



Our Ref: DOC23/1094675-4

Kurtis Wathen
Senior Environmental Assessment Officer
Department of Planning

Via Major Projects Portal

12 January 2024

Dear Mr Wathen

**EPA Advice on Secretary's Environmental Assessment Requirements –
Stratford Pumped Hydro and Solar (SSD-65479959)**

Thank you for the request for advice received via electronic mail on the 14 December (2023) to the Environment Protection Authority (EPA) seeking the EPA's requirements for the preparation of an Environmental Impact Statement (EIS) for the Stratford Renewable Energy Hub Pumped Hydro and Solar Farm located at the Stratford Mining Complex in the Gloucester Valley.

The proposal will involve:

- Construction and operation of a Pumped Hydro Energy Storage (PHES) with a capacity of 3.6 gigawatt-hours.
- Construction and operation of a Solar Farm to supply up to 330 Mega-Watt (MW) to the PHES, with optionality to export electricity to the grid in times of surplus solar generation.
- Construction of an on-site electrical substation, to connect the PHES and the Solar Farm to the TransGrid Electricity Transmission Line.
- Other associated construction and operational activities.

The EPA has reviewed the document titled 'Stratford Renewable Energy Hub Scoping Report' produced by YANCOAL November 2023 (Document No.1212103) and has identified the key issues for the project as follows:

- Climate change;
- Noise and Vibration Impacts;
- Water Quality Impacts; and
- Rehabilitation.

The information required to assess these issues to be included in the Environmental Impact Statement (EIS) is included in **Attachment A**.

In carrying out the assessment, the Proponent should also refer to the relevant guidelines as listed in **Attachment B**, any relevant industry codes of practice and best practice management guidelines.

The Proponent should be made aware that any commitments made in the EIS may be formalised as approval conditions and may also be placed as formal licence conditions.

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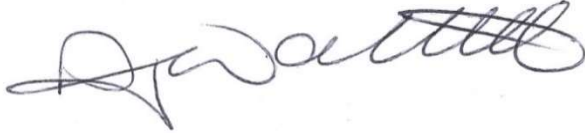
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The Proponent should be made aware that, consistent with provisions under Part 9.4 of the *Protection of the Environment Operations Act 1997* (the Act) the EPA may require the provision of a financial assurance and/or assurances. The amount and form of the assurance(s) would be determined by the EPA and be required as a condition of an Environment Protection Licence (EPL) if the project is approved.

If you have any further enquiries about this matter, please contact Jenny Gustafson on 9585 6471 or environmentprotection.planning@epa.nsw.gov.au.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'D Wallett', with a stylized, cursive script.

DARREN WALLETT
Manager – Environment Protection Planning
NSW Environment Protection Authority

ATTACHMENT A: EIS REQUIREMENTS FOR STRATFORD RENEWABLE ENERGY HUB – PUMPED HYDRO AND SOLAR FARM (SSD-65479959)

How to use these requirements

The EPA requirements have been structured as follows.

- A. Executive summary
- B. The proposal
- C. The location
- D. Identification and prioritisation of issues
- E. The environmental issues
- F. List of approvals and licences
- G. Compilation of mitigation measures
- H. Justification for the proposal

A Executive summary

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B The proposal

1. Objectives of the proposal

- The objectives of the proposal should be clearly stated and refer to:
 - a) the size and type of the operation, the nature of the processes and the products, by-products and wastes produced
 - b) a life cycle approach to the production, use or disposal of products
 - c) the anticipated level of performance in meeting required environmental standards and cleaner production principles
 - d) the staging and timing of the proposal and any plans for future expansion
 - e) the proposal's relationship to any other industry or facility.

2. Description of the proposal

- Outline the production process including:
 - a) the environmental "mass balance" for the process – quantify in-flow and out-flow of materials, any points of discharge to the environment and their respective destinations (sewer, stormwater, atmosphere, recycling, landfill etc)
 - b) any life-cycle strategies for the products.
- Outline cleaner production actions, including:
 - a) measures to minimise waste (typically through addressing source reduction)
 - b) proposals for use or recycling of by-products
 - c) proposed disposal methods for solid and liquid waste
 - d) air management systems including all potential sources of air emissions, proposals to re-use or treat emissions, emission levels relative to relevant standards in regulations, discharge points
 - e) water management system including all potential sources of water pollution, proposals for re-use, treatment etc, emission levels of any wastewater discharged, discharge points, summary of options explored to avoid a discharge, reduce its frequency or reduce its impacts, and rationale for selection of option to discharge.
 - f) soil contamination treatment and prevention systems.
- Outline construction works including:
 - a) actions to address any existing soil contamination
 - b) any earthworks or site clearing; re-use and disposal of cleared material (including use of spoil on-site)
 - c) construction timetable and staging; hours of construction; proposed construction methods
 - d) environment protection measures, including noise mitigation measures, dust control measures and erosion and sediment control measures.
- Include a site diagram showing the site layout and location of environmental controls.

3. Air

- Identify all sources or potential sources of air emissions from the development.

Note: emissions can be classed as either:

- *point (e.g. emissions from stack or vent) or*
- *fugitive (from wind erosion, leakages or spillages, associated with loading or unloading, conveyors, storage facilities, plant and yard operation, vehicle movements (dust from road, exhausts, loss from load), land clearing and construction works).*
- Provide details of the project that are essential for predicting and assessing air impacts including:
 - a) the quantities and physio-chemical parameters (e.g. concentration, moisture content, bulk density, particle sizes etc) of materials to be used, transported, produced or stored
 - b) an outline of procedures for handling, transport, production and storage
 - c) the management of solid, liquid and gaseous waste streams with potential to generate emissions to air.

4. Noise and vibration

- Identify all noise sources or potential sources from the development (including both construction and operation phases). Detail all potentially noisy activities including ancillary activities such as transport of goods and raw materials.
- Specify the times of operation for all phases of the development and for all noise producing activities.
- For projects with a significant potential traffic noise impact provide details of road alignment (include gradients, road surface, topography, bridges, culverts etc), and land use along the proposed road and measurement locations – diagrams should be to a scale sufficient to delineate individual residential blocks.

