EIPlus

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Engineered Implementation and Compliance Specialist

CAPABILITY STATEMENT

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Commercial n Confidence – Disclosure and Use Restricted

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Introduction

EIPlus is a newly formed company of highly skilled Engineers and Project Managers focused on delivering engineered solutions to the power generation and energy intensive industries across Australia. Our aim is to improve and stabilise the operating performance and reliability of generating plant, whilst maximising the return on capital investments to asset owners and improve electricity revenue.

We have extensive knowledge of all the thermal power stations across Australia, having worked on many complex and technically challenging projects for clients such as Western Power (Synergy), AGL-Macquarie Generation, Delta, GDF Suez, Energy Australia, Intergen, Stanwell, International Power as well as power plants in Malaysia, Philippines and Indonesia.

Using a range of software tools and the knowledge gained from years working on implementation and R&D projects, EIPlus Engineers have successfully resolved a range of complex problems, providing cost effective and practical solutions, including:

- Flowability of bulk solids in pressurised storage and transfer vessels and conveying of bulk solids and slurries along long distance piping;
- Changes in coal quality over the life of the station resulting in reduced energy conversion, higher rates of ash fouling, resulting in poor boiler combustion and reduced plant availability;
- Optimisation of plant to improve thermal heat transfer and steam cycle efficiencies, improving economiser performances, condenser and cooling tower performances;
- Improving the safe operation and maintenance of furnace bottom ash extraction by retrofitting proven dry bottom ash technology a cost effective alternative to wet ash hoppers and submerged scrapper chain systems that are less reliable and require higher maintenance to manage the effects of corrosion, high wear and seizure of rotating;
- Surveying of hangers and re-floating of high energy steam piping using displacement data captured using video imaging to compare results against historical data from previous inspection to determine deviations in movements against baseline flexibility analysis results;
- Managing the performance testing of boiler and turbine plant, establishing rates of unburnt carbon in ash, measuring temperature and velocity profiles in ducts to identify maldistribution in gas passages used to design of flow straightening vanes in primary and secondary air ducts, high temperature turning vanes in HRSG and fuel distribution vanes in mills;
- Design and construction of low temperature attemperation systems to cool flue gases during summer period of high temperature, extend fabric filter bag life, and improve collection efficiencies in precipitators to maximise power generation and revenue from contracted electricity sales. This proven system provides additional benefits, including lower power consumption for ID fans, flexibility in the choice of less expensive filter bags, system can automatically adjust to accommodate changes in operations to account for transient higher moisture coal during winter;
- Developing new waste from energy plants using renewable fuels such as wood recovered from timber sawmills and forestry operations, timber recovered from construction and demolition and power plants utilising municipal waste diverted from landfill sites to generate electricity and process steam, reducing reliance on fossil fuels and the increased cost for NG and LPG.
- Introduction of CFB boilers that have fuel flexibility and low capital cost for steam supply and power generation schemes including waste to energy projects.
- Developing new processors for drying, carbonising and converting coal into high value industrial products from the gasification of coal to produce syngas.

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Complementing our Engineered Implementation capabilities is our knowledge of ISO 9000 Quality Assurance and the various Standards associated with the design, manufacture, construction and testing of operating plant and equipment, ensuring fit for purpose that EIPlus engineered solutions are relevant and compliant to Australian and International Standards, and to ensure regulatory requirements for the safe operation of plant are met.

EIPlus employees have conducted numerous audits of workshops as a precursor to commencing manufacture in order to verify that robust quality systems and procedures are in place and followed and that finished products have been manufactured to an acceptable standard. This is most important when plant and equipment are procured from developing countries such as China, India, Vietnam etc. where sufficient testing and verification by accredited inspectors, particularly surveillance of welds in the manufacture of vessels and steel structure.

EIPlus can mobilise staff at short notice regardless of location, offering competitive rates for its services that can be structured to suit client's specific requirement.

I would like to thank you for taking time to read through this introductory brief on the range of services EIPlus can provide and invite you to consider EIPlus when next you require an engineered solution.

For more information about EIPlus, refer to our webpage, www.eiplus.com.au.

For all other enquiries, including request for quotations, please direct them to Tom Stephanou at tomstephanou@eiplus.com.au.

EIPlus' Resources

The core expertise of EIPlus is retained within a small group of highly skilled engineers, project managers and quality inspectors. Our capabilities are augmented by specialists who possess knowledge in fuel technology, boiler combustion optimisation, mill performance testing, materials engineering and inspection, performance testing and evaluation.

In addition, EIPlus have access to local subcontractors that can provide qualified labour to undertake construction activities, being managed by EIPlus to deliver major design and construction projects on time and budget without compromising safety or quality.

