Director-General's Requirements

Section 75F of the *Environmental Planning and Assessment Act 1979*

Project	(MP11_0020-Kerrawary Power Station) Construction and operation of a 1000 MW gas turbine power station including: • two stages of up to eight open cycle gas turbines; • ancillary plant and infrastructure; and • infrastructure beyond the power station site including a lateral gas pipeline from the Moomba to Sydney Gas pipeline, water pipeline and high voltage transmission infrastructure to the Bannaby Substation.
Site	The power station facility is to be located on a site 60km north east of Goulburn near Big Hill in the Upper Lachlan Shire Local Government Area, being Lot 4, 81 and 88 in DP7500234, plus land to accommodate the gas pipeline, water pipeline and high voltage transmission line and associated infrastructure located within the Upper Lachlan Shire, Goulburn Mulwaree and Wingecarribee Local Government Areas.
Proponent	Origin Energy Power Limited
Date of Issue	17 June 2011
Date of Expiration	17 June 2013
General Requirements	The Environmental Assessment (EA) must include: • an **executive summary**; • a **description of the project** including construction, operation and staging. The description should include any required infrastructure such as pipelines and connection to the grid for the operation of the project; • consideration of any **relevant statutory provisions** including the consistency of the project with the objects of the *Environmental Planning and Assessment Act 1979*; • consideration of **alternatives** to the project, including site selection; • an **assessment of the environmental impacts** of the project with particular focus on the key assessment requirements specified below and proposed mitigation/management measures for residual environmental impacts; • demonstration that the power station will be capable of meeting relevant Building Code of Australia (BCA) standards; • **justification** for undertaking the project with consideration of the benefits/impacts of the proposal (including community benefits) and proposed management/ mitigation/ monitoring; • a **draft Statement of Commitments** outlining environmental management, mitigation and monitoring measures and any proposed community enhancement measures/planning agreements; and • **certification** by the author of the EA that the information contained in the Assessment is neither false nor misleading.
Key Assessment Requirements	The EA must include an assessment of the following key issues: • **Strategic Justification** - the EA must: → include a strategic assessment of the need for, scale, scope, operational mode (e.g. baseload, intermediate, peaking) and location of the project in relation to predicted electricity demand, transmission constraints and the strategic direction of the region and the State in relation to electricity supply, demand and electricity generation technologies; → include an analysis of site suitability with respect to potential land use conflicts with existing and future land uses taking into account local and strategic land use objectives; and → describe alternatives considered for the project in particular technology and configuration including fuel source, air emissions, water use and options for waste disposal/ beneficial reuse and provide justification for the project demonstrating its benefits at a local and strategic scale in comparison to alternatives considered, including the do nothing option. • **Greenhouse Gases -** the EA must include a comprehensive greenhouse gas assessment undertaken in accordance with the methodology specified in the *National Greenhouse Accounts (NGA) Factors* (latest release) including: → quantification of emissions (in tonnes of carbon dioxide equivalent) in accordance with the *Greenhouse Gas Protocol: Corporate Standard (World Council for Sustainable Business Development & World Resources Institute)* including: direct emissions (Scope 1), indirect emissions from electricity use (Scope 2) and any significant up or down stream emissions (Scope 3) considering all stages of the

project (annual emission for each year of the project during construction, operation and decommissioning is required to be provided);

→ comparison of predicted emissions intensity and thermal efficiency against best achievable practice and current NSW averages for the activity, and of predicted emissions against total annual national emissions (expressed as a percentage of total national greenhouse gases production per year over the life of the project);

→ evaluation of the availability and feasibility of measures to reduce and/ or offset the greenhouse emissions of the project including options for carbon capture and storage. Where current available mitigation technology is not technically or economically feasible, the EA must demonstrate that the proposal will use best available technology, including carbon capture readiness, and identify options for triggers that would require staged implementation of emerging mitigation technologies; and

→ evaluation of the project in the light of various carbon emission prices per tonne both with and without proposed mitigation measures.

