

Eraring Energy

Requirements Specification for Replacement of Turbine House Upper Ventilation Louvres

Table of Contents

<u>1.0</u>	<u>General Information</u>	1
1.1	Scope of Works	1
1.2	Location of Site	1
1.3	Tender Contact Officer	1
1.4	Design Concepts	1
1.5	Competence and Experience	2
1.6	Site Inspection	2
1.7	Contract Separable Portions – Not Used	2
1.8	General Description of Power Station Plant – Not Used	2
<u>2.0</u>	<u>Major Requirements</u>	2
2.1	Extent of Works To Be Provided Under The Contract	2
<u>3.0</u>	<u>Additional Requirements</u>	5
3.2	Contract Interfaces	5
3.3	Guarantee of Performance of Works	5
3.4	Works Provided by Eraring Energy	6
3.5	Maintenance Tools and Appliances – Not Used	6
3.6	Spare Parts - Not Used	6
3.7	Temporary Interruptions of Works	6
3.8	Standard Requirements of Works	6
3.9	Particular Tender Pricing Requirements	6
3.10	Warranty Transfer	8
3.11	Defects Liability Period	8
3.12	Approval to Proceed	9
3.13	Insurance of Plant	9
3.14	Inspections and Tests	9
3.15	Foundations and Plinths - Not Used	9
<u>4.0</u>	<u>Quality System Requirements</u>	9
4.1	Quality System Standard	9
4.2	Audit and Surveillance	10
4.3	Training in Contractor's Quality System	10
4.4	Quality Documentation	10

Part 4 – Requirements Specification - Particulars of Works

4.5	Inspection and Test Plans.....	10
4.6	Subcontract Requirements.....	11
4.7	Product Release.....	11
4.8	Quality Records.....	12
<u>5.0</u>	<u>Business Continuity</u>	12
<u>6.0</u>	<u>Administrative Procedures</u>	12
	Table A – Table Of Key Dates	13
	Table B - Drawings for Tendering Purposes.....	15
	Table C - Drawings To Be Provided By The Contractor	16
	Table D - Ambient Weather Conditions	17
	Table E - Fire Fighting Equipment	18
	Table F - Document Submission Matrix.....	19

Appendix No.

1-1	CONTRACT DOCUMENTATION AND DRAWINGS
1-2	NOT USED
1-3	NOT USED
1-4	SPECIFICATION FOR PAINTING AND SURFACE PROTECTION
1-5	NOT USED
1-8	NOT USED

1.0 General Information

1.1 Scope of Works

Eraring Energy request Tenders for the replacement of the Ventilation Louvre sections along the western wall of the Turbine House for Units 1, 2, 3 and 4 at the upper level.

The existing vertical ventilation louvres have deteriorated severely with significant corrosion to the extent that they are becoming unsafe and require replacement.

The work generally includes the necessary design, removal and disposal of existing louvre sections, supply of new ventilation system components, steelwork surface preparation and installation of new ventilation system.

1.2 Location of Site

The Site is located within the grounds of Eraring Energy's Eraring Power Station.

The Eraring Power Station is located off the Sydney- Newcastle Expressway, between Morisset and Toronto, near Dora Creek, approximately 120 km north of Sydney, New South Wales.

Eraring Energy's site project staff hours of work are 7.30am to 4.00pm.

The standard general requirements applicable to the site are set out in the Eraring Energy Contract General Site Requirements and the ambient weather conditions likely to occur are indicated in Table D.

1.3 Tender Contact Officer

All enquires regarding this tender shall be directed to the Contact Officer:

Teresa Hudson

Email: teresa.hudson@eraring-energy.com.au

Phone: (02) 4973 0594

1.4 Design Concepts

The replacement vertical Ventilation Louvre system shall be in accordance with the specification stated or equivalent design approved by the Principal.

The Contractor shall ensure that dissimilar materials are not used in the construction of the new ventilation louvres. Where new materials may come in to contact with existing materials that are of a dissimilar nature then the Contractor shall ensure that the isolation method shall afford the product warranty.

The Contractor is to supply a sample panel of the proposed product(s) to the Principal for approval prior to purchasing. All technical data and fabrication/shop drawings are to accompany the sample.

The sample panel shall be of a size equal to the height of the opening to be replaced by at least 0.9 metres wide and to satisfaction of the Principal. The sample shall be installed temporarily at the site adjacent to the proposed work site. On completion of the project works the contractor shall remove the sample and make good the site.

Note: Any approvals given by the Principal does not relinquish the Contractor's responsibility for meeting all requirements of the Contract or other in any form. The Contractor is responsible wherever there is an omission or other in the details provided by the Contractor in meeting its obligations under the Contract.

1.5 Competence and Experience

The Tenderer and/or the proposed consultative associates and subcontractors must be both competent and experienced in all aspects of the work covered by this Specification and be capable of advising on and implementing design changes within the broad scope of this Specification which may be required by Eraring Energy. Tenderers shall provide information with the Tender to support their competence and detail their experience.

1.6 Site Inspection

Site inspection is mandatory. A common Site Inspection will be held for all prospective Tenderers at **10:00am on Tuesday 12th October 2010** departing from **Eraring Power Station**, Main Entrance. Any special access or other requirements to the Works shall be noted and shall be allowed for in the Tender. Further details regarding this Site Inspection shall be obtained by contacting the Contact Officer. Note Eraring Energy will not accept any costs pertaining to attendance of the site inspection.