Resource	Competancies	Achievement
Tom Stephanou	Project Management and Contract Adminstration	Operations Manager with over 30 years' experience in Project Management and Contract Administration complemented with a solid engineering background in engineering design of high-pressure, high temperature vessels and piping, refurbishment of rotating plant, mechanical design and AutoCAD drafting skills. Develop and manage business improvement projects. Extensive experience in theoretical feasibility studies, FEED, EPC of boiler plant. A lateral thinker with acumen in Business Development, Sales and Marketing strategies.
Bernard Anderson	Process Engineering	Over 40 years' experience in providing technical and engineering advice in relation to plant performance and process optimisation / modelling / control issues in the power and large process industries including writing detailed test procedures / methods and reports and conducting complex process optimisation, modelling and control projects.
Lionel Marshal	Computational Fluid Dynamics	A highly experienced engineer and manager with both specialist technical knowledge and sound business acumen. Over 20 years' experience working in a range of industries including Power Generation, Alumina Refining, Cement and Lime production and Mineral Sands processing, with a diverse skill base in business development, technical sales, business analysis and strategic planning as well as process / chemical engineering.
Michael Hamilton	Engineering Design & Computational Modelling	More than 10 years engineering and project management experience in the power generation and heavy industries. Expertise in process improvement from initial design stages including computer modelling (CFD, FEA, process modelling and numerical analysis), cost/benefit analysis, development of specifications and commissioning of plant and equipment.
Merle Phi-Davis	Cost Estimation & Data Analyst	A highly effective, proactive and adaptable project engineer / coordinator with extensive experience in managing and scheduling multiple projects, preparing proposals, feasibility studies, engineering investigations, economic evaluations, and project implementation work delivering results to the highest standard and quality. A valued member of various multi-disciplinary teams, undertaking both technical and administrative roles with solid reputation for attention to detail, methodical approach, resourcefulness, problem solving skills, and commitment to collaboration / teamwork to achieve goals within specified timeframe and budget.

Services to Industry

Project Management & Contract Administration Services

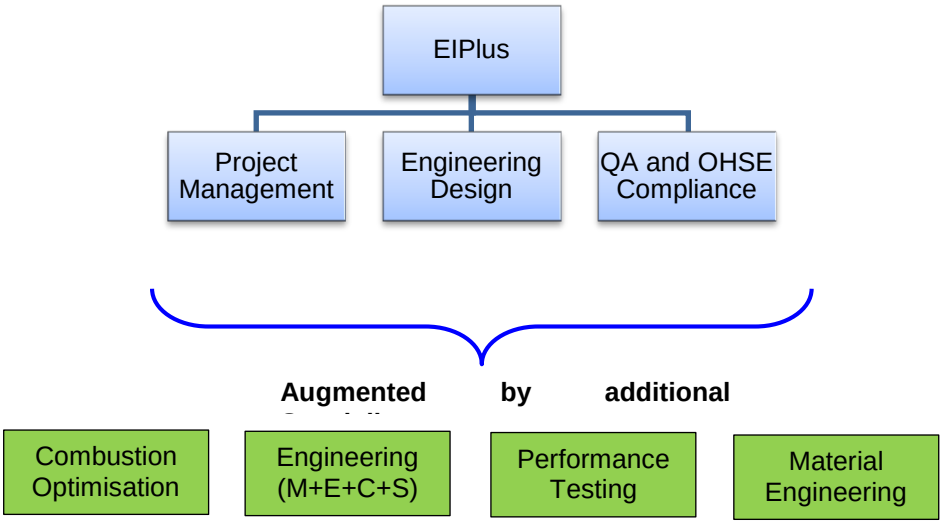
EIPlus' project managers have over 30-years project management and contract administration experience having completed numerous multi-discipline major projects including first of a kind development projects collaborating with the clients engineering staff to achieve the desired outcomes and delivering the highest quality without compromising the importance of safety. Our expertise in the implementation of engineered solutions, complemented by our demonstrated knowledge of power plant operation and maintenance allows us to offer custom solutions in a cohesive team orientated environment:

EIPlus Project Managers have knowledge and expertise in managing large complex D&C projects; managing shutdown outages and administering contracts on behalf of its clients. We have expertise in the tendering processes, including the drafting of tender documents, administrating the process and developing the necessary contracts to deliver the required client outcomes and performance.

Our knowledge of contract law, in particular the interpretation of various conditions of contracts, enable us to effective manage contractors and the issues that generally arise during the course of a project i.e. scope of work, claims for delays, payment terms, insurance and liquidated damages where delays can cause the client to receive less than the benefits that have been contracted to be delivered on time and budget.