5. Water

- Provide details of the project that are essential for predicting and assessing impacts to waters including:
 - a) the quantity and physio-chemical properties of all potential water pollutants and the risks they pose to the environment and human health, including the risks they pose to Water Quality Objectives in the ambient waters (see <https://www.environment.nsw.gov.au/ieo/>) using technical criteria derived from *the Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, ANZECC 2000)
 - b) the management of discharges with potential for water impacts
 - c) drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal.
- Outline site layout, demonstrating efforts to avoid proximity to water resources (especially for activities with significant potential impacts e.g. effluent ponds) and showing potential areas of modification of contours, drainage etc.
- Outline how total water cycle considerations are to be addressed showing total water balances for the development (with the objective of minimising demands and impacts on water resources). Include water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

- Details of the site drainage and any natural or artificial waters within or adjacent to the development must be identified and where applicable measures proposed to mitigate potential impacts of the development on these waters.
- The EIS should provide details of any water management systems for the site to ensure surface and ground waters are protected from contaminants.

6. Waste and chemicals

Provide details of the quantity and type of both liquid waste and non-liquid waste generated, handled, processed or disposed of at the premises. Waste must be classified according to the EPA's *Waste Classification Guidelines 2014 (as amended from time to time)*

- Provide details of liquid waste and non-liquid waste management at the facility, including:
 - a) the transportation, assessment and handling of waste arriving at or generated at the site
 - b) any stockpiling of wastes or recovered materials at the site
 - c) any waste processing related to the facility, including reuse, recycling, reprocessing (including composting) or treatment both on- and off-site
 - d) the method for disposing of all wastes or recovered materials at the facility
 - e) the emissions arising from the handling, storage, processing and reprocessing of waste at the facility
 - f) the proposed controls for managing the environmental impacts of these activities.
- Provide details of spoil disposal with particular attention to:
 - a) the quantity of spoil material likely to be generated
 - b) proposed strategies for the handling, stockpiling, reuse/recycling and disposal of spoil
 - c) the need to maximise reuse of spoil material in the construction industry
 - d) identification of the history of spoil material and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material
 - e) designation of transportation routes for transport of spoil.
- Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.
- Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.
- Reference should be made to the guidelines: EPA's *Waste Classification Guidelines 2014 (as amended from time to time)*
- Spill management measures, including items such as bunding, and emergency procedures should be clearly outlined.

7. Environmental Sustainable Development (ESD)

- Demonstrate that the planning process and any subsequent development incorporates objectives and mechanisms for achieving ESD, including:
 - a) an assessment of a range of options available for use of the resource, including the benefits of each option to future generations
 - b) proper valuation and pricing of environmental resources
 - c) identification of who will bear the environmental costs of the proposal.

8. Rehabilitation

- Outline considerations of site maintenance, and proposed plans for the final condition of the site (ensuring its suitability for future uses).

9. Consideration of alternatives and justification for the proposal

- Consider the environmental consequences of adopting alternatives, including alternative:
 - a) sites and site layouts
 - b) access modes and routes
 - c) materials handling and production processes
 - d) waste and water management
 - e) impact mitigation measures
 - f) energy sources
- Selection of the preferred option should be justified in terms of:
 - a) ability to satisfy the objectives of the proposal
 - b) relative environmental and other costs of each alternative
 - c) acceptability of environmental impacts and contribution to identified environmental objectives
 - d) acceptability of any environmental risks or uncertainties
 - e) reliability of proposed environmental impact mitigation measures
 - f) efficient use (including maximising re-use) of land, raw materials, energy and other resources.

C The location

1. General

- Provide an overview of the affected environment to place the proposal in its local and regional environmental context including:
 - a) meteorological data (e.g. rainfall, temperature and evaporation, wind speed and direction)
 - b) topography (landform element, slope type, gradient and length)
 - c) surrounding land uses (potential synergies and conflicts)
 - d) geomorphology (rates of landform change and current erosion and deposition processes)
 - e) soil types and properties (including erodibility; engineering and structural properties; dispersibility; permeability; presence of acid sulfate soils and potential acid sulfate soils)
 - f) ecological information (water system habitat, vegetation, fauna)
 - g) availability of services and the accessibility of the site for passenger and freight transport.

2. Air

- Describe the topography and surrounding land uses. Provide details of the exact locations of dwellings, schools and hospitals. Where appropriate provide a perspective view of the study area such as the terrain file used in dispersion models.
- Describe surrounding buildings that may affect plume dispersion.

- Provide and analyse site representative data on following meteorological parameters:
 - a) temperature and humidity
 - b) rainfall, evaporation and cloud cover
 - c) wind speed and direction
 - d) atmospheric stability class
 - e) mixing height (the height that emissions will be ultimately mixed in the atmosphere)
 - f) katabatic air drainage
 - g) air re-circulation.

3. Noise and vibration

- Identify any noise sensitive locations likely to be affected by activities at the site, such as residential properties, schools, churches, and hospitals. Typically, the location of any noise sensitive locations in relation to the site should be included on a map of the locality.
- Identify the land use zoning of the site and the immediate vicinity and the potentially affected areas.

4. Water

- Describe the catchment including proximity of the development to any waterways and provide an assessment of their sensitivity/significance from a public health, ecological and/or economic perspective. The Water Quality and River Flow Objectives on the website: <https://www.environment.nsw.gov.au/ieo/> should be used to identify the agreed environmental values and human uses for any affected waterways. This will help with the description of the local and regional area.

5. Soil Contamination Issues

- Provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination, for example if the site was previously a landfill site or if irrigation of effluent has occurred.

D Identification and prioritisation of issues / scoping of impact assessment

- Provide an overview of the methodology used to identify and prioritise issues. The methodology should take into account:
 - a) relevant NSW government guidelines
 - b) industry guidelines
 - c) EISs for similar projects
 - d) relevant research and reference material
 - e) relevant preliminary studies or reports for the proposal
 - f) consultation with stakeholders.

- Provide a summary of the outcomes of the process including:
 - a) all issues identified including local, regional and global impacts (e.g. increased/ decreased greenhouse emissions)
 - b) key issues which will require a full analysis (including comprehensive baseline assessment)
 - c) issues not needing full analysis though they may be addressed in the mitigation strategy
 - d) justification for the level of analysis proposed (the capacity of the proposal to give rise to high concentrations of pollution compared with the ambient environment or environmental outcomes is an important factor in setting the level of assessment).

E The environmental issues

General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.
- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.

Note: The level of detail should match the level of importance of the issue in decision making which is dependent on the environmental risk.

Describe baseline conditions

- Provide a description of existing environmental conditions for any potential impacts.