- **Air Quality -** the EA must:

→ include a comprehensive air quality impact assessment based on dispersion modelling prepared in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (DECC, 2005) (Approved Methods) considering worst case operating scenarios and meteorological conditions, representative monitoring and receiver locations and cumulative impacts, as applicable;

→ address air quality impacts at a local, regional and interregional level and include a plume rise assessment. The assessment must demonstrate that the project would meet the impact assessment criteria in Section 7 of the Approved Methods and the requirements of the Protection of the Environment Operations (Clean Air) Regulation 2002 for all relevant pollutants based on ground level concentrations at the plant boundary and beyond at all sensitive receptors; and

→ clearly demonstrate that the project has been designed to include the application of Best Available Control Technology (BACT) in relation to air emissions. The assessment must include a framework for the mitigation, management and monitoring of air quality impacts, particularly with respect to sensitive receptors likely to be impacted by cumulative air quality impacts in the local area.

- **Water Supply, Water Quantity and Quality Impacts-** the EA must:

→ include an assessment of the water quantity and quality impacts of the proposal (i.e. surface and groundwater), as well as adequate mitigating and monitoring requirements to address surface and groundwater impacts with particular reference to the water needs for the life of the project, the proposed source of water including any dams proposed (existing and proposed water licensing requirements are to be in accordance with the *Water Act 1912/Water Management Act 2000* (whichever is relevant) and the NSW inland groundwater Water Shortages Zone Order No.2, 2008), water disposal requirements the implementation of water saving measures (including use of rainwater and runoff from sealed, hardstand and disturbed areas as much as practically possible), and consideration of the principle of achieving a neutral or beneficial effect on water quality in the drinking water catchment;

→ be able to demonstrate that an adequate and secure water supply is available for the life of the project. The EA must consider the adherence to existing embargo provisions for proposed water use or impact. The potential to intercept groundwater, including predicted dewatering volumes, zone of drawdown and associated impact, water quality and disposal methods should be assessed;

→ include a Water Cycle Management Study, inclusive of a site water balance; stormwater management plan; wastewater management study; conceptual progressive erosion and sediment control plan for road works and the pipeline and transmission line routes and a conceptual soil and water management plan for construction at the power station site; and MUSIC stormwater quality modelling. The EA must reflect a design philosophy of zero water discharge from the site, except for natural surface water flows;

→ demonstrate how the Wollondilly River is proposed to be crossed, and that this and any additional water crossings are designed in accordance with *the NSW Office of Water Guidelines for Controlled Activities (August 2010)*. The EA must identify how works within steep gradient land or highly erosive soil types will be managed during construction and operation; and

→ demonstrate that soil, water and wastewater management structures, including human effluent management areas, are located at least 100 metres from any watercourse and 40 metres from a drainage depression and that all critical

structures, such as dams and sedimentation basins, are designed, constructed and maintained to accommodate a 1 in 100 year ARI 24 hour event.

- **Noise Impacts -** the EA must include a comprehensive operational noise impact assessment for the project, prepared in accordance with *NSW Industrial Noise Policy* (EPA, 2000) considering worst case operating scenarios and meteorological conditions, representative monitoring and receiver locations, and cumulative impacts from any adjacent relevant land uses (existing and approved). The assessment must consider the potential for low frequency noise generation, peak noise events with the potential to cause sleep disturbance and the effects of stable atmospheric conditions. The EA must also consider the potential for:
  - → construction noise impacts consistent with the *Interim Construction Noise Guidelines* (DECCW, 2009);
  - → vibration impacts during construction and operation consistent with *Assessing Vibration: A Technical Guideline* (DECC, 2006); and
  - → traffic generated noise during construction and operation consistent with *Environmental Criteria for Road Traffic Noise* (EPA, 1999). The method, data and assumptions used to assess the impact of road haulage on residential properties must be fully documented and justified.

  The EA must clearly outline the noise mitigation, monitoring and management measures the Proponent intends to apply to the project.

