

Energy

Capability Statement



COMPETENCY
CAPACITY
COMMITMENT



Acknowledgement of Country

BG&E Resources acknowledges Aboriginal and Torres Strait Islander peoples as the first peoples of Australia and the Traditional Owners and Custodians of lands and waterways on which we work and live.

Our operations are conducted on the traditional lands of the Whadjuk people of the Noongar nation in Perth, the Bindjareb people in Mandurah, the Larrakia people in Darwin, the Kurna people in Adelaide, the Gurambilburra Wulgurukaba, Bindal, Nywaigi, and Gugu Badhun peoples in Townsville, the Turrbul and Jagera peoples in Brisbane, the Awabakal people in Newcastle, the Gadigal people of the Eora nation in Sydney, and the Wurundjeri and Boon Wurrung peoples of the Kulin nation in Melbourne.

We honour the wisdom of, and pay respect to, Elders past and present, and we acknowledge the cultural authority of all Aboriginal and Torres Strait Islander peoples across Australia.

We also acknowledge the vital contribution made by our Aboriginal and Torres Strait Islander employees and we thank those who have guided our approach and generously shared their insights.

Image: Aboriginal artwork created by Jayda Sebire (Indigenous Artist and former BG&E Resources People and Culture Assistant).
Copyright 2023, Jayda Sebire.



Playing a Key Role in the Global Energy Transition

We help clients to minimise risks in system reliability and energy supply, while managing short and long term uncertainty in energy pricing, embracing new technologies and adhering to regulatory requirements.

BG&E Resources (BGER) is a multidisciplinary engineering, EPCM and ESG consultancy, delivering technical solutions for clients in the Resources, Energy and Industrial sectors.

With offices on the East and West coasts of Australia, we are majority owned by our employees and committed to helping clients decarbonise in a net zero economy.

Our fit-for-purpose engineering solutions enable mining and raw material proponents, energy and water utilities, and port authorities to optimise the performance their assets, minimise operational disruption, improve safety and mitigate risks.

BGER's proven approach to deliver schedule and cost benefits through clever engineering and true collaboration is what sets us apart.

Our people pride themselves on providing smart and sustainable solutions to complex engineering problems; and importantly, on being great people to work with.



Technical Excellence

Our people are passionate about leveraging their technical ingenuity to solve complex problems.

Technical excellence is the bedrock of our business. It drives our people and propels the outcomes that we provide for clients, communities, asset owners and operators, and financiers.

Our dedicated professionals and subject matter experts focus on understanding our clients' business objectives, their desired project outcomes, as well as the latest industry research for the sectors in which we operate.

A Premium Client Experience

The success of our project work depends on leveraging the best expertise of our people. That's why we allocate the most qualified professionals to help realise our clients' development vision and bring their projects to life.

Our work is underpinned by strong engineering design principles, industry-leading technology and pragmatic advice to deliver exceptional outcomes, every time.

This approach provides the following benefits:

- Ease of understanding of regulatory frameworks
- Efficient navigation through the development approvals process
- Protection and preservation of our cultural heritage, the environment and waterways
- Healthy, transparent and trusted relationships are established with stakeholder groups
- Respectful liaison with Traditional Owners is undertaken
- Fair and equitable outcomes are achieved for First Nations' communities
- Project knowledge is retained, including lessons learned
- Innovation is embraced and deployed.

Technical Leadership Team

The quality and excellence of our world and ability to deliver the best technical and cost-effective solutions for our clients is guided by our Technical Leadership Team.

Led by the most senior members of our business, this team facilitates learning and knowledge transfer, professional collaboration and mentorship to drive continuous excellence in our technical capabilities. It also encourages our people to perform to high technical standards and rewards staff for incorporating innovation into projects.

Image: Steve Ash and Kanishka Pathirana at Paraburdoo Train Load Out Facility, Pilbara WA.

Safety is at the Heart of our Business

Our diverse and culturally aware teams embrace safe work practices that are environmentally sound.

Safety is integral to everything we do at BG&E Resources. We care about our people, clients, and the communities in which we operate, and strive for zero harm in everything we do.

Health, safety and quality are embedded in our work practices, while heritage and sustainability are considered throughout the entire project life cycle.

We recognise the importance of continuously reviewing safety in design issues at all stages of a project, from investigation, design, construction, operation (including maintenance), closure and rehabilitation.

Exceeding regulatory obligations, we leverage a formalised Health, Safety, Environment and Quality Management framework that allows us to analyse and implement practical measures to mitigate risks.



Leadership

- Understanding of client needs
- Technical Leadership Team governance
- Strong Chartered presence
- Adherence to Technical Standards & Regulatory Instruments
- Committed to Technical Excellence
- Striving for low-carbon impacts



Systems

- ISO Accredited Quality Management System (QMS)
- Design Assurance
- Engineering Verification Procedures
- Safety in Design
- Net Zero in Design
- Risk Mitigation & Management
- Project Governance (Action Tracking, Monitoring, Performance & Auditing)
- Continuous Improvement (Lessons Learnt)



Characteristics

- Client Centric
- Risk Adverse
- Reliable
- Accountable
- Innovative
- Simplification
- Community & Culture



Image: Lucy Nguyen at Cape Lambert Port Facility, Karratha WA.



Image: Indigenous peoples' hands. Copyright approved via Shutterstock.

Respecting, Protecting and Preserving our Cultural Heritage

Diversity across our workforce and our supply chain is vital.

Our clients trust in our ability to enhance their social license to operate, including through the provision of mutually rewarding cultural heritage consultation and management, healthy Indigenous partnerships, and ethical procurement from Aboriginal-owned and operated businesses.