Assess impacts

- For any potential impacts relevant for the assessment of the proposal provide a detailed analysis of the impacts of the proposal on the environment including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.
- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts e.g. assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
- Proponents are expected to implement a 'reasonable level of performance' to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology based criteria if available, or identify good practice for this type of activity or development. A 'reasonable level of performance' involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.
- Use environmental impacts as key criteria in selecting between alternative sites, designs and technologies, and to avoid options having the highest environmental impacts.
- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EIS will be implemented. Areas that should be described include:
 - a) operational procedures to manage environmental impacts
 - b) monitoring procedures
 - c) training programs
 - d) community consultation
 - e) complaint mechanisms including site contacts
 - f) strategies to use monitoring information to improve performance
 - g) strategies to achieve acceptable environmental impacts and to respond in event of exceedences.

1. Air

Describe baseline conditions

- Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data.

Assess impacts

- Identify all pollutants of concern and estimate emissions by quantity (and size for particles), source and discharge point.
- Estimate the resulting ground level concentrations of all pollutants. Where necessary (e.g. potentially significant impacts and complex terrain effects), use an appropriate dispersion model to estimate ambient pollutant concentrations. Discuss choice of model and parameters with the EPA.
- Describe the effects and significance of pollutant concentration on the environment, human health, amenity and regional ambient air quality standards or goals.
- Describe the contribution that the development will make to regional and global pollution, particularly in sensitive locations.

- For potentially odorous emissions provide the emission rates in terms of odour units (determined by techniques compatible with EPA procedures). Use sampling and analysis techniques for individual or complex odours and for point or diffuse sources, as appropriate.

Note: With dust and odour, it may be possible to use data from existing similar activities to generate emission rates.

- Reference should be made to
 - *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2022)
 - *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* (EPA 2022)
 - *Assessment and Management of Odour from Stationary Sources in NSW* (DEC 2006)
 - *Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW* (DEC 2006);
 - *Load Calculation Protocol for use by holders of NSW Environment Protection Licences when calculating Assessable Pollutant Loads* (DECC, 2009).

Describe management and mitigation measures

- Outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes.

2. Human Health Risk Assessment

- A human health risk assessment must be undertaken in conjunction with the air quality and odour impact assessment.
- The human health risk assessment must be undertaken in accordance with *Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards* (enHealth) and must include:
 - the inhalation of criteria pollutants and exposure from all pathways i.e., inhalation, ingestion and dermal to specific air toxics; and
 - a demonstration of how the waste to energy facility would be operated in accordance with best practice measures to manage air emissions with consideration of the *Environment Protection Authority's NSW Energy from Waste Policy Statement*.

3. Climate Change

- The proponent must prepare a:
 - a. Greenhouse Gas Mitigation Plan in accordance with the requirements in Part 1, and
 - b. Climate Change Adaptation Plan in accordance with the requirements in Part 2.

General

- The proponent must prepare a brief description of the greenhouse gas (GHG) impacts and climate change risks associated with the project.

Part 1: Greenhouse Gas Mitigation Plan

- A Greenhouse Gas Mitigation Plan must incorporate the following components:

GHG emissions estimates for the project

GHG emissions must be estimated for the project as designed, accounting for the emission mitigation and management measures to be applied. The following information must be provided:

- Credible annual (financial year) and total GHG emissions estimates for the life of the project:
 - a. addressing scope 1, scope 2 and scope 3 emissions
 - b. specified separately for construction (including demolition, land clearing and excavation), operational, decommissioning, closure and post closure stages, as applicable
 - c. estimated based on throughput at maximum capacity and at planned operational throughput.
- This must include annual (financial year) estimates of:
 - a. scope 1 emissions by GHG and cumulatively for all GHGs, specified by source and categorised by the Intergovernmental Panel on Climate Change (IPCC) sectors as applied within Australia's national emission projections (refer to Table 1 below).
 - b. scope 1 emissions intensity per unit of production or activity for the primary scheduled activity under Schedule 1 of the Protection of the Environment Operations Act 1997 (POEO Act)
 - c. total scope 2 emissions
 - d. scope 2 emissions intensity per unit production or activity for the primary scheduled activity under Schedule 1 of the POEO Act
 - e. scope 3 emissions by relevant category and in total for categories most likely to be relevant and representative of most scope 3 emissions (refer to Table 2 below).
- For the above scope 1 and scope 2 emission estimates, provide enough supporting information to enable replication of emission calculations with information disaggregated for each operation (e.g., quantity of individual fuels consumed, emissions of fugitive gas, electricity consumption and production estimates, global warming potentials applied, and the abatement effectiveness applied for GHG emission mitigation measures).
- Uncertainties in the effectiveness of GHG mitigation measures and contingency actions to be implemented to ensure the level of performance claimed must be clearly stated.
- If the project involves a modification that alters emissions from existing activities at the facility, an appropriate emissions measurement boundary must be specified that captures the overall impact of the project on GHG emissions.
- For proposed modifications, the projected annual emissions for the modification must be compared to a 'business-as-usual' scenario (i.e. without the modification). If the modification is projected to alter emissions elsewhere from the existing facility, this must be clearly stated and accounted for in the GHG assessment boundary for the project.
- A comparison of the projected scope 1 emissions of the project to 2050 against the base-case and current policy emission projections for NSW.

GHG emissions must be calculated in accordance with National Greenhouse and Energy Reporting (NGER) Technical Guidelines 2017-18, NGERs Measurement Determination, National Greenhouse Accounts (NGA) factors (or any proven better practice method), and by using the GHG Global Warming Potentials specified for use in the most recent NGER reporting requirements. Higher order NGER methods should be used where possible.

Where relevant, reference should be made to the Safeguard Mechanism: Prescribed production variables and default emissions intensities when estimating emission intensities for the project.

Notes:

The NSW current policy and base-case projections are available on the NSW Net Zero Emissions Dashboard and data sets downloadable from the NSW Sharing and Enabling Environmental Data (SEED) Portal.

The NGER Measurement Determination sets out how to assess uncertainty in emission estimates.

Further information and assistance are available at:

- National Greenhouse and Energy Reporting (NGER) scheme
- NGERs Technical Guidelines 2017-18
- NGERs Measurement Determination
- National Greenhouse Accounts (NGA) factors
- National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015
- National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Reforms) Rules 2023
- International Performance Measurement and Verification Protocol (IPMVP)
- Intergovernmental Panel on Climate Change (IPCC)
- World Resources Institute/World Business Council for Sustainable Development Greenhouse Gas Protocol Standards
- ISO 14064-1:2018

The Commonwealth provides emissions projections (on an annual basis) for scope 2 emission factors up to 2035.

GHG emissions targets for the project

- An overarching long-term scope 1 GHG emissions reduction target for the project that represents a meaningful contribution to the scope 1 emissions reduction objectives of the State.
- Regular interim scope 1 targets that establish a trajectory to achieving the overarching scope 1 target, with interim targets to be specified at 5-year or shorter-term intervals.
- Scope 1 targets must be specified in absolute terms, e.g. tonnes CO₂-e for a given year, with emission intensity targets specified where appropriate.