- **Ecological Impacts** – the EA must include an ecological assessment considering terrestrial and aquatic ecosystems (as relevant), including groundwater dependent ecosystems, consistent with *Guidelines for Threatened Species Assessment* (DEC, 2005) and specifically report on the considerations listed in Step 3 and whether it meets each of the key thresholds set out in Step 5. The EA must:
  - → identify threatened species, populations and communities listed under both State and Commonwealth legislation that have the potential to occur on site and within any transport corridors involving realignments/widening and other modifications (e.g. Brayton Road, Towrand Road, Carrick Road) and the pipeline/transmission line routes (including, in particular, consideration of the Crimson Spider Orchid; Silky Swainson-pea; Yass Daisy; Small woodland birds; Regent Honeyeater and Swift Parrot; Barking Owl and Powerful Owl; Little Eagle; Square tailed Kite; Spotted Harrier; Squirrel Glider; Yellow-bellied Glider; Koala; Spotted-tailed Quoll; Bats; White Box, Yellow Box, Blakely's Red Gum Woodland; Tableland Basalt Forest in the Sydney Basin and South East Highlands Bioregions; Tablelands Frost Hollow Grassy Woodlands in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions);
  - → map existing vegetation by vegetation/ community type and include details on existing site conditions, including whether the vegetation comprises a highly modified or over-cleared landscape and the types and quality of habitat resources available. Vegetation mapping should consider any Environmentally Sensitive Area Mapping held by Upper Lachlan, Goulburn Mulwaree and Wingecarribee Councils;
  - → provide details of the survey methodology employed including survey effort and representativeness for each species targeted and clear justification for species that were discounted from requiring field surveys or further assessment;
  - → demonstrate a design philosophy of impact avoidance on ecological values, and in particular, ecological values of high significance;
  - → provide a worst case estimate of vegetation to be cleared (in hectares), including quantifying impacts (in hectares) by vegetation type and threatened species habitat (as relevant);
  - → assess the significance of impacts to native vegetation, listed threatened species, populations and communities and their habitats with consideration to local and region-based ecological implications, including edge effects, habitat connectivity and distribution of species. The assessment must consider impacts to in-stream and riparian ecology from works close to waterways and/ or waterway crossings, including demonstration of how the project has been sited to avoid and/ or minimise such impacts;
  - → provide an aquatic habitat assessment of those waterways considered to be "Key Fish Habitat" including but not limited to the Wingecaribee River in the vicinity of any crossing points;
  - → indicate the methods that will be used (trenching, underboring etc) for crossing waterways identified as Key Fish Habitat;
  - → outline the methods that will be used to rehabilitate pipeline easements in the vicinity of waterway crossings to minimise the risk of sediment input to streams

following the completion of pipeline laying;

→ include details of how flora and fauna impacts would be managed during construction and operation including adaptive management, rehabilitation/ regeneration measures and maintenance protocols;

→ demonstrate how the project (with the incorporation of all proposed measures to avoid, mitigate and/ or offset impacts) achieves a biodiversity outcome consistent with "maintain or improve" principles. Sufficient details must be provided to demonstrate the availability of viable and achievable options to offset the impacts of the project and to secure these measures in perpetuity; and

→ address the risk of weed spread and identify mitigation measures.

- **Heritage Impacts** – the EA must include an assessment of impacts on Aboriginal and historic heritage. The EA must demonstrate the likely impacts of the project on:

  → *Aboriginal heritage* (including cultural and archaeological significance) and where impacts are proposed, outline the proposed mitigation and management measures (including an evaluation of the effectiveness and reliability of the measures) in accordance with the Draft *Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC, 2005). The assessment must be undertaken by suitably qualified heritage consultants and demonstrate effective consultation with Aboriginal communities in determining and assessing impacts, developing and selecting options and mitigation measures (including the final proposed measures); and

  → *Historic heritage* (including archaeology) and where impacts to State or locally significant historic heritage items are proposed, outline the proposed mitigation and management measures (including an evaluation of the effectiveness and reliability of the measures) generally consistent with the guidelines in the *NSW Heritage Manual* (1996). The assessment must be undertaken by suitably qualified heritage consultants and where impacts to State or local historic heritage items are proposed, include a statement of heritage impact (including significance assessment).