Working with Traditional Owners, First Nations peoples, Indigenous Prescribed Body Corporates and Aboriginal Corporations, is seeded in early engagement as it enables our team to deliver benefits for today (across the life cycle of proponents' projects) and for future generations.

Early engagement underpins our approach to cultural heritage management as it enables us to understand the needs and desires of all stakeholder groups, as well as any existing Indigenous Land Use Agreements (ILUAs) which have been registered with the National Native Title Tribunal (NNTT).

We partner with highly experienced local archaeologists and ethnographic specialists to provide clients with access to an abundance of heritage site data, and to collectively undertake walk-throughs of proposed project sites.

From the Kimberley in the North to Esperance in the South of WA, across central Australia and along the Eastern seaboard – we engage with Traditional Owners and Custodians, Prescribed Body Corporates (PBCs), Aboriginal development corporations and First Nations communities to preserve their cultural heritage and when helping proponents and/or government agencies to deliver projects.

Cultural Heritage Management Capabilities

- Stakeholder consultation and engagement to help Traditional Custodians of the land and Native Title Claimants to establish IULAs, registration to the NNTT and compensation frameworks (among others).
- Advice for proponents regarding the application of legislation including the Native Title Act 1993, Heritage Act 1972 (Aboriginal Cultural Heritage Bill 2021) and Repeal Bill 2023.
- Developing scopes for archaeological and ethnographic surveys.
- Indigenous business contracting (including teaming with Aboriginal-owned and Supply Nation-certified businesses to develop First Nations regional workforces).
- Capacity building (including coaching, mentoring and career pathway development, etc. for First Nations peoples).
- Reconciliation Action Plans.

First Nations' Partnerships

We have a range of actions in place to increase Aboriginal and Torres Strait Islander employment and engagement in our business, to help First Nations communities become self-sustaining (current participation is approximately 1.5 per cent of our workforce and we are striving to increase that to three per cent by December 2025).

We proudly support Aboriginal and Torres Strait Islander owned businesses and have established a majority-owned Aboriginal company, TICS (WA) Pty Ltd (TICS). TICS is a NATA-accredited laboratory to ISO 17025, providing nondestructive testing (NDT) services.

Similarly, we have strategic partnering arrangements with several Aboriginal-owned businesses, including Karlayura Contracting, which provides design and construction support for clients.

We have also established a similar partnering agreement with i24s, an Aboriginal-owned and operated workforce company, providing security, civil works and commercial cleaning services for mine sites in remote locations across Australia, as well as for commercial premises in capital cities (their clients include BHP, Horizon Power and Cundaline Resources, among others).

Most recently, we also established a partnership with Pirrpala, a 100 per cent Aboriginal-owned and operated small scale project delivery provider.

Our partnerships also span the globe, specifically in China, for the procurement of equipment and professional services, including on Country inspections of fabrication, testing, compliance and design reviews.

Reconciliation

Review our [Innovate Reconciliation Action Plan](#), [Aboriginal and Torres Strait Islander Engagement Strategy](#), [Human Rights Statement](#) and [Anti-Discrimination Policy](#).

Energy Services

Providing exceptional engineering solutions for energy generation and supply that optimise value and help decarbonise operations.

Our Energy team's pragmatic approach enables us to reduce capital expenditure in both energy generation and supply while achieving an overall reduction in Levelised Cost of Energy.

We design solutions to minimise risk in system reliability and energy supply while managing both short and long term uncertainty in energy pricing, technology development and regulatory requirements.

Utilising Net Zero in Design™ (NZiD™), we successfully navigate the rapidly evolving technology and regulatory landscape to provide a clear strategy to Net Zero.

Capabilities Advisory

- Energy & Power Studies (Demand & Generation)
- Energy Resource & Technology Studies
- Risk Management (Supply & Contractual Risk)
- Market & Commercial Advisory (Inc. PPA, BOO & EPC)
- Demand Side Management, Energy Efficiency & Auditing
- Life Cycle Assessments, Decarbonisation & Net Zero Strategies
- Regulatory Advice for Energy & CO₂e

Technology Experience

- Solar PV, Wind, H₂, BESS, Hydropower, Biofuels, Thermal, etc.
- Scaling from kVA to GVA and kWh to TWh

Engineering and Design

- Standalone Power, Remote Area Power, Hybrid Power & Microgrid Solutions
- Energy Generation, Storage, Distribution & Monitoring
- Electrification, Energy Transition & Technology Integration
- Total Energy Optimisation (TESO) & NZiD™
- CEC Accredited Design & Installation of Grid Connected & Standalone Power Systems
- Network Connections & Transmission Studies

Delivery

- Procurement Management & Supplier Review
- Technology FAT, Installation & Commissioning Support



Mining and Resources



We take pride in working collaboratively with our clients to manage the complexities of their projects, technologies, and energy needs.

Processing and Manufacturing



With our focus on technology integration and ability to value-add to all stages, we de-risk project delivery for our clients.