- Specifying and reporting on Scope 2 and Scope 3 emission reduction targets are encouraged but not required.
- An explanation of, and justification for, the proposed long-term and interim targets for the project and how these will make a meaningful contribution to the scope 1 emissions reduction objectives of the State.
- A meaningful contribution refers to the expectation that project emissions would reduce at a comparable rate to the NSW net zero emissions trajectory. If the project does not align with the NSW net zero emissions trajectory, provide a comprehensive explanation as to why the alternative trajectory is appropriate.

Notes:

The global [GHG Protocol](#) and the [Science Based Target Initiatives](#) provide advice on how to set targets. Targets should compare to a base year and be time dependent.

The scope 1 emissions reduction objectives of the State are:

- to achieve net zero emissions by 2050, and
- to achieve a reduction of at least 70% of 2005 emissions levels by 2035, and to achieve a reduction of at least 50% of 2005 emissions levels by 2030¹.

Obligations for Safeguard facilities

If the project is likely to be a Safeguard facility (or is a proposed modification to a Safeguard facility):

- For the life of the project, provide information about the project's expected Safeguard Mechanism obligations under the Australian Government's *National Greenhouse and Energy Reporting Act 2007*, including, where relevant:
 - a. any expected individual facility baseline determinations
 - b. how the project's proposed emission targets align with any expected decline rate for the individual facility baseline
 - c. any sectoral baseline
 - d. how the project's proposed emissions will impact on the sectoral baseline
 - e. how the project's estimated scope 1 emissions intensity per unit production (as calculated under "GHG emissions estimates for the project" above) compares to any relevant emissions intensity specified in the National Greenhouse and Energy Reporting (Safeguard Mechanism) rules.

Notes:

The Safeguard Mechanism provides minimum requirements for the highest emitting facilities, but that does not preclude the need for the EPA and the consent authority to properly understand the potential GHG impacts of proposed new or significantly modified developments and ensure all proponents are adequately avoiding, minimising and managing their emissions over all stages of the development.

¹ Clause 8(2)a of the [Energy and Utilities Administration Regulation 2021](#)

Further information about the Safeguard Mechanism is available on the [Clean Energy Regulator's website](#) and within related rules:

- National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015
- National Greenhouse and Energy Reporting ([Safeguard](#) Mechanism) Amendment (Reforms) Rules 2023

Obligations for electricity firming infrastructure

If the project is electricity firming infrastructure, and the proponent intends to enter into a Long-Term Energy Service Agreement with the Consumer Trustee:

- For the life of the project, provide information about the project's expected obligations under Part 12 of the Electricity Infrastructure Investment Regulation 2021, including, where relevant:
 - a. how the project's proposed emission targets align with obligations under the Regulation, including the requirement for net zero emissions from 2036.
 - b. how will the project's offset obligations under the Regulation be reduced, as the NSW grid emissions intensity reduces over time.

Notes:

Firming infrastructure operators that hold a Long-Term Energy Service Agreement must meet emissions intensity requirements under the under Part 12 of the Electricity Infrastructure Investment Regulation 2021, these include:

- Before 2036, a firming infrastructure facility's annual emissions intensity must be lower than the emissions intensity of all NSW generators supplying to the grid each year.
- From 1 January 2036, a firming infrastructure facility must achieve net zero for their scope 1 emissions annually.

Further information about the EPA's role in overseeing firming infrastructure's GHG emissions obligations, is available on our [website](#).

Measures to avoid and reduce GHG emissions

- A description of measures that would be implemented to avoid and reduce the project's scope 1, scope 2 and scope 3 emissions, with reference to the mitigation hierarchy to first avoid, then reduce emissions.
- For scope 1 and scope 2 mitigation measures, include an assessment of:
 - a. whether these measures represent the full range of best practice design, technology and management measures that could be implemented
 - b. the likely effectiveness of these measures, including performance measures, where relevant
 - c. a comparison of the project's emissions and emissions intensity per unit production benchmarked against other comparable projects, best practice, and industry sector standards/milestones where they exist
 - d. where best practice is not proposed to be adopted, provide a robust, verifiable justification.

- For projects with scope 1 and 2 emissions exceeding 100,000 t CO₂-e per year at any time over the operational life of the project, mitigation assessments must be verified by an independent expert review. Assurance is to be provided that the review has been conducted by an independent and suitably credentialed reviewer.
- Consideration should be given to reducing scope 1, scope 2 and scope 3 emissions throughout the life of the project through regular GHG Mitigation Plan reviews.

Notes:

NSW expects proponents to apply the mitigation hierarchy to first avoid, then reduce and finally to offset residual emissions.

Avoiding emissions through best practice design may involve comparing absolute emissions and emissions intensity performance metrics, with comparable facilities and ensuring emissions and emissions intensity are minimised at the design stage and/or a particular level of emissions intensity performance is attained through adoption of renewable/low emissions technologies.

For the purpose of these requirements, best practice is the most effective and best combination of technologies used and the way in which an installation is designed, built, maintained, operated and decommissioned to avoid and minimise the environmental impacts arising from emissions².

NSW public infrastructure projects will also need to consider the Protection of the Environment Policy (PEP) for sustainable construction when this policy is released. This PEP will promote low-carbon design and construction, and increased use of remanufactured waste in NSW public infrastructure projects. After July 2024, public authorities will be required to consider its provisions for all new public infrastructure proposals, including State Significant Infrastructure.

Strategies to offset GHG emissions

- A description of all strategies proposed to offset the project's scope 1 and scope 2 emissions, including the projected offsets required on an annual CO₂-e basis, and the expected location, provenance, integrity and type or legislated method of any offsets.
- Carbon service providers and carbon market advisors, including agents, must be accredited and regulated as per Recommendation 12 of the Chubb Review of the Australian Carbon Credit Unit (ACCU) Scheme³ (Chubb *et al*, December 2022).
- Avoided deforestation projects must not be used in accordance with Recommendation 9 of the Chubb Review.

² EU Industrial Emissions Directive (Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)). Retrieved from ec.europa.eu/environment/industry/stationary/ied/legislation.htm

³ The Australian Carbon Credit Unit (ACCU) Scheme: A Review, Professor Ian Chubb, The Hon Dr Annabelle Bennett, Ariadne Gorrington, Dr Steve Hatfield-Dodds, December 2022. Retrieved from dceew.gov.au/climate-change/emissions-reduction/independent-review-accus on 25 July 2023.

