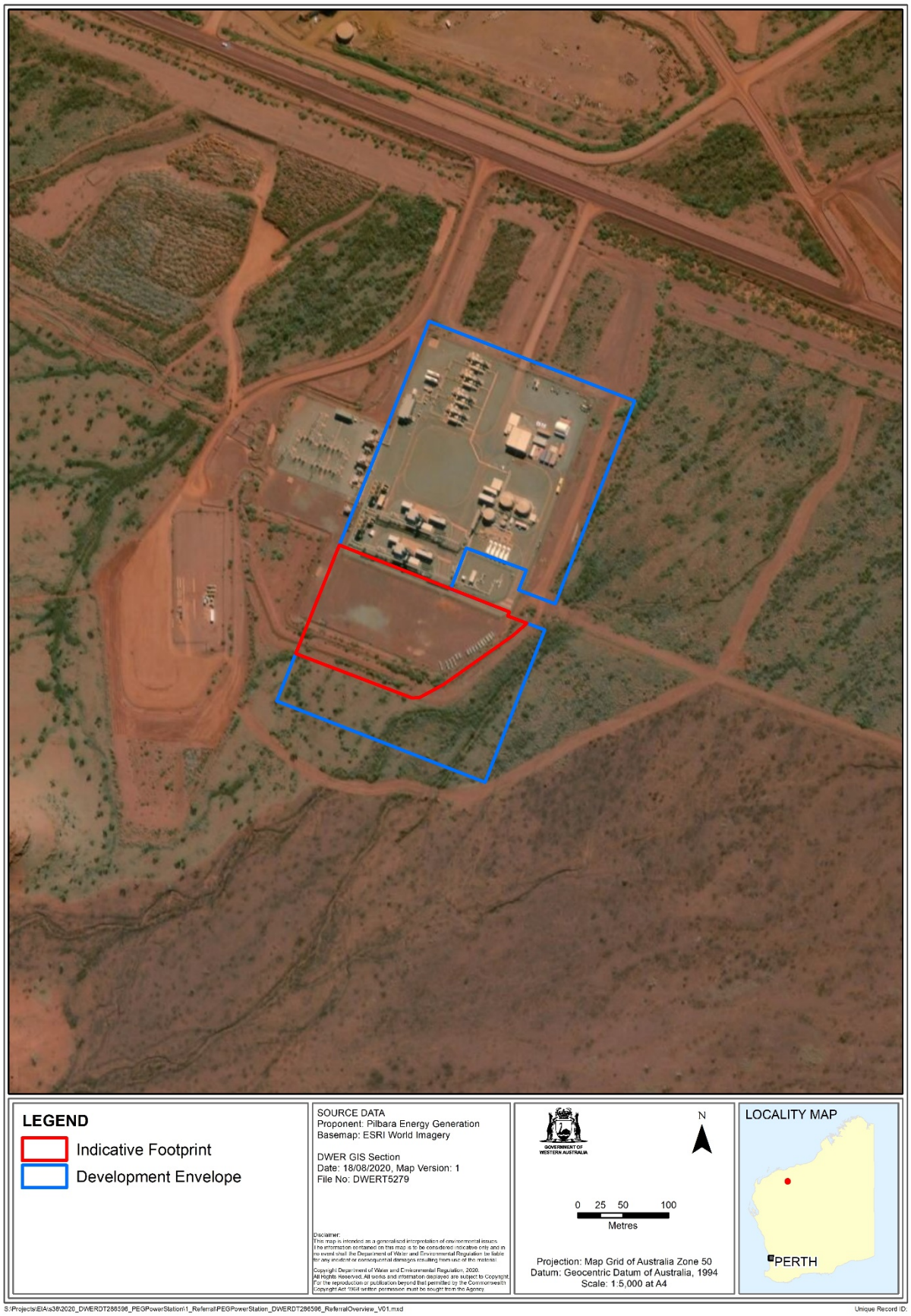

Figure 2: Indicative footprint

Schedule 2

Coordinates defining the boundaries shown in Figures 1 and 2, are held by the Department of Water Environmental Regulation, Reference Number DWERDT305958.