To support this capability, EIPlus Project Managers have established proven systems to manage risks, track work, and establish control measures necessary to delivery contracted performances.

The core expertise is retained within a small group of staff, depending on the project size, complexity, and scope is augmented with additional by specialist services providers that are matched to the specific project needs.



Tender Formation and Administration Capabilities

EIPlus staff have work with clients to define the scope of work, the performance requirements, quantify the project risks and where such risks can be mitigated legally in order to produce and assemble the necessary documentation for seeking competitive market pricing. This experience extends to the public and private sectors with sound knowledge of the legal requirements to administer the tendering processes correctly.

Our Tendering skills have been used in:

- Seeking competitive firm and fixed pricing from construction and maintenance services providers, equipment and packaged plant manufactures under various conditions of contracts;
- Obtaining budget pricing as part of Feasibility studies, as perquisites for submission to various levels of management for funding approvals to proceed to more detailed FEED studies and ultimately project financial closure and award of contracts; and
- Evaluation and negotiation of tender submissions for procurement of mechanical and electrical power plant and mining equipment to ensure comparable supply against technical specifications and commercial terms and conditions.

Contract Formation and Administration Capabilities

EIPlus staff have administered contracts on-behalf of clients, acting as Owner's Engineer and as their Superintendents Representative for D&C, Maintenance and Refurbishment projects.

EIPlus has sound knowledge of Australian Standard's Conditions of Contract including:

- *AS4000 – 1997; General Conditions of Contract*
- *AS2124 – 1992; General Conditions of Contract*
- *AS4305 – 1996; Minor Works Contract Conditions*
- *AS4902 – 2000; General Conditions of Contract for Design and Construct Projects*
- *AS4122 – 2000; General Conditions for the Engagement of Consultants*

Core Project Competencies

EIPlus' competencies include:

- Project Management of multi-discipline projects through the implementation of systems that provide control in all areas to deliver the requisite performances of quality on-time and within budget constraints;
- High-level communication skills, interacting at all levels of management both within the owner's organisation and with third parties such as solicitors, insurance brokers, custom agents and financial institutions;
- Functional Specifications for procurement and manufacture of plant and equipment, including the testing required to demonstrate performance;
- Quality Assurance Documentation and administrative systems supporting the project managers' role, QA surveillance and expediting; and
- Preparation of OHSE Documentation and their execution for projects being managed.

Project Management Control Processes and Measures

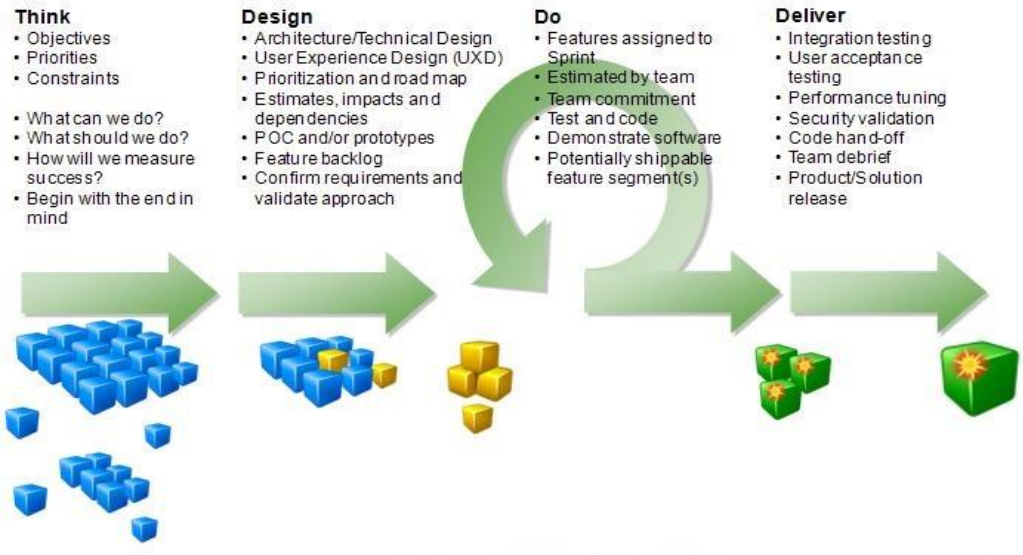
Control processes and measures are implemented to mitigate risks and ensure the project performances are delivered to the client's expectations. The following two diagrams show the main elements of our contract and the project management control processes and the measures that are implemented to enable our project managers to monitor and enforce throughout the project life. By implementing effective control systems and managing the outcomes our client's interest is assured to be met.