Infrastructure and Services

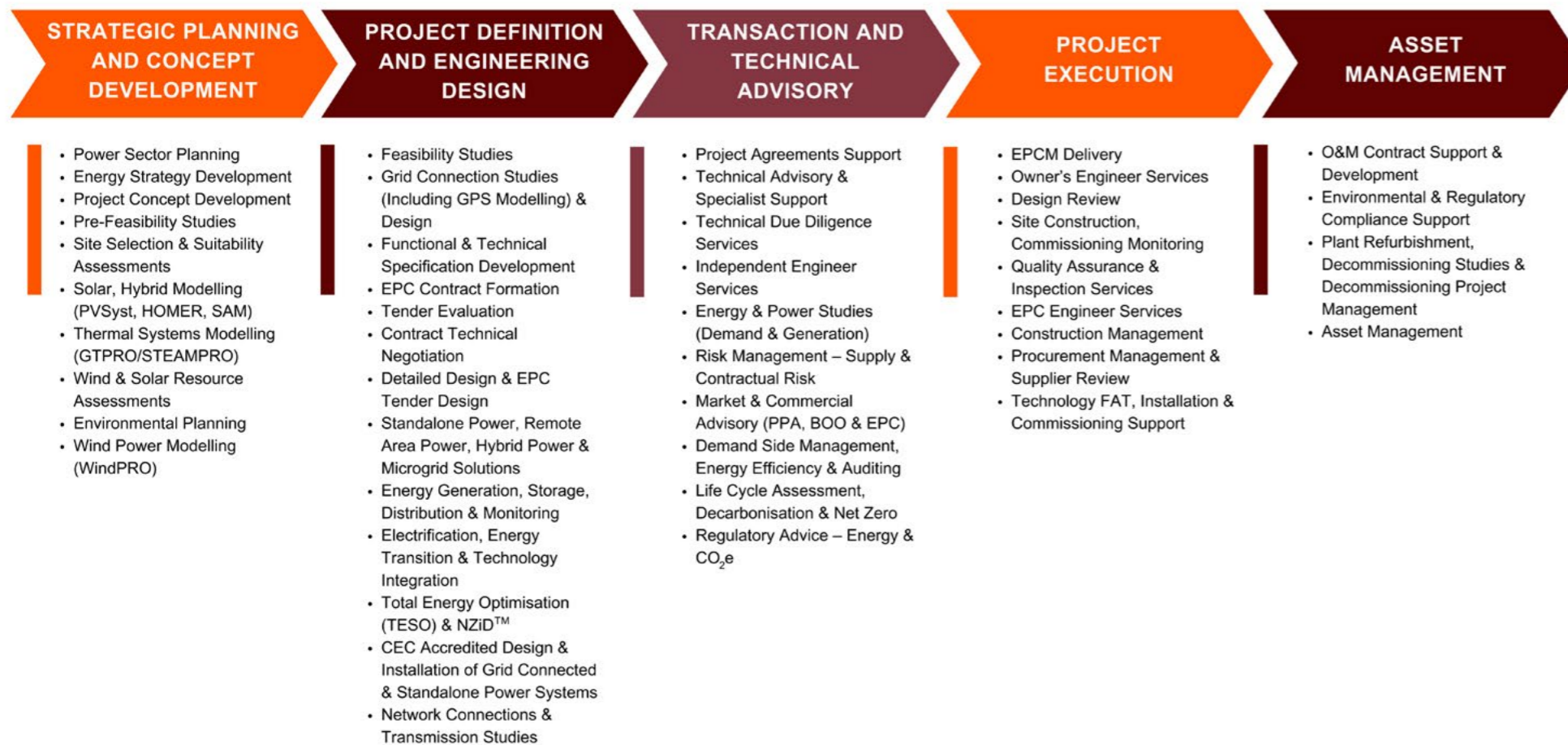


By understanding the full project lifecycle, we provide predictability to even the most innovative and challenging jobs.



Project Services

The Complete Life Cycle



Project Coverage

Technologies			
Renewables <ul style="list-style-type: none"> Solar PV Solar Thermal Wind Battery Energy Storage Systems (BESS) Hydropower Biomass / Biofuels 	Firming <ul style="list-style-type: none"> Open Cycle Gas Turbines Reciprocating Engines Battery Energy Storage Systems (BESS) Pumped Storage 	Alternative/ Emerging <ul style="list-style-type: none"> Hydrogen LNG to Power Hybrid Micro-Grid Oxy-Firing Waste to Energy 	Traditional <ul style="list-style-type: none"> Combined Cycle Gas Turbines Coal Thermal Gas Fired Boilers
Types of Clients			
<ul style="list-style-type: none"> Utilities Project Power Developers Power Plant Owners and Operators Large Energy Users (Industrial / Commercial) 	<ul style="list-style-type: none"> Remote Mining and Industrial Developers Independent Power Producers (IPPs) EPC Contractors 	<ul style="list-style-type: none"> Power Off-Takers Financial Institutions Governments Investors 	



Life Cycle Assessment (LCA)

Leaders in engineering energy solutions to maximise financial return, minimise supply risk and improve ESG outcomes.

