

Energy



Capability Statement

Shaping
Tomorrow
Together

agilitus.com

Acknowledgement of Country

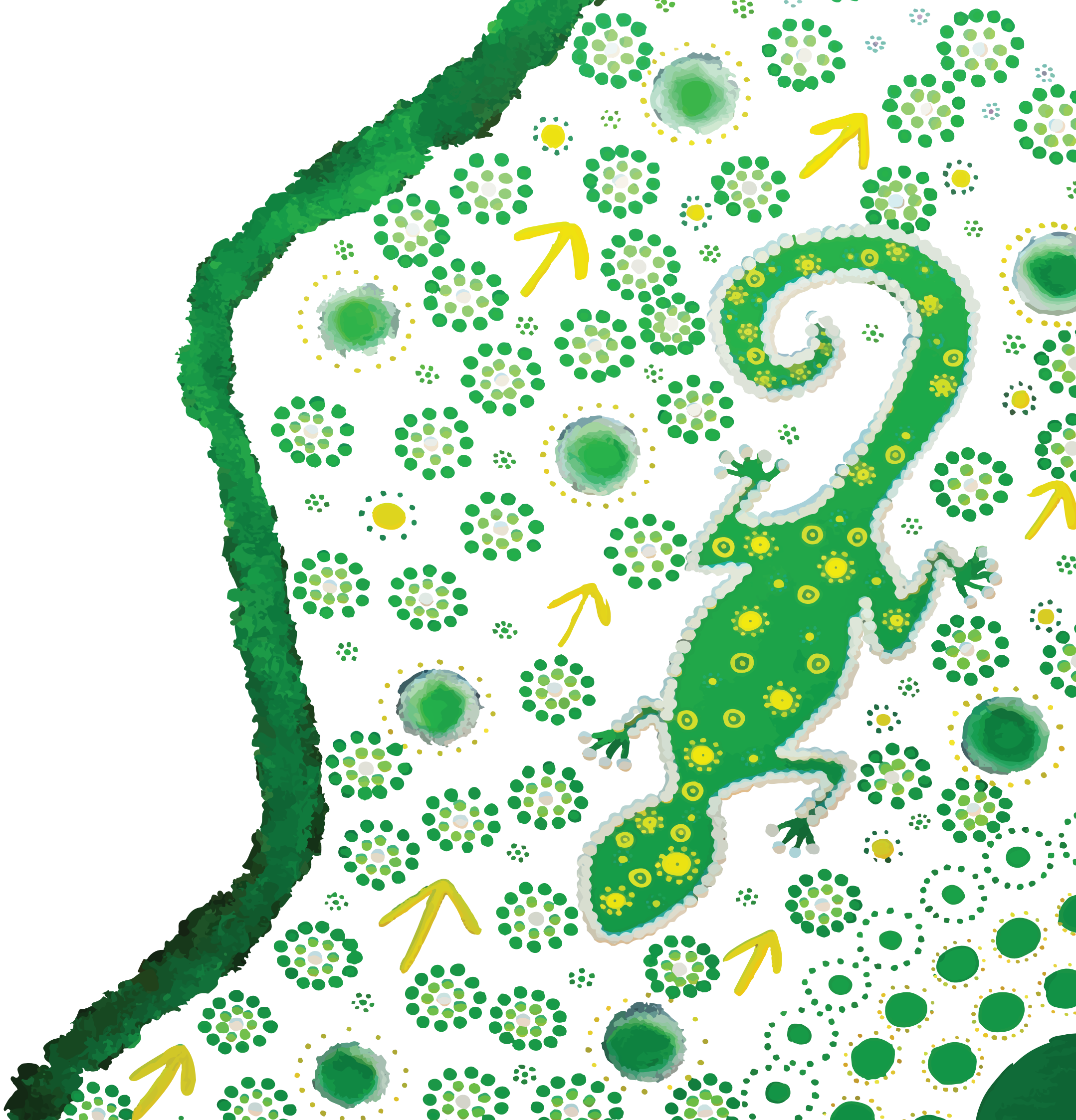
Agilitus acknowledges Aboriginal and Torres Strait Islander peoples as the first peoples of Australia and the Traditional Owners and Custodians of lands and waterways on which we work and live.