- If offsets are proposed to be used by projects with scope 1 and 2 emissions exceeding 100,000 t CO₂-e per year at any time over the operational life of the project, the independent expert review must consider whether suitable offsets are likely to be available at the time of the proposed surrender. Assurance is to be provided that the review has been conducted by an independent and suitably credentialed reviewer.

Notes:

NSW expects proponents to apply the mitigation hierarchy to first avoid, then reduce and finally to offset residual emissions.

Carbon offsets should be limited to residual emissions that cannot be avoided and be based on clear, enforceable, and accountable methods. Domestic offsets under the Safeguard Mechanism, as well as voluntary offsets purchased to reduce residual emissions, may contribute to a proponent's overall commitments. Where carbon offsets are to be implemented, they should meet offset integrity principles with due regard to the integrity standards set out in *the Commonwealth Carbon Credits (Carbon Farming Initiative) Act 2011*.

NSW prefers proponents to use carbon offsets that conserve, preserve, protect, enhance, and manage the NSW environment. Where appropriate offset projects cannot be identified in NSW, offset projects in other Australian locations may be used.

Monitoring and reporting GHG emissions performance

- A description of the measures that would be implemented to monitor and periodically report on the GHG emissions performance relative to project's emissions targets.
- This includes monitoring and reporting on the implementation and effectiveness of GHG emission mitigation measures, in addition to monitoring and reporting on the project's scope 1, 2 and 3 emissions and progress being made towards targets.
- A description of related GHG reporting obligations, such as under the NGER scheme, and whether any additional information on GHG emissions is proposed to be made publicly available, and if so, indicate the format, frequency and form of such reporting.

Review of Plan

- A timetable for review of the project's *GHG Mitigation Plan* that reflects the project's lifespan and the identified interim and overarching targets.

Part 2: Climate Change Adaptation Plan

Notes:

Further guidance on considering climate adaptation can be found in the following resources:

- ISO 31000
- ISO/TS 14092
- AS 5334

- Climate Risk Ready NSW Guide

You might find some aspects of the Climate Risk Ready NSW Guide useful to guide your considerations under Part 2. While it was developed for NSW government agencies, the principles, steps and resources may assist you to prepare your *Climate Change Adaptation Plan*.

A *Climate Change Adaptation Plan* must incorporate the following components:

Climate change risk assessment

- A climate change risk assessment that addresses predicted climatic changes and the potential impacts of climate hazards on the environmental performance of the project.

Notes:

A climate hazard is defined as a physical event (hydro-meteorological or oceanographic) that can harm human health, livelihoods, or natural resources. These could be direct climate hazards such as flooding of a sewage treatment plant, causing water pollution to nearby waterways, or indirect hazards such as a drought, where water is not available for dust suppression.

A climate risk is the potential for adverse consequences for human or ecological systems from climate hazards (adapted from IPCC).

- The risk assessment must take into account AdaptNSW regional climate change projections, for the near future and for the life of the project.

Note: Regional climate change projections are available on the AdaptNSW website.

Measures to reduce climate risk

- A description of measures that would be implemented to reduce likely climate change risks and potential impacts on the environmental performance of your project.
- An assessment of:
 - a. the likely effectiveness of these measures
 - b. whether these measures will remain effective over time as climate change risks increase
 - c. whether contingency plans will be necessary to manage any residual risks.
- If contingency measures are deemed necessary under (c) above, provide a description of how the project is designed so that these contingency measures can be readily implemented if and when necessary.

Monitoring and reporting on the effectiveness of measures to reduce climate risk

- A description of metrics that will be used to periodically evaluate the effectiveness of the adaptation management measures.

- A description of the measures that would be implemented to monitor and periodically report on against these metrics.

Review of Plan

- A timetable for review of the project's *Climate Change Adaptation Plan* that reflects the project's lifespan and incorporates at each review the latest knowledge about predicted climate risks in the short and long term.

Table 1: Sectors and subsectors to be applied in the categorisation of sources

Sector	Sub-sector
Electricity (public electricity generation)	Coal
	Gas
	Hydro
	Wind
	Solar
	Other
	Pumped Hydro (storage)
	Battery (storage)
Stationary energy (excluding electricity Generation)	Agriculture, Forestry and Fishing
	Buildings
	Domestic Gas Production and Distribution
	LNG
	Manufacture of Solid Fuels
	Manufacturing
	Military
	Mining
	Oil and Other Gas Extraction
	Petroleum Refining
Transport	Articulated trucks
	Buses
	Cars
	Domestic aviation
	Domestic navigation
	Light commercial vehicles
	Motorcycles
	Other transportation
	Railways
	Rigid trucks
Fugitives	Domestic natural gas (gas other than LNG)
	LNG
	Oil
	Open cut mines
	Underground coal mines
Industrial processes	Chemical industry
	Metal industry
	Mineral industry
	Non-energy products from fuel and solvent use
	Other product manufacture and use
	Other production
	Product uses as substitutes for ozone depleting substances
Waste	Solid waste - Composting
	Solid waste - Incineration
	Solid waste - Waste to landfill
	Wastewater - Domestic and commercial
	Wastewater - Industrial
Land use, land use change and forestry	Agricultural and other land
	Forest conversion to agriculture and other land
	Forests

Sector	Sub-sector
Agriculture	Crops
	Dairy
	Fertilisers
	Grain Fed Beef
	Grazing Beef
	Lime and Urea
	Other animals
	Pigs
	Sheep

Table 2: Likely relevance of Scope 3 Categories by Sector

Sector	Relevant Scope 3 Category
Agricultural Commodities	Category 1: Purchased goods and services Category 10: Processing of sold products Category 11: Use of sold products
Capital Goods	Category 11: Use of sold products Category 1: Purchased goods and services
Cement	Category 1: Purchased goods and services Category 3: Fuel-and-energy-related activities Category 4: Upstream transportation and distribution Category 9: Downstream transportation and distribution
Chemicals	Category 1: Purchased goods and services Category 11: Use of sold products Category 12: End of life treatment of sold products Category 4: Upstream transportation and distribution Category 3: Fuel-and-energy-related activities Category 2: Capital goods Category 9: Downstream transportation and distribution
Coal	Category 11: Use of sold products Category 9: Downstream transportation and distribution
Construction	Building developers: Category 11: Use of sold products Category 4: Upstream transportation and distribution Category 12: End of life treatment of sold products Category 2: Capital Goods Category 3: Fuel-and-energy-related activities Construction contractors: Category 1: Purchased goods and services Category 2: Capital goods
Electric Utilities	Category 11: Use of sold products Category 3: Fuel-and-energy-related activities Category 15: Investments Category 1: Purchased goods and services Category 4: Upstream Transportation and Distribution
Financial Services	Category 15: Investments
Food and Beverages	Category 1: Purchased goods and services Category 9: Downstream Transportation and Distribution Category 4: Upstream Transportation and Distribution Category 5: Waste generated in operations
Metals and Mining	Mining: Category 10: Processing of sold products Category 9: Downstream transportation and distribution Processing Metals: Category 1: Purchased goods and services Category 4: Upstream Transportation and Distribution Category 9: Downstream transportation and distribution Category 5: Waste generated in operations
Oil and Gas	Category 11: Use of sold products Category 1: Purchased goods and services