Mindset

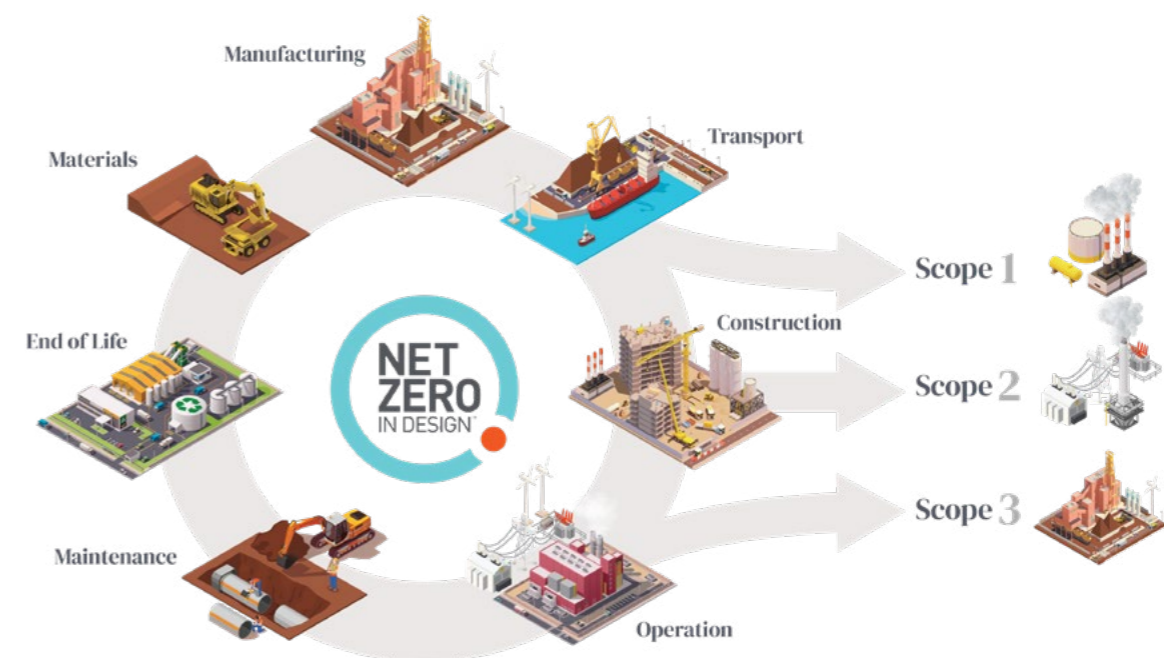
Like Safety in Design - NZiD™ is just part of the way BGER does business. From the moment we are engaged, be it at the concept, commissioning or operational stage, our team is always looking for ways to reduce energy demand and cost while identifying innovative methods to supply power to a project.

Process

To ensure we provide value add design inputs, we leverage best practice technologies. Our Total Energy Solution Optimisation (TESO) tool enables us to rapidly and iteratively model both demand and supply sides of the energy equation. Our Life Cycle Assessment (LCA) methodology allows us to model and improve all impacts associated with a project or process over its complete life cycle ensuring Scope 1, 2 & 3 emissions are optimised without uncertainty or compromise.

Standard

Backed by international standards and decades of experience, the processes and tools we utilise provide our clients with solid industry benchmarks to target and report against. The outcomes are quantifiable, repeatable and will hold up to the ever increasing scrutiny from the public and regulatory bodies.



Projects





Image: Courtesy of Fortescue. Copyright 2023.

Decarbonising Fortescue's Infrastructure – Early Engineering

Client: Fortescue

We are helping Fortescue to deliver on its Decarbonisation Plan to eliminate fossil fuel use and achieve real zero terrestrial emissions across its Australian iron ore operations by 2030.

BGER has been engaged to commence early engineering works to provide permanent power and supporting infrastructure to enable the electrification of mining equipment and assets across Fortescue's operations.

Our Electrical and Energy teams plan to work on electrification assets including HME battery electric fast charging facilities and in-pit power reticulation to HME plug-in assets. In addition, our Civil and Geotechnical teams are confirming the proposed laydown areas of the assets across Fortescue's sites.

Energy Management Plan – Iron Ore Mine

Client: Undisclosed

A leading mining company in WA engaged us to develop an accurate energy and power demand forecast for an iron ore mine site.

At the core of any sound decision making regarding energy is a Solid Energy Management Plan with accurate forecasts tied to relevant process data.

To complete this plan, BGER took into consideration several proposed major plant and equipment upgrades. Our work enabled the client to better manage energy contracts, identify opportunities for demand side management and alternative energy supply technologies.

Our Energy team reviewed the existing energy forecast, LoM Plan, the PPA, obtained whole-of-site metered power demand data, and collaborated closely with the client's teams. This information was collated, analysed and integrated into a refined power demand and energy forecast.

This Energy Plan has increased the accuracy of the forecast and ensures alignment with the LoM.

Our client is now well positioned to make informed decisions on future plant upgrades, demand side management opportunities as well as on site generation and optimisation of third-party supply contracts

Tertiary Hydrocyclones Energy Study and LCA

Image: PBO Tertiary Hydrocyclones Plant - Pilbara, WA.

Client: Undisclosed

A global mining giant engaged us to undertake a decarbonisation study to demonstrate reduced operating costs, reduced risk and reduced CO₂ impacts of all scenarios.

Our client sought to expand an existing minerals processing plant with the addition of Tertiary Hydrocyclones (THC), to improve fines recovery and high-grade Saleable Ore Product (SOP) production.

BGER conducted a LCA that modelled the lifetime emissions associated with the project. We also undertook an energy assessment to determine opportunities for operational energy reduction and Demand Side Management (DSM).

Our NZiD™ approach was integrated throughout the project life cycle to identify decarbonisation opportunities and ensure our client achieved its targets as efficiently as possible.

The Energy Study and LCA explored the most energy efficient and most significant carbon saving options, enabling our client to address Scope 1 and 2 emissions in its ESG agenda.

Our work on the project would lead to a reduced CAPEX, reduced OPEX, and reduced GHG emissions for the client.

CAPEX Reduction	Energy Consumption Reduction (GWh/yr)	Energy Cost Reduction (\$/yr)	GHG Abatement Cost Reduction (\$/yr)	Operational GHG Emissions Reduction (tCO ₂ e/yr)	Embodied GHG Emissions Reduction (tCO ₂ e/yr)
\$730K	3.3	\$650K	\$190,700K	1,856	517





Advancing Green Steel

Client: Undisclosed

With the global energy transition underway and the need for organisations to decarbonise, a new green steel precinct is being considered in Australia.

It is intended to provide a long-term hub for the development of downstream iron ore processing technology, supported by a transition to green energy and green steel.

Our client, one of the world's leading steel manufacturers, is proposing to develop a Hot Briquetted Iron (HBI) and Pellet Processing Plant, powered by green hydrogen – potentially comprising wind, solar, electrolyzers and pipelines. This is a crucial component of our client's strategy to achieve carbon neutrality by 2050.