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 Kaurna 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 Agilitus People and Culture Assistant). Copyright 2024, Jayda Sebire.





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

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.

Agilitus is a multidisciplinary engineering, design, project delivery and advisory consultancy, providing 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.

Agilitus' 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.

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.

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 Agilitus. 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.

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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





Respecting, Protecting and Preserving our Cultural Heritage

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

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 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.

Advisory

- Energy Resource & Technology Studies
- Risk Management (Technical, Project and Commercial)
- Market & Commercial Advisory (Inc. PPA, BOO & EPC)
- Demand Side Management, Energy Efficiency & Auditing
- Site Identifications
- Network Node Analysis
- Life Cycle Assessments, Decarbonisation and 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

- Grid Connected and Standalone Power Systems
- Remote Area Power, Hybrid Power & Microgrid Solutions
- Energy Generation, Storage, Distribution & Monitoring
- Electrification, Energy Transition & Technology Integration
- CEC Accredited Design & Installation of Grid Connected & Standalone Power Systems
- Network Connections & Transmission Studies

Delivery

- Procurement Management & Supplier Review
- Technology FAT, Installation & Commissioning Support
- Construction Management
- Owner's Engineer Services



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

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



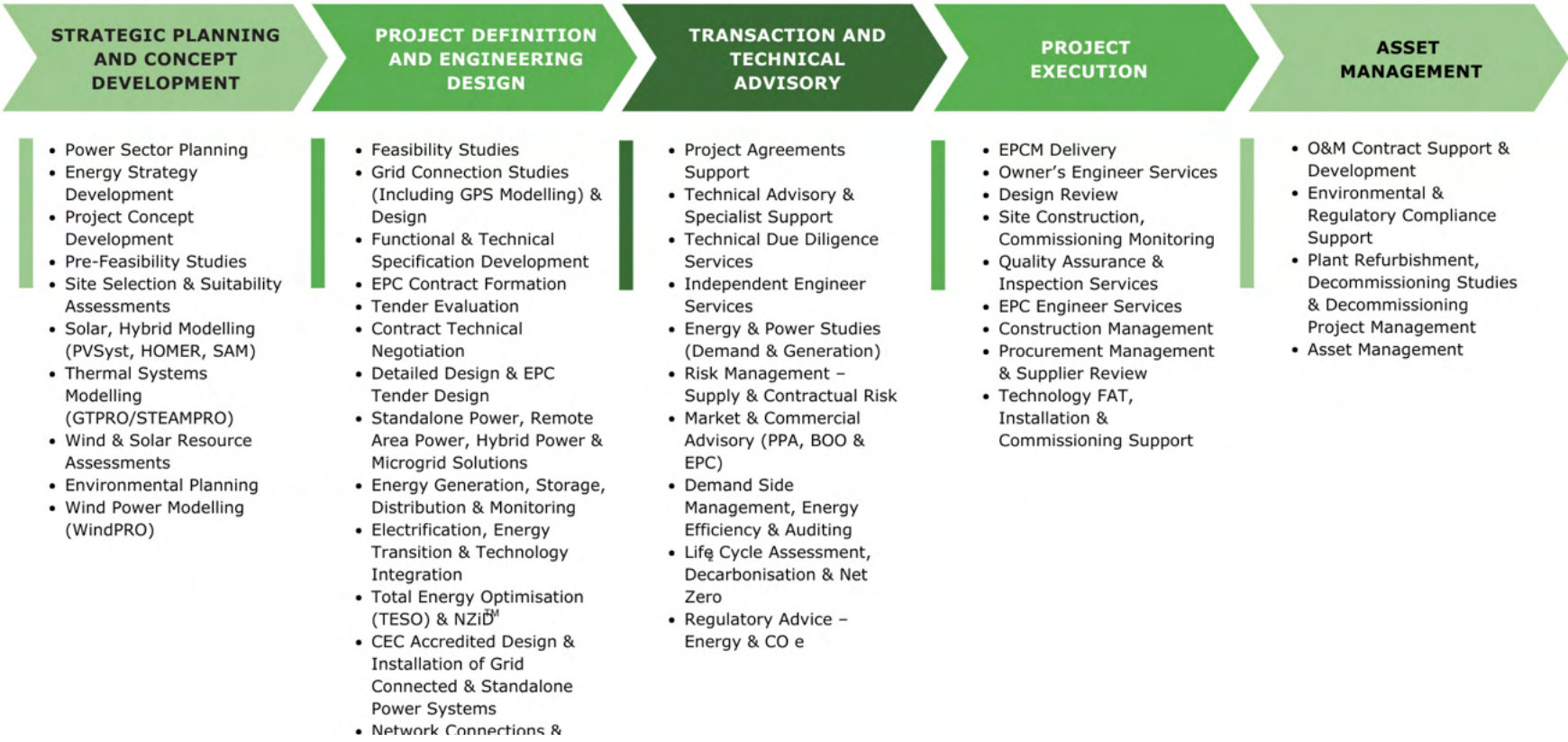
By understanding the full project lifecycle, we provide predictability to even most innovative and challenging jobs.