At EIPlus we:

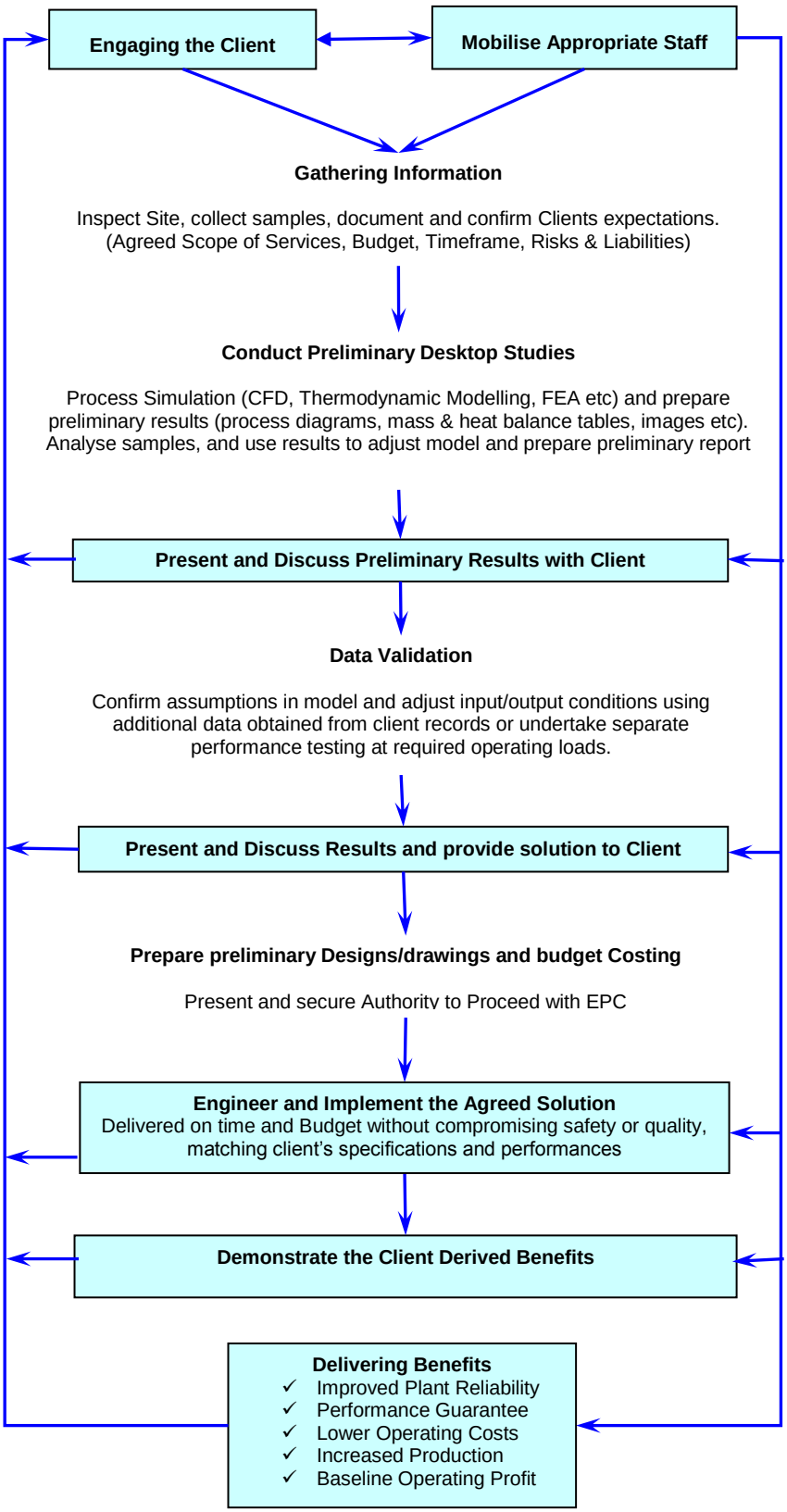
- understanding your situation and the problems involved with working within operating plant;
- Work with all stakeholders to define the project scope and performances and ensure commercial, insurance and warrantee issues are defined;
- Value added at the design stage to ensure all hazards are considered (HAZOP study).
- understanding fully your priorities, ensuring that all decisions taken are in the best interest of all stakeholders;
- use qualified professionals and technical specialists to ensure a quality outcome from contractors are delivered;
- provide flexible arrangements and develop workflows to suit access during outages and interfaces to operating plant;
- Develop detailed schedules and plans for the manufacture, factory acceptance testing, packaging, supply, construction and commissioning.
- Manage the procurement of materials and services and administer all contracts, providing site supervision, monitoring and reporting of progress
- Ensuring compliance of manufactured items to Australian and International Standards and codes of practices, with on-site surveillance in workshops
- Ensure all activities are carried out safely and ensuring safety process are followed.
- Developing Project documentations, including drawings, O&M and training manuals, Quality documentation such as Manufacturers Data Reports (MDR's)
- Managing variations and extensions of time claims