BGER has been engaged as a key engineering delivery partner for Phase 1 of the pre-feasibility study.

Comprising plant design for a 3.5 Mtpa pellet plant and a 2 Mtpa HBI plant, Phase 1 considers a range of aspects for future expansion and development flexibility, including direct export options for the pellet product.

Our initial involvement began with completing the engineering concept study for Phase 1, followed by a detailed civil and hydrology feasibility study and a geotechnical study.

Our team of engineering geologists and geotechnical engineers are steadily making progress in gathering valuable data and insights to support the development of the project. We are working closely with our client, Traditional Owners and First Nations communities to take measures to protect sites of environmental and heritage significance.

The spatial extents of the geotechnical investigations include the plant, ponds and pump station, natural gas station and power receiving station to acquire critical geotechnical information for the design and construction of the above structures.

Scope of works:

- Detailed review of information in relation to the project including current site investigation, site constraints, access corridors, and previous studies complete.
- Complete detailed terrain mapping of the proposed site location via Lidar survey for use in design.
- Develop engineering design and documentation for hydrology and bulk earthworks scopes (to the required level of definition) to support the development of a capital cost estimate.
- Perform hydrological modelling using TUFLOW software including basic design of process plant bulk earthworks, site roads and drainage systems contained within the plant and port stockyard battery limits.
- Compile a study report consolidating all engineering disciplines including hydrology and bulk earthworks design.
- Complete CAPEX estimates and schedule for implementation.

Phase 2 of our client's project entails the initiation of a pre-feasibility study for the development of green hydrogen production including the establishment of a concept for electrolysis facilities.

Power & Energy Concept Study

Client: Talison Lithium

An optimised solution to the energy supply concern was developed that reduced production risk and resulted in substantial cost savings for the facility.

BGER was engaged to assist Talison investigate energy supply upgrade options, intending to address supply reliability and renewable energy integration into the Greenbushes mine site. The current mine expansion works and increase in capacity requires an upgrade to its existing network.

The study explored alternative power demand options, including solar and battery options, and the risks associated.

Production downtime losses, financial feasibility, forecast supply reliability and critical equipment operations were explored to determine an optimised energy supply solution that maximised renewable penetration and minimised risks and costs.



Stage 1: Verification and Establishing a Basis of Analysis

Conducting a review of:

- Current energy consumption and power demand,
- Existing and planned electrical infrastructure,
- Assessment of practical limitations of energy solutions,
- Current and forecast commercial and contractual energy supply arrangements,
- Energy supply risk (including high level network study and identification of operational critical equipment),
- Financial analysis.

Stage 2: Total Energy Solution Optimisation (TESO)

- Commercial analysis and review of opportunity to reduce supply and retail costs
- Performing demand side management study to investigate mechanisms for optimization of power and energy demand (including load profiles and load duration curves)
- Technoeconomic study to investigate relevant energy supply options, including network connection, solar pv, wind and BESS.