Image: Copyright approved via Adobe Stock.

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	

Specialist Skill Sets

Dedicated to offering practical advice that empowers our clients with confidence in finding the right solutions.

Introduction

We are experts in driving meaningful change in the growing energy sector. Our depth of knowledge allows us to provide tailored guidance, helping clients navigate the complex energy landscape with confidence. We are dedicated to empowering our clients through a journey of discovery.

Energy Capabilities

- Risk Management (Technical, Project and Commercial)
- Renewable Generation Site Location Studies
- Renewable Generation Resource Assessment
- Electricity Network Access and Constraint Assessment
- Technical Due Diligence Reviews and Reporting
- Analytics, Data and Quality Evaluation
- Engineering Project Management
- Construction Engineering
- Transport Planning
- Testing of Wind Turbines, Battery and Storage
- Power Systems
- Safety, Risk and Reliability Planning

Renewable Generation Site Location Studies

- Site Selection and Suitability Assessments
- Multi-Criteria / Trade-Off location Studies
- Land Access and Stakeholder Engagement
- Site Access and Route Planning

- Civil, Hydrology, and Geotechnical (including noninvasive) site location studies.
- Bulk Earthwork Cost Estimation for Solar PV, Wind Farms, and BESS
- Cost and Capacity Assessments for Transmission and Interconnections

Renewable Generation Resource Assessment

- Wind Power Modelling (WindPro, including Wind Resource Assessments)
- Meteorological Data Acquisition
- Solar Resource Assessments
- Energy Yield Analysis
- Cost / Benefit Analysis
- Project Life Cycle Financial Appraisal
- Generation Mix Optimisation, including HOMER Pro
- Application of multidisciplinary skillsets early to provide realistic “buildable” outcomes.



Testing of Wind Turbines, Battery and Storage Power Systems

Agilitus bolsters its internal capability by partnering with PSC to provide specialised testing of Wind Turbines, BESS, and other Power Systems.

General Capabilities

- R1 and R2 Compliance
- Generator compliance expertise for synchronous and asynchronous generators, across all technology types.
- Capability and equipment to undertake R2 compliance testing
- Dynamic study including grid connection studies for renewable and conventional generators.
- GPS Testing
- AVR and PSS Tuning Studies
- Harmonic Emission Assessments
- AEMO and NSP negotiations at various project phases (R1 and R2).
- Full GPS Studies

Reference Projects

Below are examples of projects where we have conducted testing of wind turbines, battery and storage power systems:

- Clarke Creek Wind Farm
- Gunsynd Solar Farm
- Quorn Park Solar Farm and BESS
- Forest Glen Solar Farm
- Axedale Solar Farm and BESS
- Bungama BESS
- Marulan Solar Farm
- Bungaberg Solar Farm



Analytics, Data and Quality Evaluation

Dedicated to seamlessly integrating our technical expertise, environmental impact, and financial viability considerations to offer real and practical solutions.