Names of those attending are to be forwarded to the Contact Officer at least 24 hours prior to the site inspection to ensure all attendees may be accommodated.

Visitors to Eraring Energy power station sites are required to wear safety eyewear, hard hat, long sleeves & long trousers, enclosed safety footwear and a high visibility vest. Some areas may require hearing protection.

1.7 Contract Separable Portions – Not Used

1.8 General Description of Power Station Plant – Not Used

2.0 Major Requirements

2.1 Extent of Works To Be Provided Under The Contract

The Contractor shall carry out work described in the following Clauses of the Specification under the Schedule of Rates provisions of the Contract.

The existing vertical ventilation louvres have deteriorated severely with significant corrosion to the extent that they are becoming unsafe and require replacement.

The scope of work includes for the replacement of the Ventilation Louvre sections along the western wall of the Turbine House for Units 1, 2, 3 and 4 at the upper level including the design, supply of samples, fabrication supply and installation of new ventilation louvres and fitments. Installation includes, but is not limited to, removal and replacement of the existing vertical ventilation louvres that are situated on the upper level of the western elevations of the Turbine House. The work also including frames, flashings, trims, vermin proofing, preparation and protective treatment to steelwork and all that necessary to meet the requirements of the specification and complete the satisfactory installation of the ventilation louvre system.

The Contractor shall warrant the ventilation louvre system products for a minimum period of 30 years. Refer further to Clauses 2.2.3, 3.3, 3.10 and also 3.11 regarding warranty requirements.

The Contractor is to allow for and supply supervision, suitably trained and qualified labour, tools, equipment, any scaffolding, elevated work platform and other plant that may be required to safely carry out all works.

Note. Scaffolding and elevated work platforms may have to be earthed using a trailing earth in the vicinity of the high voltage overhead conductors. The Contractor is responsible for the supply of equipment in meeting these requirements.

2.2 Technical Requirements

2.2.1 Timing and Weather Proofing the Works

The Contractor is to allow for the removal of existing ventilation louvres ensuring that no more than 50 linear metres of ventilation louvre, measured horizontally along the wall in elevation, are removed at any one time.

After removal of the existing ventilation louvres the steelwork shall be prepared and the paintwork shall be remediated as specified. These operations, including removal of existing ventilation, steelwork paintwork remediation and the time taken to reinstate the new louvres shall not exceed one calendar week for any particular column bay i.e. 10 linear metres of ventilation measured horizontally along the wall in elevation louvre. In some areas it may be necessary for the Contractor to provide temporary weather proofing.

All flashings, trims and the like shall be fabricated from marine grade aluminium and shall be fitted in conjunction with the louvres ensuring each section is completely finished.

The Tenderer shall note and fully inform itself of the Principal's items of plant and equipment that may require weather protection as the project progresses. The Tenderer shall allow for this in the Tender.

2.2.2 Remediation of Existing Steelwork Paintwork

The Tenderer shall assess and fully inform itself of the condition of the protective coatings on the existing steelwork that it is supporting, immediately adjoining and associated with the ventilation louvres. This includes any steelwork that is obscured or covered by flashing, trims and other metalwork that is associated with the existing and new ventilation louvres. The Tenderer shall allow for the remediation of the protective coatings to the steelwork in accordance with the specification.

The specification for remediation of the protective treatment to the steelwork shall be in accordance with AS3750.15 and the paint shall be in accordance with APAS 2908 Inorganic zinc coating for the protection of steel. The Contractor shall maintain a full set of quality documentation for this work assurance in accordance the Contract.

2.2.3 Dissimilar Metals Isolation

The Contractor shall ensure that dissimilar metals, such as steel and aluminium for example, shall be isolated. This is necessary to prevent corrosion occurring and the system shall be suitable to meet the requirements of the product warranty as specified. Details of the proposed system are to be included with the Tender.

The Contractor shall be responsible to ensure that product warranties are not void by improper isolation and ensuing galvanic reaction.

2.2.4 Ventilation Louvres

The fixed vertical interlocking blade ventilation louvres forming the ventilation system to the walls of the Turbine House shall be approved stock proprietary design similar to marine grade aluminium Vertiline Louvres or equivalent constructed in panels of the heights and lengths to replace the existing louvres. The system shall include all necessary for a complete and proper installation with all flashings, trims, fixing and sealing items ensuring fit and finish.

The louvre blades and perimeter framing shall be constructed of 1.6mm thick marine grade aluminium and the spacers 40mm wide x 3mm thick aluminium cut and shaped to detail. The blades shall be shaped to internal and external mating members which when framed up with the purpose of made folded aluminium spacers shall interlock to provide a weather proof ventilation panel with nominal 28% free area opening. The louvres shall be constructed in accordance with the manufacturers approved details using blind type rivets throughout.

The thickness of all materials is to be approved by the Principal prior to purchase and is to meet an equivalent or higher grade quality to that of the existing. A sample of the louvres and associated materials shall be supplied and erected at the site for the Principal's approval before

commencement of fabrication. The location for the erection of the sample will be nominated on site as advised by the Principal.

The Tenderer shall provide information with the Tender indicating the composition and specification of the proposed system and materials that forms the basis of the Tender. Information shall include, but not limited to, base materials of the louvre blades, support brackets, fitments, fasteners, vermin proofing screens, dissimilar metals isolation and the like.