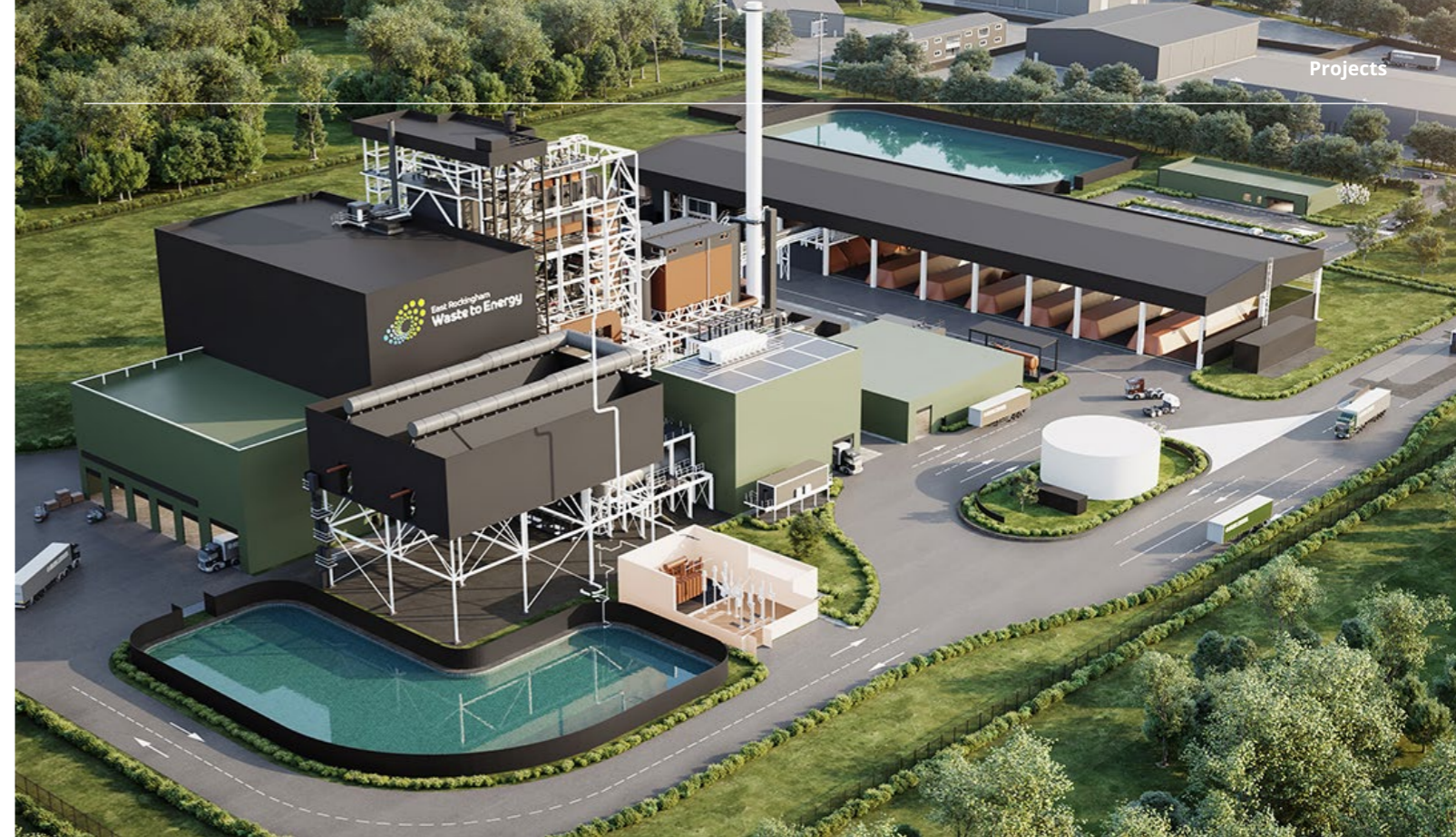


Image: East Rockingham Waste to Energy 3D Model.

East Rockingham Waste to Energy

Client: Acciona

As Owner's Engineer, we have played a key role in realising this 300,000 tp/a diesel fired waste to energy facility.

Now complete, the facility will deliver a cost-effective waste treatment solution and be a vital source of dispatchable renewable energy, whilst achieving 96% diversion of residual waste from landfill.

The facility is designed to receive and convert domestic waste from the local regional council to reusable energy to meet nominated environmental standards.

The design and construction of the \$500M project was undertaken by Acciona. As Owner's Engineer, BGER has supported all aspects across detailed design and construction.

The plant will produce approximately 29 MW of power which will be exported into the grid from the site substation.

Through our multidisciplinary team of engineers, we identified and implemented a range of cost reduction initiatives while also providing robust technical oversight across the life cycle of the project.



Zero Diesel Generator Design & Delivery

Client: Roy Hill

Our NZiD™ team developed a foundation for reviewing and implementing alternative technologies reducing operational costs, minimising supply risks and assisting in the management of Scope 1 emissions.

Following the conceptual design phase, BGER's Geotechnical and Civil teams have been working in a joint effort with Pilbara Minerals to progress detailed design and site investigations for the delivery of the road upgrade project.

As part of Roy Hill's Zero Diesel Generator Initiative, BGER was engaged to complete assessment of the diesel generators utilised at the Roy Hill mine site and model alternatives optimising LCOE, CO₂e and risk. This has now progressed into design, vendor management and delivery support.

Our NZiD™ approach enabled us to deliver fast and efficient answers to questions and objectives presented by Roy Hill. It also ensured solutions and the implementation strategy optimised both cost and supply risk. The Wodgina Access Road to the Pilgangoora Mine Site is situated between Port Hedland and Mulga Downs in Western Australia's Pilbara Region. The road is currently unsealed and extends approximately 24 km from Great Northern Highway, where a new intersection will be required.

The design scope involves upgrading 24 km of the Wodgina Road to a sealed road to facilitate increased haulage capacity via super quad road trains. This includes 11 major floodway crossings, 12 km of site access and haul roads, and a new intersection at Great Northern Highway.

Our involvement initially commenced in Dec 2022 with completion expected in November 2023.

When complete, the road upgrade will improve the efficiency and safety of transporting critical minerals to Port Hedland to meet the increased demand for resources to enable the global transformation toward clean energy and a sustainable future.



Image: Diesel Generator - Pilbara, WA.

Owner's Engineer, LCA & Energy Solutions

Client: Fortescue

Fortescue has begun construction on what is planned to be the world's largest electrolyser manufacturing facility at Gladstone, Queensland.

Fortescue has engaged BGER for the design and construction for the Gladstone Global Green Energy Manufacturing facility.

Fortescue is developing its site at Gladstone, Queensland for the purpose of establishing a world class electrolyser manufacturing facility with an annual output capacity of 2 gigawatts per year (GW). This will be viewed as stage one of a potential Queensland Super gH2 Hub. The new facility will be dedicated to the manufacture and assembly of electrolysers.

The Energy team conducted a Life Cycle Assessment of the project to identify opportunities for reducing CO₂e impacts and make informed decision to achieve a Net Zero outcome for the facility. We are also delivering engineering and design services to supply renewable energy and onsite storage to provide lower operational costs while achieving environmental targets.

Renewable Energy Study

Client: Undisclosed

A leading proponent has engaged us to complete a pre-feasibility study to power a Western Australian gold mine with 60%+ renewable energy generation.

To achieve their reaffirmed commitment to sustainable production per year, BGER provided advice to reduce net emissions by 30% by 2030, thereby supporting their ESG priorities.

Following our work on the pre-feasibility for renewable energy generation, we have been given the green light to further develop this design by providing a Basis of Design, Capital Estimate, and Schedule Estimate.

Our Energy and Electrical engineering professionals are collaborating with the proponent to develop solar, wind and hybrid system capabilities for the mine. We are also providing value engineering with geotechnical, hydrogeology, site integration and powerline considerations.



Green Ammonia Project

Client: Undisclosed

An undisclosed proponent is bringing to market a world-class green ammonia project, in Western Australia. The project will include the ammonia plant, a multi-user port, renewable energy systems (wind and solar), a desalination facility and the associated NPI.

The proponent is responding to the increasing demand for green ammonia, specifically from Korea and Japan.

BGER is providing stakeholder consultation and cultural heritage management capabilities (among others), for the proposed 750,000-tonne per annum green ammonia plant.