Technical Due Dilligence Reviews and Reporting

- Independent Review of Vendor Offerings (PV, BESS, RFB)
- Electrical Vehicles, etc.) and Vendor Capability.
- Technical Advisory and Specialist Support
- Independent Engineer Services
- Risk Management (Supply and Contractual Risk)
- Market and Commercial Advisory (PPA, BOO and EPC)
- Regulatory Advice
- Design Review
- Owner’s Engineer Services
- Quality Assurance and Inspection Services

Technical Due Dilligence Reviews and Reporting

Asset Management

To deliver more value to clients, Agilitus operates an in-house data-driven asset management business unit providing innovative capabilities for the Rail, Ports, Resources and Energy and Infrastructure sectors.

Capabilities

- Asset Definition & Identification
- Condition Monitoring & Assessment
- Data Analysis & Aggregation
- Forecasting & Modelling
- Maintenance Planning & Execution

Construction QA and QC

Across all phases of the Construction Quality Management life cycle, Agilitus provides support in all aspects of QA and QC to ensure the goal of zero defect is achieved.

Capabilities

- Quality Management System Development
- Independent Vendor Assessments
- Verification Assessments
- Workshop Verifications
- Witnessing and Reviewing
- Supervising Weld Procedures and Welder Qualifications
- Fabrication and Assembly Inspection
- Materials Management





Safety, Risk and Reliability Planning

Delivering solutions that optimise asset performance, mitigate risk and achieve quality outcomes.

HSEQ Solutions

- HSEQ Management Systems
- Document Control/Information Management
- Risk Management
- Construction QA/QC
- HSEQ Compliance
- Emergency Management
- Incident Investigations

Equipment Compliance

- Operability Assessment of Plant/Equipment
- Machine Guarding Engineering Analysis

HSEQ Management Systems

- Operability Assessment of Plant/Equipment
- Management System Strategy and Planning
- Leadership – Visibility, Performance
- Policy and Management System Development
- Operational Procedure Development
- Management Gap Analysis against ISO Standards – ISO45001, ISO9001, ISO14001

Risk Management

- Construction Risk Assessment Workshops (CRAW)

- Hazard Identification Assessment (HAZID)
- Hazard and Operability Study (HAZOP)
- Safety in Design (SID)
- Layer of Protection Analysis (LOPA)
- Risk Control Implementation and Verification Assessments

HSEQ Compliance

- Construction Risk Assessment Workshops (CRAW)
- Management Systems Compliance Audits
- Compliance Assessment Against Client Standards/
- Operating Processes
- Compliance Assessment against ISO Standards (ISO45001, ISO9001, ISO14001)
- Workplace Inspection
- Project/Construction HSEQ Compliance Assessment
- Project/Construction HSEQ Improvement Assessment
- Contractor HSEQ Compliance Assessment – Agreed Plan,
- Client Standards, or ISO Standards
- Corrective Action, Implementation, Verification and Effectiveness Assessment



Life Cycle Assessment (LCA)