2.2.5 Flashing and Trims

The flashings and trims shall be shaped to the profiles indicated on the manufacturers details and in general shall be fabricated from 0.90mm thick marine grade aluminium. The trims shall be provided with matching profile jointing and sealing compounds necessary for the proper installation and for the fixing of the materials.

Pricing for the louvres, trims and flashings shall include for all fixings and sealants required for their complete and proper installation in the finished works.

2.2.6 Vermin Proofing Mesh Screens

The openings above the louvres, between the louvres and the wall sheeting and other adjoining openings shall be enclosed with Lockers Group - Aluminium - Catalogue number 1216A or similar as specified below - expanded mesh with the mesh welded into a frame fabricated from 25mm x 25mm x 3.0mm aluminium angle. A 25mm x 25mm x 3.0mm aluminium angle spreader shall be installed across the frame at a maximum spacing of 1000mm to eliminate sagging of the screen. The mesh screens shall be fixed to the existing channel or other supports by stainless steel screws at maximum 300mm centres.

Vermin Proofing Expanded Mesh Specification

Mesh Reference	Standard Sheet Sizes (mm)		Nominal Size of Mesh (mm)		Nominal Size of Mesh Opening (mm)		Approx. Strand Size (mm)		Weight Kg/m ²	Overall Height (mm)	% Open Area	
	LW	SW	LWM	SWM	LWO	SWO	Width	Thick			Raised Norm-Max	Flat
12-16A	2400	1200	30	12	23	9	2.2	1.6	1.6	4.2	64-68	63

2.2.7 Product Colours and Matching

The Contractor shall supply materials in the colours equal to the existing. The existing colour is Manor Red which is found in the Colorbond® Standard Range. The Contractor shall seek confirmation from the Principal of the colour prior to placing material orders.

Where existing materials are galvanised or painted in inorganic zinc then this shall be the finish.

2.2.8 Protection of Materials

The Contractor is responsible to protect materials from damage and to ensure the safety of personnel during the course of the Contract. Where material becomes damaged such as scratches, dents, tears and the like then the Contractor shall replace the whole length of the product at no additional cost to the Principal.

Touch-up spray painting will not be accepted. Finished surfaces on new material found to have been repaired in such manner will be rejected and the Contractor shall replace with undamaged new material at the Contractors cost.

2.2.9 Disposal of Materials and Site Cleanliness

Demolition materials, excess and waste materials including construction debris shall be removed from site at no additional costs to the Principal. Such materials shall be removed and disposed of in a proper manner. The environment shall be considered in the disposal method with recycling

and permissible reuse to be considered. The Principal is to be advised of the disposal method in writing.

The Contractor shall ensure that the site is kept tidy at all times. All materials shall be secured so that airborne debris is eliminated. Loose or unsecured materials will not be permitted under any circumstance. This is particularly required due to the proximity of overhead power lines and electrical transformers in close proximity to the work site. As each allotment of maximum 50 metres of ventilation louvres are removed then the sheeting must be removed from site.

The waste material shall be contained within a secure area temporarily fenced off.

Note: There is no facility at Eraring Power Station for the disposal of rubbish and building materials. Long term storage at site is not acceptable.

3.0 Additional Requirements

3.1 Contract Extents

The extents of the works for the replacement of the ventilation louvres are those indicated below. Refer to drawings ER357635, ER335841 and ER335842.

The ventilation louvres shall be replaced along the lower level section of the Turbine House western wall (Column Row A) between the following columns locations.

Item 1 – Replace original ventilation louvres between approximately RL128.202 and RL137.700 in Row A column bays

- A2 to A6
- A7 to A16
- A17 to A21
- A25 to A28
- A29 to A38
- A39 to A44

3.2 Contract Interfaces

Although there are no direct contract interfaces there will be a requirement for coordination with other works and access ways where the power station is undergoing Outage works for Upgrade Projects

3.3 Guarantee of Performance of Works

The Contractor shall obtain, for the benefit of Eraring Energy, the warranties specified herein, for the respective periods stated below, in relation to the materials, parts or components used in the performance of the services.

Eraring Energy's must be named and details appear as the warrantee on the Product Warranties. The Contractor is to Register such warranties with manufacturers as necessary and retain copies delivered with components and equipment.

If installation is not by the manufacturer, and product warranty is conditional on the manufacturer's approval of the installer, submit the manufacturer's written approval of the installer.

Provide separate warranties (installation and materials) for the entire ventilation system and associated works including, but not limited to, louvres, flashings, trims and brackets where installed, covered by the work.

The Contractor is to submit the materials manufacturer's published product warranties. It is a requirement of this specification that the product supplier of the ventilation louver material and/or system shall inspect the completed works before the Release documentation can be issued by the Contractor. The supplier shall issue a Release in accordance with Clause 4.7.

After Practical Completion of the Works, the Contractor shall rectify any defects (fair wear and tear excepted) in the services or any repairs carried out by the Contractor and rectify any defects or omissions in the performance of the services.

If the rectification is not promptly effected, Eraring Energy may, after giving the Contractor reasonable written notice of its intention to do so, have the rectification carried out by others, and without prejudice to any other rights and remedies, Eraring Energy may recover the reasonable cost thereby incurred as a debt due and payable from the Contractor to Eraring Energy.

The Contractor shall carry out any rectification at times and in a manner which cause as little inconvenience to the occupants or users of the premises as is reasonably possible.