Sector	Relevant Scope 3 Category
Paper and Forestry	Forestry: Category 1: Purchased goods and services Category 10: Processing of sold products Category 12: End of life treatment of sold products Category 9: Downstream Transportation and Distribution Processors: Category 1: Purchased goods and services Category 9: Downstream Transportation and Distribution Category 4: Upstream Transportation and Distribution
Real Estate	Building developers: Category 2: Capital Goods Category 3: Fuel and energy-related activities Category 11: Use of sold products Category 4: Upstream transportation and distribution Category 12: End of life treatment of sold products Building owners: Category 2: Capital Goods Category 13: Downstream leased assets Category 1: Purchased goods and services Category 3: Fuel and energy-related activities
Steel	Category 1: Purchased goods and services Category 11: Use of sold products Category 10: Processing of sold products Category 12: End of life treatment of sold products Category 4: Upstream Transportation and Distribution Category 9: Downstream transportation and distribution Category 5: Waste generated in operations
Transport OEMS	Category 11: Use of sold products Category 1: Purchased goods and services
Transport Services	Category 4: Fuel and energy-related activities Category 3: Upstream transportation and distribution Category 1: Purchased goods and services

4. Noise and vibration

Describe baseline conditions

- Determine the existing background (LA90) and ambient (LAeq) noise levels, as relevant, in accordance with the *NSW Noise Policy for Industry (EPA 2017)*.
- Determine the existing road traffic noise levels in accordance with the *NSW Road Noise Policy (EPA 2011)*, where road traffic noise impacts may occur.
- The noise impact assessment report should provide details of all monitoring of existing ambient noise levels including:
 - a) details of equipment used for the measurements
 - b) a brief description of where the equipment was positioned
 - c) a statement justifying the choice of monitoring site(s), including the procedure used to choose the site(s), having regards to Fact Sheets A and B of the *NSW Noise Policy for Industry*.
 - d) details of the exact location of the monitoring site and a description of land uses in surrounding areas
 - e) a description of the dominant and background noise sources at the site
 - f) day, evening and night assessment background levels for each day of the monitoring period
 - g) the final Rating Background Level (RBL) value
 - h) graphs of the measured noise levels for each day should be provided
 - i) a record of periods of affected data (due to adverse weather and extraneous noise), methods used to exclude invalid data and a statement indicating the need for any re-monitoring.

Assess impacts

- Determine the project noise trigger levels for the site. For each identified potentially affected receiver, this should include:
 - a) determination of the project intrusive noise level for each identified potentially affected receiver
 - b) selection and justification of the appropriate amenity category for each identified potentially affected receiver
 - c) determination of the project amenity noise level for each receiver
 - d) determination of the appropriate maximum noise level event assessment (sleep disturbance) trigger level.
- Maximum noise levels during night-time period (10pm-7am) should be assessed to analyse possible affects on sleep. Determine expected noise level and noise character likely to be generated from noise sources during:
 - a) site establishment
 - b) construction
 - c) operational phases
 - d) transport including traffic noise generated by the proposal
 - e) other services.

Note: The noise impact assessment report should include noise source data for each source in 1/1 or 1/3 octave band frequencies including methods for references used to determine noise source levels. Noise source levels and characteristics can be sourced from direct measurement of similar activities or from literature (if full references are provided).

- Determine the noise levels likely to be received at the reasonably most affected location(s) (these may vary for different activities at each phase of the development).
- The noise impact assessment report should include:
 - a) a plan showing the assumed location of each noise source for each prediction scenario
 - b) a list of the number and type of noise sources used in each prediction scenario to simulate all potential significant operating conditions on the site
 - c) any assumptions made in the predictions in terms of source heights, directivity effects, shielding from topography, buildings or barriers, etc
 - d) methods used to predict noise impacts including identification of any noise models used.
 - e) the weather conditions considered for the noise predictions
 - f) the predicted noise impacts from each noise source as well as the combined noise level for each prediction scenario
 - g) for developments where a significant level of noise impact is likely to occur, noise contours for the key prediction scenarios should be derived
 - h) an assessment of the need to include modification factors as detailed in Fact Sheet C of the *NSW Noise Policy for Industry*.
- Discuss the findings from the predictive modelling and, where relevant noise criteria have not been met, recommend additional feasible and reasonable mitigation measures.
- The noise impact assessment report should include details of any mitigation proposed including the attenuation that will be achieved and the revised noise impact predictions following mitigation.
 - a) Where relevant noise/vibration levels cannot be met after application of all feasible and reasonable mitigation measures the residual level of noise impact needs to be quantified
- For the assessment of existing and future traffic noise, details of data for the road should be included such as assumed traffic volume; percentage heavy vehicles by time of day; and details of the calculation process. These details should be consistent with any traffic study carried out in the EIS.

Describe management and mitigation measures

- Determine the most appropriate noise mitigation measures and expected noise reduction including both noise controls and management of impacts for both construction and operational noise. This will include selecting quiet equipment and construction methods, noise barriers or acoustic screens, location of stockpiles, temporary offices, compounds and vehicle routes, scheduling of activities, etc.
- For traffic noise impacts, provide a description of the ameliorative measures considered (if required), reasons for inclusion or exclusion, and procedures for calculation of noise levels including ameliorative measures. Also include, where necessary, a discussion of any potential problems associated with the proposed ameliorative measures, such as overshadowing effects from barriers. Appropriate ameliorative measures may include:
 - a) use of alternative transportation modes, alternative routes, or other methods of avoiding the new road usage
 - b) control of traffic (eg: limiting times of access or speed limitations)
 - c) resurfacing of the road using a quiet surface
 - d) use of (additional) noise barriers or bunds

- e) treatment of the façade to reduce internal noise levels buildings where the night-time criteria is a major concern
- f) more stringent limits for noise emission from vehicles (i.e. using specially designed 'quite' trucks and/or trucks to use air bag suspension
- g) driver education
- h) appropriate truck routes
- i) limit usage of exhaust brakes
- j) use of premium muffles on trucks
- k) reducing speed limits for trucks
- l) ongoing community liaison and monitoring of complaints
- m) phasing in the increased road use.