Our methodology and approach can be summarised as follows:

- Engage the Client - define client needs and expectations.
  Kick-Off Meeting with Key Stakeholders, develop scope of work and deliverables
- Understand the project risks & liabilities and implement mitigating strategies
  Technology, Performance, PC, LD's, Insurance, HAZOP, QA & OHSE Policies, etc.
- Manage the Tendering Processes through to Contract Placement and Administration
  Prepare RFT's, Evaluate, Negotiate, Prepare Contracts, Seek Approvals, etc.
- Implement Control Systems and Manage Outcomes
- Deliver Outcomes & Review Contract Performance
  Progress reporting, Project wrap-up de-briefing, continuous improvement plan



Methodology for Successfully Implementing Engineered Solutions


Engaging the Client
Mobilise Appropriate Staff
Gathering Information
Inspect Site, collect samples, document and confirm Clients expectations. (Agreed Scope of Services, Budget, Timeframe, Risks & Liabilities)
Conduct Preliminary Desktop Studies
Process Simulation (CFD, Thermodynamic Modelling, FEA etc) and prepare preliminary results (process diagrams, mass & heat balance tables, images etc). Analyse samples, and use results to adjust model and prepare preliminary report
Present and Discuss Preliminary Results with Client
Data Validation
Confirm assumptions in model and adjust input/output conditions using additional data obtained from client records or undertake separate performance testing at required operating loads.
Present and Discuss Results and provide solution to Client
Prepare preliminary Designs/drawings and budget Costing
Present and secure Authority to Proceed with EPC
Engineer and Implement the Agreed Solution
Delivered on time and Budget without compromising safety or quality, matching client's specifications and performances
Demonstrate the Client Derived Benefits
Delivering Benefits
✓ Improved Plant Reliability
✓ Performance Guarantee
✓ Lower Operating Costs
✓ Increased Production
✓ Baseline Operating Profit

Whether EIPlus is engaged as Project Managers to delivery projects awarded post Tender, engaged as Owners Engineers to review and provide advice to the client or to Administer Contract on behalf of clients, our project managers and engineering staff have the necessary skill set for all challenges.

- We can deliver Turnkey EPC projects, managing all processes to ensure outcomes are delivered without compromising safety or quality, on time and budget, meeting client's specifications;
- We can carry out modifications to existing plant to implement Engineered solutions that improve operational performance and reliability in operating plant;
- We offer Owner's Engineers services to oversee the performance of client awarded contracts;
- We can administer contracts on behalf of clients, empowered as their Superintendent's Representative;
- We can prepare tenders and seek competitive pricing, undertake evaluation of offers and negotiate technical and commercial terms and conditions of contracts through to award of contract.

Engineering Design Services

EIPlus has expertise in undertaking a range of engineering activities including CFD and thermodynamic modelling, at Front End Engineering Design (FEED) studies supported by our project managers, details costing can be prepared in support of project funding and financial investments.

- We can undertake engineering designs and produce specifications and drawings for manufacture or for inclusion in tenders;
- Prefeasibility cost studies and FEED studies
- Prepare designs with defined the project specifications, plant and equipment to extent required to obtain accurate pricing from suppliers in order to secure funding and achieve financial signoff from all stakeholders.
- We can improve performance and reliability of plant and equipment by developing mathematical models using CFD and Thermoflex software to simulate operating conditions of boiler, mills, HRSG's, ducts, bulk solid transfer vessel etc;
- Carry out due diligence on suppliers to assess the technical and commercial risks
- Working with clients to define the project scope and performances
- Value added at the design stage to ensure all hazards are considered (HAZOP study).
- We can undertake Performance Testing and Evaluations

Quality Assurance Services

To remain competitive, invariably more equipment is being sourced outside of Australia, requiring more stringent management of the processes to ensure equipment complies with Australian and International Standards. Of particularly importance is the auditing and surveillance of workshop practices and the use of approved materials for manufacture that may have different mechanical properties/strength than those specified by designers in Australia. Also important is to verify the competencies of workshop labour that may not have the correct certification or training to avoid time consuming and costly rework, especially where the manufacture requires extensive welding.