Warranties shall apply from the date of Practical Completion as follows:-

- a) Product warranty
 - new ventilation louvres and associated materials for 30 years. This includes the dissimilar metals isolation system
- b) Installation and workmanship warranties
 - All workmanship including new ventilation louvres and associated materials, painting for 12 months.

3.4 Works Provided by Eraring Energy

The Tender shall note that some of the horizontal vermin proofing may have been removed at approximate RL137.700. Eraring Energy has undertaken this recently to remove the safety hazard caused by the severe corrosion that has occurred in the screen material.

3.5 Maintenance Tools and Appliances – Not Used

3.6 Spare Parts - Not Used

3.7 Temporary Interruptions of Works

The Tenderer shall note that it may not be possible to proceed continuously with the work under the Contract covered by this Specification. Tenderers shall include in their offers for minor interruptions of work as may be reasonably required for any portion, or part thereof, of the work covered by this Specification.

3.8 Standard Requirements of Works

3.8.1 Eraring Energy's standard general requirements are set down in Part 1a Contractor Standard General Site Requirements and Tenderers shall note particularly the security requirements contained in Clause 4-1.

3.9 Particular Tender Pricing Requirements

3.9.1 In accordance with the provisions of the Terms and Conditions for Minor Works this Contract will be Schedule of Rates.

3.9.2 Where the Principal directs that work under the Contract will be carried out on a Schedule of Rates basis, the rates charged shall allow for all costs, such as, but not limited to, profit, statutory allowances, supervision, consumables, accommodation and travel necessary to carry out the work.

Where works that are directed by the Principal require hourly labour hire then these rates shall include tools and equipment normally classified as tools of trade and, except where these are listed separately in the Schedule of Rates, shall be supplied by the Contractor as required. This

requirement shall include miscellaneous site vehicles to transport labour and materials on-site – i.e.: utilities.

When plant and/or labour is hired then the Contractor shall supply all consumables associated with the Schedule of Rate such as fuel, lubricants, welding rods, cutting discs, oxy-acetylene, etc., as part of the hire charge. Some plant hire rates may include plant operators as indicated on the respective item description on the Schedule of Rates. The cost of these items is to be included in the hourly rates submitted (refer to the Schedule of Rates).

The Tenderer shall note that any of Eraring Energy's estimated quantities shown for Schedule of Rated items are indicative only and are not guaranteed by Eraring Energy.

3.9.3 The Tenderer shall complete Pricing Schedule 2.6 by entering, opposite each labour category or work item listed or offered, the Rate/Price and other relevant pricing information necessary to complete the Schedule. The labour rates shall apply to the Contractor's normal work hours.

The Tenderer shall note that any of Eraring Energy's estimated quantities shown for Schedule of Rates items are indicative only and are not guaranteed by Eraring Energy.

3.9.4 Where items of work are carried out on an hourly rate basis in accordance with Clause 3.9.2, timesheets, the format of which shall be approved by the Principal, are to be completed by the Contractor and presented daily to an officer nominated by the Principal for checking and certification. Claims for payment not supported by timesheets or accompanied by uncertified timesheets may be rejected.

3.9.5 Where, with the agreement of the Principal, materials or other ex-works expenditure not covered elsewhere under the Contract or specialist labour is used in a Subcontractor capacity, whether in the course of Schedule of Rates work or otherwise, then the Contractor shall be reimbursed at the Subcontractor GST exclusive invoiced cost to the Contractor, for supply and delivery of materials to Site or for provision of service, plus a handling fee, not to exceed 10% of the Subcontractors GST exclusive invoiced cost and which is to be nominated as a percentage in the Tender in Schedule 2.6. The handling fee shall include for all procurement and other overhead administrative costs, charges, expenses and profit.

In each case, the Contractor shall obtain at least three competitive quotations for the materials or services and shall accept the lowest quotation unless the Principal approves otherwise. The Contractor shall supply to Eraring Energy a certified copy of the Contractor's orders which shall show all pricing details for checking purposes. In addition, where the cost of an item exceeds \$10,000 the Contractor shall supply evidence of competitive quotations being obtained.

3.9.6 Where, with the agreement of the Principal, plant and/or equipment is used in accordance with Clause 3.2.5, the Contractor shall include daily records certified by the Principal of all such plant or equipment (with the exception of small tools) in the daily timesheets.

Where such plant or equipment is being leased, the Contractor shall advise the Principal when the cumulative hire/lease cost of any single item exceeds 50% of the capital value of the item. The Principal shall have the option, after reviewing the expected further use of the item, to direct the Contractor to purchase it and hand it to Eraring Energy at Practical Completion. The Principal shall not be responsible for accumulated hire costs exceeding the capital value of the item unless the Contractor has been authorised in writing by the Principal to continue such hire.

3.9.7 Claims for payment shall include a clear indication of the work covered by the claim.

The Tenderer shall note that the required format of the Pricing Schedules shall be as shown in the following table:

Schedule	Purpose
Schedule 2.5	Site Facilities & Establishment – Lump Sum/Schedule of Rates Prices
Schedule 2.6	Schedule of Rates
Schedule 2.7	Summary of Prices

3.9.8 Payment for the Schedule of Rates – Schedule 2.6 – Item 1 shall not be made until the Principal is satisfied that a bay, the subject of a claim, has reached a stage of completion. Completion shall be deemed, for the purposes of payment for each individual “Bay”, to include all work for the bay being claimed such as removal of existing louvres and debris from site; completion of steelwork preparation; proper installation of the isolation material; installation of louvre trim, flashings and other items have been installed to the satisfaction of the Principal.