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

Mindset

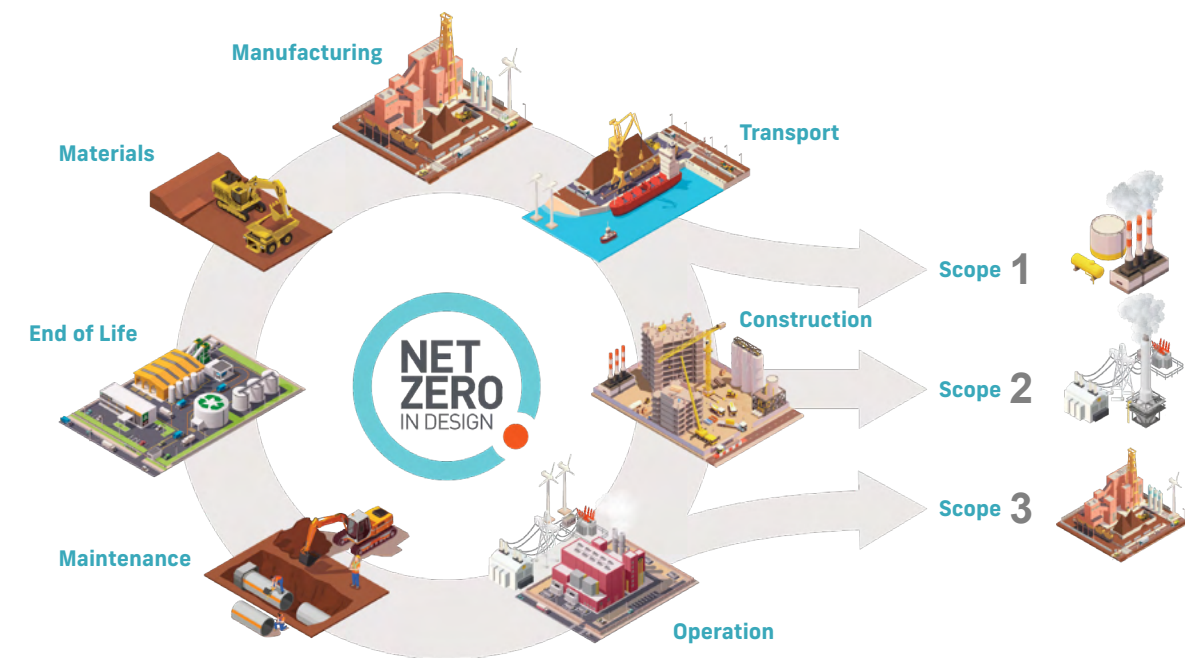
Like Safety in Design - Net Zero in Design is just part of the way Agilitus does business. From the moment we are engaged, be it at the concept, commissioning or operational stage, our team is always looking for ways to reduce energy demand and cost while identifying innovative methods to supply power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

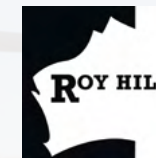


Agilitus Case Studies

You're in Good Company

We work alongside many notable companies across Australia.

In the Energy sector some of our clients include:



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.



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.

Agilitus 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, Agilitus 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

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.

Agilitus 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

Image: PBO Tertiary Hydrocyclones Plant - Pilbara, WA.





Image: Copyright approved via Adobe Stock.

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.

Agilitus 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.

Agilitus 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, Agilitus 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.





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 Agilitus 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 electrolyzers.

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.

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, Agilitus' 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, Agilitus 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.