The procurement of equipment with remote management of overseas manufacture has many challenges:

- Lack of oversight by owners/operators during design/manufacturing,
- Lack of familiarity with Australian Standards and specifications,

- Difficulty in accurately conveying purchaser's requirements to the manufacturer,
- Lack of confidence in manufacturing progress and quality control.

At EIPlus we understand these challenges and deploy our Quality Engineers and inspectors to assess and implement corrective actions earlier in the project life cycle to ensure our clients quality expectations are achieved and thereby avoiding costly rework and delays.



EIPlus Quality Engineers have extensive knowledge of International and Australian Standards, as well as Australian statutory and regulatory requirements and can be mobilised at short notice to manage and control the quality of your product, from design through to delivery in Australia.

Our quality services include:

Quality Assurance for reviewing of documentation, such as Quality Plans, Inspection & Test Plans, Material and welding certificates, and Manufacturing Data Reports.

Audits to assess suppliers Quality Management System comply with are accredited to ISO9000 or equivalent international quality standards. That there is adequate capacity and qualified workshop resources to undertake the manufacture. Traceability of documentation, material certificates, welder's qualifications, NDT results, weld maps, approved for construction drawings are captured and recorded in MDR and control in place to manage non-conformances.

Quality Control during manufacture through preproduction inspection, focusing on raw materials or components, patterns/mould inspections. Production inspection, Focusing on first products out of the manufacturing process or any of its different stages. Pre-shipment inspection, focusing on a shipment's quality, where final inspection services are required and Loading inspections, focusing on packaging/loading plans being adhered to, and the right quantity being shipped out.

Expediting Services for **r**eviewing of all project documentation supplied and supplementing other necessary documentation required to meet quality standards, including regulatory and statutory standards. Monitoring/Scheduling work progress to meet timeframes for packaging and transportation and providing regular progress reports.

EIPlus-Futong Alliance

EIPlus and NARI Beijing Guodian Futong Science & Technology Development Co., Ltd have recently entered into an agreement that provides EIPlus exclusive access to Futong's patented Dry Bottom Ash hand technology.

EIPlus has firsthand knowledge and experience in the design, manufacture, construction and commissioning of Dry Bottom Ash Handling Plant and Equipment in Australia. We take responsibility for the entire process and work with the client to meets its specific performance requirements.

EIPlus has developed strong relationships with Futong to the extent that we have direct access to Futong's designers who can assist in trouble shooting technical issues as well as access to Futong's quality accredited manufacturing facilities and the facilities of their suppliers for supply spare parts at below costs for equivalent equipment sourced from Australia, including:

- Dense Phase Pneumatic Conveying Systems capable to transport bulk materials several kilometres using Futong's patented tub in tube flow piping.
- Pipe conveyors that fold and retain materials across long distances, affording environmental safeguard against spillages and dust during normal operation of high speed conveyors
- Large diameter Pipe fittings that are compliance to ASME standards
- Water treatment plant using activated carbon technology for capture of heavy metals
- Packaged boiler and turbine plant for small scale operations using a variety of fuels including coal and biomass
- Vertical Spindle Mills

At EIPlus we manage the whole supply chain, overseeing every step, undertaking quality checks and auditing manufacturing facilities using our highly skilled quality inspectors following proven quality procedures that assures client receive equipment is manufactured correctly, meeting Australian Standards for design and manufacturing.

For a catalogue of spare parts, refer to EIPlus' website www.eiplus.com.au.

Because we are an Australian company, EIPlus can provide after sales service, providing piece of mind of ongoing support to attend to issues at short notice. Working with Futong's designers, EIPlus have developed a number of new innovative improvements to their dry bottom ash equipment, including devises that improve heat transfer and improved control of material transfer, reducing field maintenance activities and the use of superior materials to achieve extend wear life of crushing plant.

Under license from Futong, EIPlus can also engineer modifications to existing dry bottom ash plant to improve operation and maintenances, performance and reliability where operational changes impose more onerous duties on existing plant such as poor coal quality leading to formation of large clinkers.

EIPlus can also provide training to Operation and Maintenance staff in the correct operation of dry bottom ash plant.

Benefits of Engaging EIPlus

EIPlus offers expertise in all aspects of power plant design and optimisation where operational changes cause plant and equipment to perform below design expectations. Engaging highly skilled engineers and project manager's problems can be fully investigated and solutions developed with cost effective implementation strategies.

Following a proven approach and methodology to solving complex problems, our engineered solutions have improved the overall performance of generating plant, matching client's expectation.