3.9.9 Due to the nature of Site Establishment/Disestablishment and Maintenance of the Contractor's site facilities, the Tenderer is to submit prices as follows:

- (a) Site Establishment and setting up of Contractor's site facilities.
- (b) Site vacating and removal of Contractor's facilities.

A lump sum price covering the above work is to be stated on Schedule 2.5.

This sum shall be applicable, irrespective of whether any item of work is added or deleted by Eraring Energy.

NOTE: Site Establishment and Disestablishment will not be paid for adjoining Portions of the Contract.

- (c) Maintenance of Site facilities.

The Tenderer shall submit a firm rate per week in Schedule 2.5 to cover maintenance of site facilities from the Date of Possession of Site to the Date for Practical Completion. Part weeks shall be calculated on a 7 day week pro rata basis.

This firm rate per week shall also be used in the event of the program being extended beyond the original Date for Practical Completion due to additional work.

NOTE: The Contractor shall only be entitled to claim for Site Facility Establishment, Disestablishment and Maintenance under one contract during any one period. As such should the Contractor currently be established within the Eraring Power Station Site under another Contract, no allowance should be made for Establishment or Disestablishment of Contractor site facility.

Weekly maintenance may be quoted but shall not commence until expiry of the existing contract.

3.9.10 Tenderers shall submit all Tender prices on the basis of at least an average 38-hour working week. If the Contractor intends to work shift work this shall be stated in the Tender.

3.9.11 For additional work carried out after Practical Completion at the direction of the Principal under Schedule 2.6 - Schedule of Rates, the program dates, for the purposes of the Price Adjustment Provisions, shall be deemed to be the actual dates during which the work is carried out.

3.10 Warranty Transfer

3.10.1 The Contractor shall assign or transfer to Eraring Energy the benefit of any manufacturer's warranty applying to new products supplied by the Contractor to Eraring Energy. Any such assignment or transfer shall, however, be without prejudice to the Contractor's obligations under the Terms and Conditions of this Contract for Defect Liability. This Clause shall be read with reference to warranty clause within the Contract.

3.11 Defects Liability Period

3.11.1 Subject to Terms and Conditions for Minor Works, and with reference to Clause 6.10 of the Contractor Standard General Site Requirements the Defects Liability Period for the Works shall commence on the Date of Practical Completion and shall end on the expiration of 12 calendar months.

3.12 Approval to Proceed

3.12.1 During the course of the Contract, the Contractor may be requested to carry out additional work not the subject of a work item in Schedule 2.5 Item 1 Tender Prices of the Contract. Such work may be carried out under provisions of the Contract but work shall not commence until the Principal has approved the proposal in writing.

3.12.2 No item of work shall commence on the Site (including surveys) until approval is obtained from the Principal.

Where additional work is to be carried out at the approved Schedule of Rates, the hours of work shall be to the Principal's approval. Overtime shall not be worked unless specific approval has been granted by the Principal for both the Contractor and his Subcontractors.

3.13 Insurance of Plant

3.13.1 Eraring Energy's property is insured by Eraring Energy whilst under the Contractor's care and control. Work performed on it by the Contractor is to be insured by the Contractor as work under the Contract.

If Eraring Energy's Plant and Equipment needs to leave the Site for the purpose of work under the Contract, the Contractor will arrange transit insurance. The Contractor is required to give the Principal five working days' notice of its intention to transport Eraring Energy's plant and equipment to and from the Contractor's store or that of a Subcontractor.

However, the Contractor remains liable for the safe keeping of Eraring Energy's plant and equipment.

3.14 Inspections and Tests

3.14.1 The issue of a Release Certificate by the Principal for plant following inspections and tests at the Contractors/Subcontractors Works shall not prejudice the right of the Principal to reject the whole or part of the plant if it does not comply with the Contract when erected on the Site.

3.14.2 In so far as is practicable, all rotating plant shall be assembled with its associated motor in the manufacturer's works and run at normal speed to check the balance, alignment of parts and the performance of bearings and other parts.

3.15 Foundations and Plinths - Not Used

3.16 Work Program

The Tenderer shall submit a detailed Tender program indicated how it will meet the Table of Key Dates by indicate durations rather than dates.

The contractor shall validate the Tender program as a Construction Program which is to include actual dates following award of the Contract.

4.0 Quality System Requirements

4.1 Quality System Standard

The applicable quality system Standards for the separable portions of the Works or components thereof shall be AS/NZS ISO 9001.

Implementation of the quality system requirements of the Contract shall be as far as practicable in accordance with AS3905.2 (1997).

Unless otherwise approved by the Principal, painting /surface protection shall be carried out by contractor/subcontractor(s) who operate under a quality system that is certified to AS/NZS ISO

9001, as a minimum and/or who are certified under the applicable category of the Painting Contractor Certification Program (PCCP).

4.2 Audit and Surveillance

4.2.1 Prior to the award of a Contract, Eraring Energy may carry out appropriate assessment of the Tenderer's ability to meet the Quality System Standards requirements.

4.2.2 Subsequent to the award of the Contract and until Final Completion, the Contractor's quality system will be subject to audit and surveillance by the Principal. The frequency and depth of such audit and surveillance will depend on the adequacy of the Contractor's performance during the contract. The minimum notice to be given by the Principal to the Contractor will be 5 working days for an audit and 24 hours for surveillance.