In recognition of the value of early engagement, the initial phase of stakeholder consultation and cultural heritage management included Traditional Owners, Aboriginal Prescribed Body Corporates (PBCs) and development corporations, local government and regional business and community leaders.

Upon completion of the Section 91, the secondary phase of stakeholder consultation and cultural heritage management will be undertaken.



Image: Port Construction – Port Hedland, WA.

Stanley Point Energy & Power Study

Client: Roy Hill

Our NZiD™ approach was integrated throughout the project life cycle to ensure our client achieved their targets as efficiently as possible.

This Study covered the plan to increase the Roy Hill port capacity from the current 70 Mtpa level to 120 Mtpa (inloading) and 110 Mtpa (outloading and shipping).

Our Energy team determined the overall power and energy demand for the new infrastructure and put forward demand side management, energy generation and supply solutions that reduced LCOE and supply risk.

McPhee Energy Study

Client: Atlas Iron

We were engaged to refine the power and energy demand for the McPhee Creek mine, enabling an overall reduction in energy demand by 46%.

Atlas Iron engaged our Energy team to refine the power and energy demand for the McPhee Creek mine, which is currently undergoing statutory approvals and planning. Our work helped to optimise the site's energy supply configuration for the lowest levelised cost.

The McPhee mine site is located in the northeast Pilbara region of Western Australia, approximately 100 km north of the Roy Hill Mine and 30 km north of Nullagine, with an expected production rate of approximately 9.5-9.7 Mtpa. Primary crushed ore will be hauled via road train from McPhee to Roy Hill for processing, transport to the port and shipping.

The interrogation and optimisation of the mine site design and load list by BG&E Resources enabled an overall reduction in power and energy demand by around 46%. This, combined with refining the power system design enabled a saving in CAPEX for the power station of over 28%, improved OPEX, reduced supply risk and enhanced vendor management.

Atlas is collaborating with other Hancock Prospecting Group companies on long-term growth options including the McPhee project. The Final Investment Decision (FID) is expected in mid-2023.



Energy and Power Study for Lithium Production Facility

Client: Talison Lithium

We helped investigate energy supply options for a new lithium processing facility designed to meet increasing demand for lithium driven by the global energy transition.

Our client, a world-leading minerals producer, engaged BGER to complete an Energy and Power Study for the implementation of a Battery Energy Storage System (BESS) at its new lithium production plant.

Current mine expansion works have put pressure on the site's existing 30 MVA power supply drawn from the grid. An increase in envisioned capacity to 65 MVA was sought.

As part of this project, our client aims to reduce the site impacts of this non-referenced service via the implementation of a BESS in conjunction with a plantwide load shedding scheme to ensure continuity of operation. The company is currently investigating options around energy supply upgrades and supply reliability methods to integrate renewable energy into its operations.

Our Energy team is deploying our NZiD™ approach and focusing on delivering energy solutions that minimise lifetime cost, reduce supply risk, and enhance environmental outcomes.

In the longer term, it is also envisioned that alternative forms of onsite energy generation such as renewables and storage will be integrated into our client's energy supply mix. As such, this study aims to complement its broader energy and sustainability goals by optimising the site's energy supply.



Our Energy Team



Doug Tapper Director of Energy

20+ years of experience in the field of energy and infrastructure. Doug's most notable projects include Project Director/EPC Project manager for the construction of the Synergy "Big Battery" 100 MW/200 MWh BESS at Kwinana and Project Director for the BHP Master Power Plan - long term strategic power planning to facilitate development of thermal and renewable generation in the Pilbara. Further experience has been in the areas of gas and diesel fired generation, co-generation, islanded generation, conventional thermal plant and more recently in renewable technologies and large scale energy storage. Doug has recent experience as Technical Director and Energy Subject Matter Expert, providing governance, advisory and engineering services for wind, solar and BESS projects. Doug has notable work experience with APA, EDL, Synergy, Rio Tinto, Roy Hill, and Fortescue.

Joe Allen Director of Operations

18 years of experience in design, construction and operation with diverse experience across mining, power generation and infrastructure projects. Joe's most notable roles include Project Director for Fortescue's Gladstone Electrolyser and Hydrogen Fuelling Facility in the Pilbara. He was also Project Director for Australia's first Waste to Energy Plant in Rockingham, Western Australia. His experience in leading teams through all scales and phases of projects is proven, having recently overseen projects across Lithium, Power Generation and Water. His specialist skills include concept studies and layout development, capital cost estimates for complete project lifecycle.

Nathan Tinline Discipline Lead - Energy Innovation

15+ years of experience as a renewable energy and energy efficiency specialist. Nathan is highly skilled in the development and delivery of renewable energy and energy-efficiency projects. His track record includes multiple instances in the role of client-side manager for EPC projects and independent owner's/lender's engineer for PV, solar thermal, wind and heat pump projects. Nathan is highly qualified holding a MSc. Renewable Energy, Masters in Management, Professional Chartered Engineer status, and industry accreditation CEC PV Grid Connect Designer. Nathan's notable work experience includes Energy studies and plans for Roy Hill, Atlas Iron, Hancock Energy, Gold Fields Australia, Fortescue, EDL, and Talison Lithium.

Lee Illingworth General Manager

20 years of experience and proven commercial acumen with large capital projects, operating within Energy, Mining Services, Heavy Industry, and Up-Stream Oil and Gas Services. Lee's recent notable work involves management of all development and works approvals for the Esperance Energy Project, which involved a 22 MW gas recip., 8 MW wind, 4.5 MW single access tracking solar and 5.6 MW BESS hybrid power station. Lee is a demonstrated safety leader who actively influences organizational safety culture through visible field leadership, mentoring combined with ensuring policy and procedure are followed. He has demonstrated contract negotiation skills at a senior level within Western Australia both with contractors and Tier 1 clients, experience with Board Level engagement and influencing positive outcomes, and demonstrated track record in managing multi portfolio project delivery.