- EIPlus can deploy skilled engineers, project managers and quality inspectors at short notice offering competitive fixed pricing.
- EIPlus has proven experience in delivering EPC Contract on time and budget without compromising safety or quality.
- EIPlus has proven skills in managing the manufacture of equipment sourced from overseas suppliers, ensuring compliance against Australian Standards and codes of practice for design, manufacture and operation.
- EIPlus has developed and administered subcontractor having established knowledge of Australian Terms and Conditions of Contract.
- EIPlus has expertise as Owners Engineers and Superintendents Representative;
- EIPlus can undertake performance testing of power plant equipment, to establish boiler and turbine performance prior to and post upgrades.
- EIPlus can simulate conditions using CFD and Thermodynamic modelling software to assess plant performance under varying operating scenarios allow clients to fully evaluate the benefits of proposed upgrades or modifications.
- EIPlus has developed Quality and OH&S systems and procedures that comply with ISO9001 and other regulatory requirements.

Experience

The diversity and breadth of EIPlus' engineers, project manager and quality compliance expertise in delivering benefits to Clients is shown by their involvement in the following major projects.

Project	Major Activities
PROJECTS **Design, Construction & Commissioning**	EPC of Units 6, 7 and 8 Dry Bottom Ash Handling Systems at Synergy's Muja Power Station. Required management of all works, local subcontractors and overseas equipment suppliers, and site construction activities including demolition of existing ash hoppers
	Hanger Survey and Re-floating High Energy Piping System of 4 units at Synergy's Muja Power Station. Involving modifications and repairs to piping and hangers
	Redesigned and EPC the main steam condensate drains and Steam Coil Air Heater (SCAH) upgrade work for Muja Units 5, 6, 7 and 8.
	Designed and project managed a restraint for Unit 6 steam chest at Kwinana, involving strain gauging to determine loads for designing structural steelwork.
	EPC Turnkey of attemperation sprays system for the 4 units at Bayswater Power Station, for Macquarie Generation. Requiring total management of all works, local and overseas procurements and site construction supervision.
	EPC a novel wastewater recovery system, engaged contractors, provided on site supervision, procured equipment and materials and commissioned the system at Loy Yang B.
	Refurbishment of 2 x Brine Concentrators for MacGen's Bayswater Power Station, involving replacement of major sections affected by stress corrosion cracking. Acted as both Owners Engineer for designs stage and Superintendents Representative during the modifications and recommissioning activities
	Engineering design, project management and commissioning of briquetting plant for Anglo Coals at its Moura and Capcoal mine sites.
	Design, construct and commission of a 5tph carbonation and briquetting plant as part of the SASE demonstration plant, Whyalla, SA for the Aurian group.
	Design, construction and operation of a 10 MW scale Coal Gasification Development Facility, and also mathematical modelling of pilot-scale and full-scale IDGCC plants.
	Design, construct and commission of a new steam condenser for Energy Brix Australia to enhance its operations and improve MW generation.
	Designed, Constructed, Commission and operated various Pilot Plants under the SECV's strategic Research Program including the solar dried coal slurry pilot plant, Coal combustion test furnaces and High Pressure coal slurry combustor pilot plant, Hydrothermal dewatering plant
	Developing tenders and award of contracts for the design and construction of a coal washery, mining/excavation operations as part of a rehabilitation project of old mine sites in the NSW Hunter Valley region.
	Build, Own and Operate 2x30MW briquette fired boilers each at Leongatha & Cobram supplying steam over the

Project	Major Activities
	fence to Murray Goulburn and Muja (VIC). Development from concept through to operations including tendering & contract formation; project management & administration of contractors; submissions for securing an EPA, EIS applications/works approval.
	EPC of the Automation Upgrade Packages for Morwell, Mirboo North and Boolarra Water treatment plants on behalf of the Gippsland Water Supply Authority.
	Project Management and site supervision of Hot Re-heat pipe NDT Contract on behalf of Stanwell Power Station. Acting as the Principals Superintendent, of a contract that involved the interaction of many contractors, to ensure timely completion of performances during fixed outage period, for all units.
	Project Management and site supervision of Turbine Aux. Survey and Repair Work Contract on behalf of Macquarie Generation. Acting as the Principals Superintendent, managing the day to day activities, raising purchase orders and directing contractors, to ensure timely completion of performances during fixed outage period, Units 2 & 3.
	Project management and contract administration of Alstom Power's contract with Energy Brix Australia for major overhaul of No5 Turbo-generator
DESIGN UPGRADES	Designed High Pressure, high temperature coal slurry digestion pilot plant for QAL.
Power Station, Mineral Processing Plant Operations (Local & Overseas)	200MW Co-generation project with carbon credits, detailed engineering and cost benefit analysis for the NZ Refinery Company, Marsden Point utilising biomass and bi-product fuels. Complete power plant engineering design, encompassing IGCC, HRSG Gas turbine, Boilers, etc.
	6MW waste heat recovery Gas turbine pre-feasibility engineering and cost benefit, SEAV and Blue Circle Southern Cement co-funded
	Engineering design and construction of modifications to Simcoa's incinerator. Project Management of manufacture, installation and commissioning
	Process and control system design and development for 10 MW and 600 MW IDGCC gasification project including gas turbine control and integration
	PF Burner design on boilers and test furnaces.
	Diagnosis of the causes of Muja Stage D Fluegas flow and temperature imbalances and design of water spray attemperation system to eliminate the imbalance and resulting dust emission issues.
	Evaluation of superheater upgrades for Muja Stage C
	Evaluation of steam heating of Muja Stage C sootblower piping.
COST ENGINEERING AND FEED STUDIES	60MW Biomass and waste heat recovery project with carbon credits, full engineering and cost benefit analysis for Carter Holt Harvey – Whakatanie Paper Mill, NZ
	600MW Dual Gas IDGCC power Station
Power Station, Mineral Processing Plant and Refinery Operations (Local	120MW KHI Hydrogen Supply IDGCC plant, supply syngas for Hydrogen production.
	FEED study for Tasmania Alkaloids for a BOO co-gen plant using waste feedstock to fuel a boiler supplying process steam over the fence.