4.2.3 In response to an assessment during tender evaluation, the Tenderer if selected as the Preferred Tenderer, shall develop and submit for review and acceptance by Eraring Energy a program for corrective action at tender consolidation stage.

In response to audit or surveillance during the life of a Contract, the Contractor shall develop and submit a program of corrective action no later than one week after the date of issue of the relevant report.

All programs for corrective action when accepted by the Principal shall form part of the Contract. Such corrective action shall not entitle the Contractor to an extension of time for Practical Completion nor shall it entitle the Contractor to a claim for additional costs.

4.3 Training in Contractor's Quality System

Prior to the commencement of any work under the Contract, the Contractor shall provide to the Principal's nominee(s), at no additional cost to Eraring Energy, appropriate induction and training in the implementation of the Contract Specific Quality Plan including explanation of the purpose and use of appropriate forms and check sheets.

4.4 Quality Documentation

4.4.1 The Tenderer and Contractor shall submit for review and acceptance by the Principal, appropriate documentation in accordance with Table F.

4.4.2 Where documentation supplied by the Contractor is considered to be inadequate or incomplete, the Contractor shall carry out, at no cost to Eraring Energy, appropriate revision of this documentation within two weeks of formal notification of such inadequacy or incompleteness by the Principal.

4.5 Inspection and Test Plans

4.5.1 The Contractor prepare Inspection and Test Plan(s) (ITP's) generally in accordance with AS/NZS 3905.2 (1997) Appendix F.

4.5.2 ITP's shall nominate the witness, hold, and release points proposed by the Contractor or Subcontractors. Such plan(s) shall identify the records to be maintained under the Contract and shall also indicate the manner of formal acceptance and release. Subcontractor's ITP's shall be referenced on the Contractor's Master Controlling ITP and shall be checked and endorsed by the Contractor prior to submission to the Principal.

4.5.3 Inspection and Test Plan(s) shall be submitted to the Principal at least 2 weeks prior to the programmed commencement date of work covered by each Plan to allow the Principal to assess their suitability for use on the Contract and to insert the witness, hold and release points required by Eraring Energy. Unless otherwise agreed, the programmed commencement dates for work covered by ITPs will be those in the latest approved manufacture, construction, commissioning, and testing program(s). The Contractor shall be deemed to have made due

allowance in its program(s) for the Principal's consideration of the Plan(s). The insertion of witness, hold and release points by the Principal shall not be the basis of claims for additional costs or extension of time by the Contractor.

4.5.4 The Contractor shall ensure that all prior inspections and tests have been carried out in accordance with the approved Inspection and Test Plans and the necessary records are available before requesting attendance by the Principal at a witness or hold point.

4.5.5 When inspection and test hold points or witness points as specified in the Inspection and Test Plans require the presence of the Principal, a minimum notice, as stated below, (unless otherwise agreed in writing by the Principal), shall be given in writing (letter or facsimile) by the Contractor to the Principal:

7 working days for inspections and testing within NSW;

14 working days for inspection and testing interstate;

45 working days for inspection and testing overseas.

Witness or Hold Point inspections shall be at times agreed with the Principal, normally in standard business hours.

4.5.6 During construction and commissioning phases at Site, the minimum notice required shall be agreed between the Contractor and Principal. Until the site agreement is reached, the notice period shall be seven working days.

4.5.7 Work may proceed past a witness point if the Principal elects not to attend at the mutually agreed time and place of inspection.

Work shall not proceed past a hold point unless:

- (a) The Principal or nominated representative is present; or
- (b) Written approval has been received from the Principal for the work to proceed.

4.6 Subcontract Requirements

4.6.1 The Principal may, at any time, audit the Contractor's surveillance of a subcontractor's quality system.

4.6.2 In addition, the Principal shall have the right to audit a subcontractor's quality system. A representative of the Contractor will be invited to attend such an audit. The Contractor shall arrange access to the subcontractor's works and the provision of appropriate audit facilities. Time taken by the Contractor to organise such an audit shall not be more than 10 working days from the date on which the Principal has formally notified the Contractor of the intention to carry out the audit.

4.7 Product Release

4.7.1 Release shall be on the basis of a Certificate of Compliance from the Contractor stating that the product or service complies with the specified requirements and all approved inspection and test requirements have been successfully completed. Objective evidence shall be available to support the Certificate of Compliance.

A Release Certificate issued by the Principal after review of inspection and test records shall form part of the release documentation.

The issue of a Release Certificate by the Principal for plant following inspections and tests at the Contractors/Subcontractors Works shall not prejudice the right of the Principal's Representative to reject the whole or part of the plant if it does not comply with the Contract when erected on the Site.

A Certificate of Compliance issued by a Subcontractor shall be endorsed by the Contractor to be considered as valid release documentation. Release documentation shall also include copies of approval records by Statutory Regulatory Authorities where applicable.

4.7.2 Items of plant or equipment to be incorporated into the Works shall be dispatched to Site only after formal release. A copy of the release documentation shall be forwarded to Site with the goods.

4.7.3 Items of plant or equipment incorrectly identified or not accompanied by the valid release documentation shall be confined by the Contractor to a Site quarantine area designated by the Contractor and shall be treated as nonconforming items.

4.7.4 The release of items from quarantine for further work on the Site shall only be permitted when evidence of the acceptability of the item is provided to the satisfaction of the Principal.