- **Hazards and Risks –** the EA must include:

  → screening of potential hazards on site (including new gas supply infrastructure) to determine the potential for off site impacts and any requirement for a Preliminary Hazard Analysis (PHA). The PHA, should potential off-site impacts be identified, must be prepared in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 3*, *Hazardous Industry Planning Advisory Paper No. 6* and *Multi-level Risk Assessment* and with reference to applicable Australian Standards (including AS2885 Pipelines - Gas and Liquid Petroleum – Operation and Maintenance);

  → documentation of the risk impacts associated with the transport of dangerous goods and hazardous materials with reference to the Department's Hazardous Industry Planning Advisory Paper No.11 – Route Selection, dated January 2011;

  → consideration of cumulative impacts of any proposed pipeline infrastructure located parallel to the existing Moomba to Sydney pipeline; and

  → an assessment of the potential impacts on aviation safety (in particular Aerodromes within 30km of the boundaries of the proposed power station should be identified and impacts on obstacle limitation surfaces addressed, and plume rise impacts assessed) and bushfires/use of bushfire prone land.

- **Visual Impacts –** the EA must include an assessment of the visual impact of the project from representative viewing points including:

  → residential receivers, settlements and significant public view points and include the mitigation and management of visual amenity impacts on affected receivers. An overview of the effectiveness and reliability of the measures and any residual impacts after the implementation of such measures must also be included;

  → photomontages of the project, including from potentially affected residences (including approved but not yet developed dwellings or subdivisions with residential rights), settlements and significant public view points, and provide a clear description of proposed visual amenity mitigation and management measures for both the power station and the transmission line; and

  → consideration of alternative transmission line pole designs to minimise visual impact.

- **Traffic and Transport** – the EA must assess the construction and operational traffic impacts of the project including:

	→ details of traffic volumes (both light and heavy vehicles) and transport routes during construction and operation; → assess the potential traffic impacts of the project on road network function (including intersection level of service) and safety; → assess the capacity of the existing road network to accommodate the type and volume of traffic generated by the project (including over-dimensional traffic) during construction and operation, including full details of any required upgrades to roads, bridges, site access provisions (for safe access to the public road network) or other road features (e.g. Brayton Road, Towrang Road, Carrick Road); → details of measures to mitigate and/or manage potential impacts, including construction traffic control, road dilapidation surveys and measures to control soil erosion and dust generated by traffic volumes; → details of access roads within the site including how these would connect to the existing public road network (i.e. site access) and ongoing operational maintenance requirements for on-site roads; and → consideration of relevant Council/Crown traffic/road policies (including consistency with Section 5(1) or Section 138 of the *Roads Act 1993*). • **Waste –** The EA must identify, quantify and classify the likely waste streams to be generated during excavation, construction and operation (in accordance with the OEH Waste Classification Guidelines), and describe the measures to be implemented to manage, reuse, recycle and safely dispose o f the waste. • **General Environmental Risk Analysis –** notwithstanding the above key assessment requirements, the EA must include an environmental risk analysis to identify potential environmental impacts associated with the project (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the EA.
Consultation Requirements	The Proponent must undertake a consultation programme as part of the EA process, including consultation with, but not necessarily limited to, the following parties: • Office of Environment and Heritage • Office of Water; • Sydney Catchment Authority; • Upper Lachlan Shire Council; • Goulburn Mulwaree Council; • Wingecarribee Council; • Department of Trade and Investment, Regional Infrastructure and Services; • Department of Primary Industries including separate consultation with the Crown Lands Division; • Transgrid; • Air Services Australia, • Aerial Agriculture Association of Australia; • Civil Aviation Authority; • Department of Defence; • Rural Fire Service; • Lachlan Catchment Management Authority; and • the local community including surrounding land owners. The consultation process shall include measures for disseminating information to increase awareness of the project as well as methods for actively engaging stakeholders on issues that would be of interest/concern to them. The EA must: → demonstrate effective consultation with stakeholders, and that the level of consultation with each stakeholder is commensurate with their degree of interest/concern or likely impact; → clearly describe the consultation process undertaken for each stakeholder/group including details of the dates of consultation and copies of any information disseminated as part of the consultation process (subject to confidentiality); and → and describe the issues raised during consultation and how and where these have been addressed in the EA.