Project	Major Activities
& Overseas)	Scoping study for BHP TEMCO, to design and construct a briquetting plant at its Bell Bay smelting operation and to operate that plant to process 9,600tonnes of waste material (ferroalloys, ferromanganese and silio-manganese), reclaimed from its various waste dams.
	Design of commercial scale underground coal gasification gas turbine combined cycle plant.
	Investigated cause of damage to ductwork around auxiliary burners in a heat recovery boiler inlet. Design corrective measures for flow mal-distribution that was the root cause of the problem.
	Development of the Integrated Drying and Gasification Combined Cycle (IDGCC) processes for Dual Gas, 600MW power plant and KHI's Hydrogen Supply plant for Latrobe Valley.
PROCESS MODELLING AND PERFORMANCE UPGRADES **Power Station, Mineral Processing Plant Operations (Local & Overseas)**	Designed new internals for an existing mill classifier that provided superior particle separation and reduced pressure losses.
	CFD modelled flow correction baffles for various primary air system to correct pulveriser control problems caused by flow instabilities and poor flow distribution. Baffles plates were designed and installed by client under supervision.
	NOx formation modelling in a gas turbine combustor.
	Development of CFD model of furnace zone to address poor combustion performance of a power station boiler, and of subsequent tuning exercise.
	Conducted investigation as to cause of severe ash fouling in the waste gas clean-up system.
	Conducted economic evaluation of alternative auxiliary fuels for a brown coal power station and their relative costs.
	Conducted evaluation of changing fuel specification on boiler performance.
	Conducted study into pressure spike from material cascading off the walls of a reactor. Model results were used to correctly design pressure relief and protection systems.
	Conducted pilot scale study of combustion of hydrocarbon/water emulsions as low NOx producing liquid fuels for internal combustion
	Modelling and design of boiler modifications for PJB Paiton, Indonesia and Alcoa Alumina
	Modelling of gas turbine/HRSG, gasification and biomass boiler options for NZRC project
	Modelling of gas turbine/HRSG options for UCG and IDGCC project studies
	Modelling of Steam supply boilers at Leongatha and Cobram and also tuning of boiler and deaerator control loops
	Investigations into boiler fouling, slagging and electrostatic precipitator with recommended solutions implemented by clients
	Coal Mill performance and explosion investigations
	Supervision of coal combustion trials in the Philippines, Malaysia, S Korea, Hong Kong and China for several coal supply companies and power station operators.

Quality Assurance

EIPlus has established systems and procedures that assures all activities are documented and traceable, meeting the requirements of ISO9001, “Quality Systems - Model for Quality Assurance in Design, Development, Production, Installation and Servicing”.

A copy of EIPlus’ Operating Manual can be provided upon request.

OHSE

EIPlus has developed a comprehensive Site Safety and Environmental Management Plan that demonstrates its commitment to ensure that its activities are conducted in a safe and responsible manner, tailored to meet regulatory and client specific requirements.

A copy of EIPlus’ SSEMP can be provided upon request.

Pricing Structure

We offer competitive pricing that can be structured around delivering outcomes against predefined milestones.

We can provide both firm and fixed lump sum pricing against defined scopes of work or where the quantum of work cannot be defined we can offer firm and fixed scheduled of rates with a small margin to cover reasonable expenses incurred in the provision of our services.