Delay as a consequence of such corrective action shall not constitute a basis for an extension of time for Practical Completion.

4.8 Quality Records

4.8.1 The Contractor shall establish and maintain a system of records which provide objective evidence that the requirements of the Contract are satisfied – refer Table F. The Contractor shall ensure that Subcontractor records, pertinent to the Contract are covered by this system.

4.8.2 All applicable records shall be available for audit and review by the Principal prior to the release of goods and services.

4.8.3 Records shall be retained by the Contractor and Subcontractors for a period of seven years from the last date of Practical Completion of the Contract unless stipulated for a longer period by the Contract or by the appropriate Statutory or Regulatory requirements.

5.0 Business Continuity

5.1 The Works must continue despite unforeseen interruptions arising. Tenderers shall submit a business continuity plan which includes the arrangements for suitable replacement of key personnel who become unavailable at short notice due to illness, injury or similar circumstances.

6.0 Administrative Procedures

6.1 The following administrative procedures will apply:

- CSMF Form 1.2 Contractor request to work on-site
- CSMF Form 1.3 Application for Vehicle Access to Site
- CSMF Form 1.4 Removal of goods from site
- CSMF Form 1.5 Application to Install a Temporary Contractor's Building On-Site
- CSMF Form - Application for Electricity Supply Connection
- CSMF Form - Electrical Hazards Inspection Checklist
- CSMF Form 4.1 Contractor Weekly Statistics Form
- CSMF Form - Request for Permission to use a Subcontractor
- Incident Reporting

Table A – Table Of Key Dates

Item N°.	Description	Part 4 - Refer Clause N°.	Period from Date of Acceptance of Tender
1.	<u>DRAWINGS AND INFORMATION</u> Contractor to supply: (a) Quality Documentation (b) Project OHS Management Plan (c) Design (i) Plan and Program (ii) Fabrication/shop drawings (iii) Sample Panel erected at site	Clause 4.0 Part 1d 1.4 1.4 1.4 & 2.2.4	Refer times set out in Table F 2 weeks 2 weeks 2 weeks 4 weeks
2.	<u>SITE WORKS</u> (a) Possession of Site (within the indicated period) (b) Practical Completion (c) Defects Liability Period (g) Site Inclement Weather Allowance	Table A Notes Part 3 - T&Cs 3.11 & Part 3-T&Cs Refer To Table A Notes	4 weeks 20 weeks 52 weeks 10 days

Table A - Table Of Key Dates

NOTES:

1. The anticipated Date of Possession of Site is 1st December 2010; however, Eraring Energy cannot guarantee this date. Two weeks written notice of the Date of Possession of Site will be forwarded to the Contractor.
2. If the Principal grants Possession of Site prior to the Possession of Site Date shown in the Table of Key Dates, any happenings occurring during the period between the date possession was granted and the nominated Possession of Site Date, will not be considered as grounds for an extension of time for Practical Completion.
3. Completion to a stage of Practical Completion prior to the Date for Practical Completion fixed under or pursuant to the Contract shall not be effected without the prior approval in writing of the Principal.
4. The Tenderer shall include for ten (10) inclement days. The number of days within which the Contractor is, by the Contract required to execute the work under the Contract to the stage of Practical Completion shall only be extended by reason of this provision by the amount (if any) by which the number of whole days lost due to abnormal inclement weather on Site or the effects thereof determined in accordance with the procedure set out hereunder exceeds ten (10) inclement weather days.

Table B - Drawings for Tendering Purposes

Following is a list of drawings included in this Specification. These drawings do not cover all work included in the Specification.

Item	<u>Drawing N°.</u>	<u>Drawing Title</u>
01	ER 325075	Eraring Power Station Locality Plan
02	ER 335841	Units 1 & 2 Turbine House and Auxiliary Bay west elevation Sheet 1[Colour Coded]
03	ER 335842	Units 1 & 2 Turbine House & Auxiliary Bay west elevation Sheet 2 [Colour Coded]
04	ER 347960	West Elevation (H.H. Robertson [Aust] P/L)
05	ER 347961	Details (H.H. Robertson [Aust] P/L)
06	ER 347962	Details (H.H. Robertson [Aust] P/L)
07	ER 350391	Details (H.H. Robertson [Aust] P/L)
08	ER 350393	Details (H.H. Robertson [Aust] P/L)
09	ER 357026	Western Elevation Steelwork Framing plan Sheet 1
10	ER 357027	Western Elevation Steelwork Framing plan sheet 2
11	ER 357635	Units 3 & 4 Turbine House & Auxiliary Bay Elevations [Colour Coded]
12	ER 357980	Turbine House and Auxiliary Bay – Detail sections Sheet 1
13	ER 357981	Turbine House and Auxiliary Bay – Detail sections Sheet 2
14	ER 358929	Vertiline Louvres Vertical Sections (H.H. Robertson [Aust] P/L)
15	ER 358930	Vertiline Louvres Magna-Rib Profile Details (H.H. Robertson [Aust] P/L)
16	ER 358931	137 800 RL Louvre - Vertical Sections (H.H. Robertson [Aust] P/L)
17	ER 358935	Vertiline Louvres - General Details (H.H. Robertson [Aust] P/L)
18	ER 358936	Magna-Rib Vertiline Louvres - General Details (H.H. Robertson [Aust] P/L)
19	ER 391691	Mesh Screens (H.H. Robertson [Aust] P/L)
20	ER 391692	Mesh Screens (H.H. Robertson [Aust] P/L)
21	ER 391693	West Elevation (H.H. Robertson [Aust] P/L)
22	ER 391696	Details (H.H. Robertson [Aust] P/L)
23	ER 391697	Details (H.H. Robertson [Aust] P/L)
24	ER 391710	Magna-Rib Vertiline Louvres - General (H.H. Robertson [Aust] P/L)
25	ER 391711	Magna-Rib Vertiline Louvres - Unit3/4 Turbine House (H.H. Robertson [Aust] P/L)
26	LRA-3933-10	Turbine House Louvres - Contract No. T358 – Elevations (Litchfield Roofing P/L)
27	LRA-3933-11	Turbine House Louvres - Contract No. T358 – Details (Litchfield Roofing P/L)