5. Water

Describe baseline conditions

- Describe existing surface and groundwater quality – an assessment needs to be undertaken for any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather sampling program is needed if runoff events may cause impacts).

Note: Methods of sampling and analysis need to conform with an accepted standard (e.g. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA 2022) or be approved and analyses undertaken by accredited laboratories).

- Provide site drainage details and surface runoff yield.
- State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: <https://www.environment.nsw.gov.au/ieo/>. The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal. NB: A consolidated and approved list of environmental values are not available for groundwater resources. Where groundwater may be affected the EIS should identify appropriate groundwater environmental values and justify the choice.
- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC 2000 *Guidelines for Fresh and Marine Water Quality* (<http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html>) (Note that, as at 2004, the NSW Water Quality Objectives booklets and website contain technical criteria derived from the 1992 version of the ANZECC Guidelines. The Water Quality Objectives remain as Government Policy, reflecting the community's environmental values and long-term goals, but the technical criteria are replaced by the more recent ANZECC 2000 Guidelines). NB: While specific guidelines for groundwater are not available, the ANZECC 2000 Guidelines endorse the application of the trigger values and decision trees as a tool to assess risk to environmental values in groundwater.
- Where site specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from the EPA on the approach and study design must be obtained.
- Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?). Proponents are generally only expected to source available data and information. However, proponents of large or high risk developments may be required to collect some ambient water

quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could include:

- a) lake or estuary flushing characteristics
- b) specific human uses (e.g. exact location of drinking water offtake)
- c) sensitive ecosystems or species conservation values
- d) a description of the condition of the local catchment e.g. erosion levels, soils, vegetation cover, etc
- e) an outline of baseline groundwater information, including, but not restricted to, depth to water table, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment
- f) historic river flow data where available for the catchment.

Assess impacts

- No proposal should breach clause 120 of the *Protection of the Environment Operations Act* 1997 (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).
- Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.
- Include a rationale, along with relevant calculations, supporting the prediction of the discharges.
- Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).
- Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity resulting from changes in frequency and magnitude of stream flow).
- Identify any potential impacts on quality or quantity of groundwater describing their source.
- Identify potential impacts associated with geomorphological activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, instream siltation, floodplain erosion and floodplain siltation.
- Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils.
- Containment of spills and leaks shall be in accordance with EPA's guidelines section '*Storing and Handling Liquids*' at <https://www.epa.nsw.gov.au/licensing-and-regulation/licensing/environment-protection-licences/compliance-audit-program/chemical-storage-handling-and-spill-management>

and the most recent versions of the Australian Standards referred to in the Guidelines. Containment should be designed for no-discharge.

- The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered:
 - a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and

- b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.
- Consult with the EPA as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives. The mixing zone could result in dilution, assimilation and decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). The EPA will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment.

Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.

- Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.
- Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.
- Reference should be made to
 - *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004),
 - *Guidelines for Fresh and Marine Water Quality* (ANZECC 2000),
 - *Environmental Guidelines: Use of effluent by Irrigation* (DEC, 2004).

Describe management and mitigation measures

- Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.
- Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.
- Describe waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.
- Outline pollution control measures relating to storage of materials, possibility of accidental spills (e.g. preparation of contingency plans), appropriate disposal methods, and generation of leachate.
- Describe hydrological impact mitigation measures including:
 - a) site selection (avoiding sites prone to flooding and waterlogging, actively eroding or affected by deposition)
 - b) minimising runoff
 - c) minimising reductions or modifications to flow regimes
 - d) avoiding modifications to groundwater.
- Describe groundwater impact mitigation measures including:
 - a) site selection
 - b) retention of native vegetation and revegetation
 - c) artificial recharge

- d) providing surface storages with impervious linings
- e) monitoring program.
- Describe geomorphological impact mitigation measures including:
 - a) site selection
 - b) erosion and sediment controls
 - c) minimising instream works
 - d) treating existing accelerated erosion and deposition
 - e) monitoring program.
- Any proposed monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (EPA 2022).

6. Soils and contamination

Describe baseline conditions

- Provide any details (in addition to those provided in the location description - Section C) that are needed to describe the existing situation in terms of soil types and properties and soil contamination.

Assess impacts

- Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of:
 - a) disturbing any existing contaminated soil
 - b) contamination of soil by operation of the activity
 - c) subsidence or instability
 - d) soil erosion
 - e) disturbing acid sulfate or potential acid sulfate soils.
- Reference should be made to
 - *Consultants reporting on Contaminated Land* (EPA 2020);
 - *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (EPA, 2015)

Describe management and mitigation measures

- Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:
 - a) erosion and sediment control measures
 - b) proposals for site remediation – see *State Environmental Planning Policy (Resilience and Hazards) 2021* and other supporting guidelines including the *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)
 - c) proposals for the management of these soils – see *Acid Sulfate Soil Manual* (Acid Sulfate Soil Advisory Committee 1998) and *Acid Sulfate Soils Assessment Guidelines* (Acid Sulfate Soil Advisory Committee 1998).

7. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise impacts from the handling, transporting, storage, processing and reprocessing of waste and/or chemicals.
- Reference should be made to: the EPA's *Waste Classification Guidelines 2014 (as in force from time to time)*
- If the proposal is an energy from waste facility it must:
 - demonstrate that the proposed operation will comply with *the NSW EPA's Energy from Waste Policy Statement*;
 - describe of the classes and quantities of waste that would be thermally treated at the facility;
 - demonstrate that waste used as a feedstock in the waste to energy plant would be the residual from a resource recovery process that maximises the recovery of material;
 - detail procedures that would be implemented to control the inputs to the waste to energy plant, including contingency measures that would be implemented if inappropriate materials are identified;
 - detail the location and size of stockpiles of unprocessed and processed recycled waste at the site;
 - demonstrate any waste material (e.g. biochar, ash) produced from the waste to energy facility for land application is fit-for-purpose and poses minimal risk of harm to the environment in order to meet the requirements for consideration of a resource recovery order and /or exemption by the EPA;
 - detail procedures for the management of other solid, liquid and gaseous waste streams;
 - describe how waste would be treated, stored, used, disposed and handled on site, and transported to and from the site, and the potential impacts associated with these issues, including current and future offsite waste disposal methods; and
 - identify the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the *NSW Waste and Sustainable Materials Strategy 2041*.