Matthew Moreland Engineering Manager

13+ years of experience working as a degree-qualified Mechanical Engineer. Matt is an Engineering Manager and has extensive experience in mechanical design, operations, maintenance, repair and upgrade of complex utility and processing equipment. He has worked on projects for clients including Acciona, BHP, Rio Tinto, Alcoa and Fortescue; designing and constructing steam turbine packages, whole plant integration and constructability, processing equipment and compressed air and gas separation packages, with extensive utilisation of AS, ASME and ISO9001. Matt acted as Engineering Manager at Acciona, overseeing the \$500M Acciona Waste to Energy Project in Rockingham, Western Australia and acted as Lead Mechanical Engineer for Energy Australia's \$160M Mount Piper Power Station.

Mailys Delcan Energy Engineer

8 years of experience in energy services, specialising in sustainability and energy savings. In her previous role, Mailys provided a client a \$10M plan over eight years to reduce their energy consumption by 30% with innovative energy solutions and increased use of renewable energy. Mailys has provided energy and project engineering services for a number of clients, including Fortescue, Talison Lithium, Hancock Energy, HanRoy, Gold Fields Australia, Rio Tinto, Roy Hill and Atlas Iron.

Our Energy Team



Jules Bird Energy Innovation Analyst

3 years of experience with a background in energy, hydrogen storage, physics, environmental science, decarbonisation and sustainability. Jules is an experienced LCA specialist, an advanced user of eToolLCD, and is well versed in providing innovative carbon saving solutions for the resources sector. She is talented in technical, scientific and persuasive communication, with three scientific publications on hydrogen storage technologies, and has presented at conferences, interviews, and workshops with internal and external stakeholders. Jules has worked on a range of projects in the Resources and Energy sector, including for clients such as BHP, Roy Hill, Rio Tinto, Talison Lithium, Fortescue, Gold Fields Australia, and Pilbara Minerals.

Nicholas Yao Energy Innovation Analyst

4 years of experience as a Mechanical Design Engineer, from R&D of carbon-fibre haulpak trays, to providing valued services in an engineering consultancy. He has experience in mould design, manufacture processes, material handling, equipment analysis and plant design. He has worked on numerous projects including conceptual plant layout designs, to FEA analysis of trommels, to a modular design of electrolysers. Nicholas has worked on a range of projects in the Resources and Energy sectors, including for clients such as EDL, BHP, Roy Hill, Rio Tinto, Talison Lithium, Fortescue, and Gold Fields Australia.

Rob Mondri Project Manager

17 years of experience in the project management of energy and multidisciplinary engineering projects up to \$100M. He has successfully delivered projects in many roles including project management, project engineering and design engineering across multiple industries. His experience ranges from industrial automation to defence infrastructure. His technical, commercial, and practical capabilities have been utilised successfully in the delivery of multi-discipline projects through all phases of project life cycle. Rob has significant experience in managing power station design and construction, fleet electrification and decarbonisation infrastructure engineering projects and has provided services to clients such as Fortescue, Rio Tinto, EDL, and Roy Hill.

Luke Screaigh Project Manager

8 years of experience working on a range of projects across Western Australia and Asia. In this time, Luke has developed a vast range of experience, having undertaken various roles including contract and commercial coordination, civil, structural, mechanical, and piping technical engineering roles, procurement roles and leadership roles. Luke has recent experience with project management for Wind, Solar, BESS, co-generation plants, and energy project delivery. He has been involved in projects for clients including BHP, Rio Tinto, Talison Lithium, Fortescue, Galaxy Resources, Mineral Resources, Gold Fields Australia and KCGM.

Hunter Stretch Project Engineer

3 years of experience as a versatile and results-driven Project Engineer, who possesses strong technical expertise, communication skills, and leadership qualities. He has been recognised for successfully implementing a Commissioning Management System to monitor and manage commissioning progress on a greyfields potash project. Hunter is equipped with extensive data analysis and reporting skills and is eager to find long-lasting solutions in the engineering and energy fields for clients. He is currently studying a Master of Renewable and Sustainable Energy.

Darragh Costello Graduate Project Engineer

2 years of experience as an ambitious and adaptable Graduate Engineer, who has a strong focus on the energy sector. He has gained experience working in the energy industry at various stages of the project life cycle. Particularly, he has spent over a year working on wind turbine mooring systems operating in extreme environmental conditions. Darragh has regularly collaborated with project stakeholders ensuring system integrity, optimisation and preparing maintenance task plans for subsea pipeline networks and designing and analysing various subset structures. To further his development in engineering, he was elected as the Vice Chair of the Young Engineers Society in Ireland, to further develop his leadership skills whilst working with other graduates.

Offices

Perth

Level 10
240 St Georges Terrace
Perth WA 6000
Australia
+61 8 6375 9100
info@bge-resources.com

Level 3
168 St Georges Terrace
Perth WA 6000
Australia
+ 61 8 6375 9100
info@bge-resources.com

Brisbane

Level 5, 180 Ann Street,
Brisbane QLD 4000
Australia
+61 7 3167 3300
info@bge-resources.com

Mandurah

Level 2
55 Sutton Street
Mandurah WA 6210
Australia
+61 8 6375 9100
info@bge-resources.com

Newcastle

Suite 2, Level 3
175 Scott Street
Newcastle NSW 2300
+61 2 4091 2700
info@bge-resources.com

Townsville

4a Somer Street
Hyde Park QLD 4812
Australia
+61 7 4724 0640
info@bge-resources.com

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