Table C - Drawings To Be Provided By The Contractor

(Refer to Eraring Energy Contract Standard General Site Requirements)

The following drawings are to be provided by the Contractor within the periods stated in Table `A'.

Item No.	Drawing Description
01	Fabrication & Installation Detail Drawings
02	Installation Drawings

Table D - Ambient Weather Conditions

The climatic conditions likely to be encountered at the Eraring Power Station are summarised below. The climatic data has been collected by the climatic station located in the area.

Maximum ambient dry bulb experienced	43.3°C
Minimum ambient dry bulb experienced	-0.6°C
Average daily minimum dry bulb temperature	
for month of July (coldest)	7.1°C
for month of February (hottest)	18.8°C
for year	13.0°C
Average daily maximum dry bulb temperature	
for month of July (coldest)	17.8°C
for month of February (hottest)	27.2°C
for year	23.1°C

Rainfall

Average yearly rainfall	1129 mm
Highest average monthly rainfall	142 mm
Lowest average monthly rainfall	51 mm

The Site will be subject to occasional heavy rain falling at the rate of up to 160 mm/h, occasional fog with seasonal hot and cold winds.

The expected average temperature variation in a 24-hour period is:	10.0°C
---	--------

Unless specified otherwise elsewhere under the Contract, the Contractor may assume for the purposes of determining the design rating of items of equipment that:

The maximum ambient dry bulb temperature is	40.0°C
The corresponding wet bulb temperature is	30.0°C
The minimum ambient dry bulb temperature is	0.0°C

Solar Effect

The maximum intensity of solar radiation	0.1 W/cm ²
The maximum temp of black bodies in the sun	76.0°C

It is emphasised that the above temperatures are all ambient temperatures and are not operating temperatures of plant and equipment.

Altitude

The Eraring Power Station location is effectively at 15 to 30 m above sea level.

Thunderstorm Activity Level

Isoceraunic level	20 - 30
-------------------	---------

Winds

The wind may reach gust speeds of 120 km/h at ground level.

Table E - Fire Fighting Equipment

1. The fire fighting equipment to be provided shall be extinguishers and hoses within the areas allocated to the Contractor on Site for erection, storage and any other purposes. The type, number and location of the extinguishers and hoses shall be nominated from time to time by Eraring Energy.
2. In addition to 1. above, the following fire fighting equipment shall be provided:
 - (a) Two (2) portable water type fire extinguisher(s) of 9 L capacity for use in Site accommodation;
 - (b) Two (2) portable foam type fire extinguisher(s) each of 9 L capacity for use on erection Site;
 - (c) Two (2) portable foam type fire extinguisher(s) of 9 L capacity for use in the Site storage area.

All Mobile Plant shall be fitted with appropriate type of fire fighting equipment including extinguishers.

Table F - Document Submission Matrix

DOCUMENT	BY TENDERER (with the Tender)	BY CONTRACTOR (within specified time)
Schedules	Completed Schedules.	
Special Requirements	<ul style="list-style-type: none"> Detailed Tender Program of Works (Ref - CI 3.16) Dissimilar metals isolation system (Ref - CI 2.2.3) Business Continuity Plan (Ref - CI 5.0) Sample or template Project OHS Management Plan (Ref - CI 2.2.4) 	Construction Program (Ref CI – 3.16)
Inspection & Test Plans for manufacture	Sample Manufacturing Inspection & Test Plans used on a similar project.	Controlled ITP's for Contractor and Subcontractors to be submitted 4 weeks before the commencement of the relevant phase of the work.
Contract Specific Site Quality Plan (incl installation)	One copy of a Site Works Quality Plan for a similar project.	1 controlled copy within 4 weeks of Contract Award to requirements of Appendix E in AS/NZS 3905.2:1997 – medium to large projects.
Site Inspection & Test Plans	Sample Site Works Inspection & Test Plans used on a similar project	Controlled ITP's for Contractor and Subcontractors to be submitted 4 weeks before the commencement of the relevant phase of the work.
Quality System Procedures		To be available for review/audit/surveillance/ inspection.
Technical Procedures, Inspection and Test procedures		Procedures covering each relevant process to be available for review/audit/surveillance/inspection.
Schedule of Quality Records		A Schedule of Records to be generated and maintained to be submitted within 2 weeks of the award of the Contract. Agreed records to be available for review/audit/ surveillance/ inspection.
Schedule of Subcontractors / Suppliers	Completed Schedule "Proposed Subcontractors" and completed form "Request for Approval of Subcontractor" for each proposed Subcontractor.	For each Subcontractor, completed Form "Request for Approval of Subcontractor" and Schedule for approval prior to the placing of an order on the Subcontractor.