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.
- Outline measures to avoid the generation of waste and promote the re-use and recycling and reprocessing of any waste.
- Outline measures to support any approved regional or industry waste plans.

8. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long term air, noise and water quality objectives for the area or region.
- Identify infrastructure requirements flowing from the proposal (e.g. water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts (e.g. travel demand management strategies).

F. List of approvals and licences

- Identify all approvals and licences required under environment protection legislation including details of all scheduled activities, types of ancillary activities and types of discharges (to air, land, water).

G. Compilation of mitigation measures

- Outline how the proposal and its environmental protection measures would be implemented and managed in an integrated manner so as to demonstrate that the proposal is capable of complying with statutory obligations under EPA licences or approvals (e.g. outline of an environmental management plan).
- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

H. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts.

ATTACHMENT B: GUIDANCE MATERIAL

Title	Web address
Relevant Legislation	
<i>Contaminated Land Management Act 1997</i>	http://www.legislation.nsw.gov.au/#/view/act/1997/140
<i>Environmentally Hazardous Chemicals Act 1985</i>	http://www.legislation.nsw.gov.au/#/view/act/1985/14
<i>Environmental Planning and Assessment Act 1979</i>	http://www.legislation.nsw.gov.au/#/view/act/1979/203
<i>Protection of the Environment Operations Act 1997</i>	http://www.legislation.nsw.gov.au/#/view/act/1997/156
<i>Water Management Act 2000</i>	http://www.legislation.nsw.gov.au/#/view/act/2000/92
Licensing	
Guide to Licensing	www.epa.nsw.gov.au/licensing/licenceguide.htm
Air Issues	
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2022)	https://www.epa.nsw.gov.au/your-environment/air/industrial-emissions/approved-methods-for-the-modelling-and-assessment-of-air-pollutants https://www.epa.nsw.gov.au/resources/epa/approved-methods-for-modelling-and-assessment-of-air-pollutants-in-NSW-160666.pdf
POEO (Clean Air) Regulation 2021	https://legislation.nsw.gov.au/view/html/inforce/current/sl-2021-0485
Noise and Vibration	
NSW Noise Policy for Industry (2017)	http://www.epa.nsw.gov.au/your-environment/noise/industrial-noise/noise-policy-for-industry-(2017)
Interim Construction Noise Guideline (DECC, 2009)	http://www.epa.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.epa.nsw.gov.au/noise/vibrationguide.htm
NSW Road Noise Policy (DECCW, 2011)	https://www.epa.nsw.gov.au/resources/noise/2011236nswroadnoisepolicy.pdf
Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration (ANZEC 1990)	https://www.epa.nsw.gov.au/~media/EPA/Corporate%20Site/resources/noise/ANZECBlasting.ashx
NSW Rail Infrastructure Noise Guideline (EPA, 2013)	https://www.epa.nsw.gov.au/resources/noise/20130018eparng.pdf

Human Health Risk Assessment	
Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards (enHealth, 2012)	http://www.eh.org.au/documents/item/916
Waste, Chemicals and Hazardous Materials and Radiation	
Waste	
Environmental Guidelines: Solid Waste Landfills (EPA, 2016)	https://www.epa.nsw.gov.au/your-environment/waste/waste-facilities/landfill-sites
Managing industrial waste	https://www.epa.nsw.gov.au/your-environment/waste/industrial-waste
EPA's Waste Classification Guidelines 2014	http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm
Resource recovery orders and exemptions	https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/resource-recovery-framework/current-orders-and-exemption
EPA's Energy from Waste Policy Statement	http://www.epa.nsw.gov.au/wastestrategy/energy-from-waste.htm
NSW Waste Avoidance and Resource Recovery Strategy 2014-2021	http://www.epa.nsw.gov.au/wastestrategy/warr.htm
Chemicals subject to Chemical Control Orders	
Chemical Control Orders (regulated through the EHC Act)	http://www.epa.nsw.gov.au/pesticides/CCOs.htm
National Protocol - Approval/Licensing of Trials of Technologies for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
National Protocol for Approval/Licensing of Commercial Scale Facilities for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
Water and Soils	
Acid sulphate soils	
Coastal acid sulfate soils guidance material	https://www.environment.nsw.gov.au/research-and-publications/publications-search/acid-sulfate-soils-remediation-guidelines-for-coastal-floodplains-in-nsw and http://www.epa.nsw.gov.au/mao/acidsulfatesoils.htm
Acid Sulfate Soils Planning Maps	https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c
Contaminated Sites Assessment and Remediation	
State Environmental Planning Policy (Resilience and Hazards) 2021	https://www.epa.nsw.gov.au/your-environment/contaminated-land
Consultants Reporting on Contaminated Land (EPA, 2020)	https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/contaminated-land/20p2233-consultants-reporting-on-contaminated-land-guidelines.pdf

Guidelines for the NSW Site Auditor Scheme – 3rd edition (EPA, 2017)	https://www.epa.nsw.gov.au/your-environment/contaminated-land/site-auditor-scheme
Sampling Design Guidelines (EPA, 2022)	https://yoursay.epa.nsw.gov.au/sampling-design-guidelines
National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)	https://www.nepc.gov.au/nepms/assessment-site-contamination

Soils – general	
Managing land and soil	https://www.environment.nsw.gov.au/topics/land-and-soil/managing-land-and-soil
Managing Urban Stormwater: Soils and construction	https://www.environment.nsw.gov.au/research-and-publications/publications-search/managing-urban-stormwater-soils-and-construction-volume-1-4th-edition
Landslide risk management guidelines	
Site Investigations for Urban Salinity (DLWC, 2002)	https://www.environment.nsw.gov.au/research-and-publications/publications-search/site-investigations-for-urban-salinity
Local Government Salinity Initiative Booklets	https://www.environment.nsw.gov.au/research-and-publications/publications-search/local-government-salinity-initiative-introduction-to-urban-salinity
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
Australian and New Zealand guidelines for fresh and marine water quality	https://www.waterquality.gov.au/guidelines/anz-fresh-marine
Applying Goals for Ambient Water Quality Guidance for Operations Officers - Mixing Zones	Contact the EPA on 131555
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2022)	https://www.epa.nsw.gov.au/licensing-and-regulation/licensing/environment-protection-licences/licensing-under-poeo-act-1997/licensing-to-regulate-water-pollution/approved-methods-for-sampling-and-analysing-water-pollutants