Renewable Energy Study

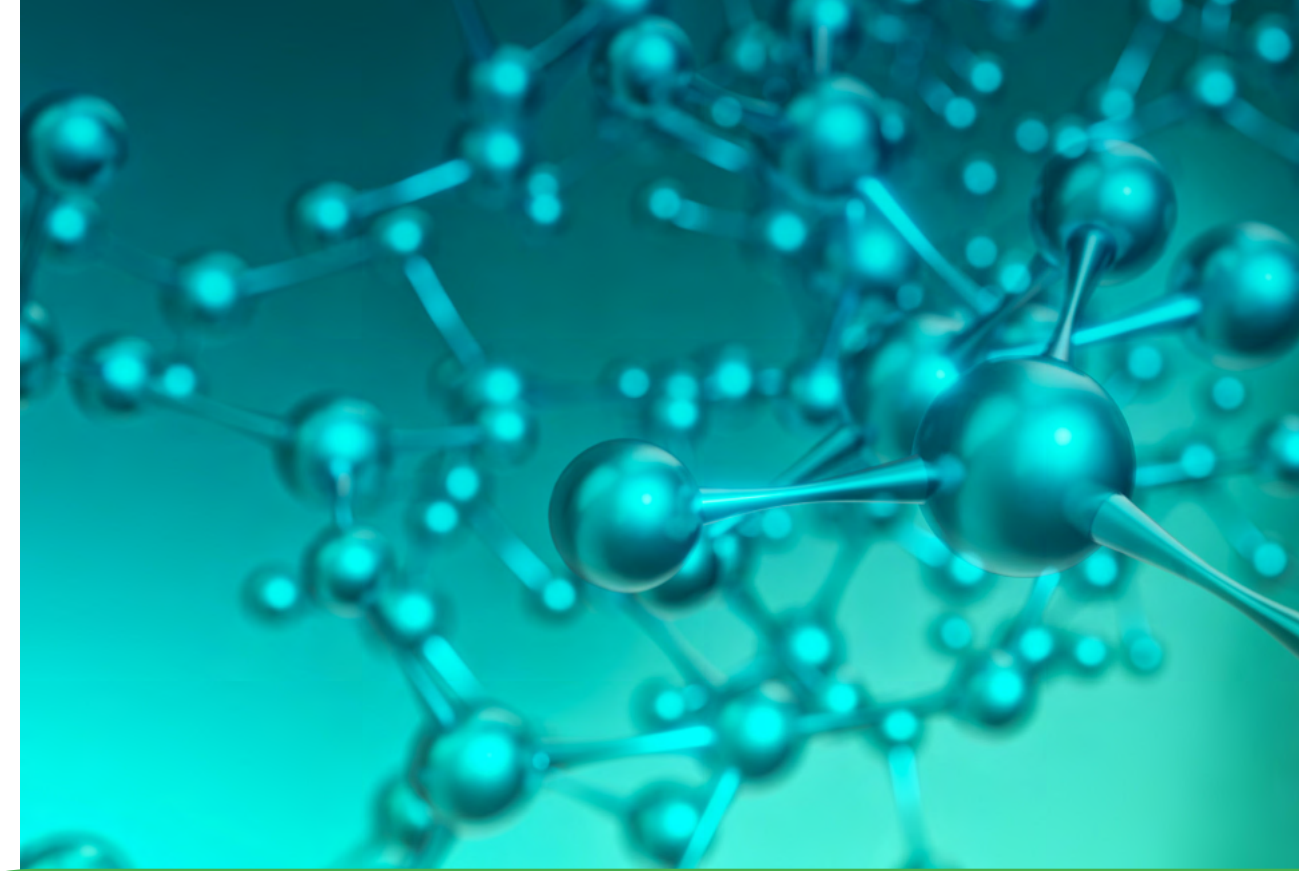
Client: Undisclosed

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, Agilitus 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.

Agilitus 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.

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.



Image: Port Construction – Port Hedland, WA.



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

Our Energy Team



Matthew Moreland
General Manager - Engineering

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.



Tony Daniel
Regional Manager (WA)

Tony has 20+ years of design, project engineering and management experience both in the engineering office and field environments. Tony's roles have included a broad range of activities in both Greenfield and Brownfield contexts related to engineering, procurement and project management. He has undertaken field-based assignments that entail the management of multiple, concurrent sustaining capital and production improvement projects within operating facilities. Tony's expertise includes Project Engineering, Mining Projects Mechanical Engineering Design; Materials Handling/ Mining Equipment and Machinery. Tony has worked on various project sizes across all design and execution phases including several site secondments.



Rhys Ledger
Discipline Lead - EIC

17 years of experience with a demonstrated history of working in the infrastructure, minerals, and energy industries. Rhys has extensive experience in both Brownfields and Greenfields engineering scopes and has been intimately involved in all phases of project implementation including Study, Engineering, Procurement, Construction, Commissioning and Operations phases. His key skills include Remote Power Generation, Power Conditioning, HV and LV Design, Process Control Design, Instrumental Design and Hazardous Area Design. Rhys is a Certified Functional Safety Engineer (TÜV Rheinland).



Stephen Brown
Technical Director - EIC

33 years of electrical engineering in power generation, mining and oil and gas sectors, in both design and operational support capacities. Stephen has held technical leadership roles in mining, refinery, consulting, and was an Oil and Gas Technical Authority. His key skills include Power Generation, Transmission and HV Distribution Systems, Electrical Maintenance and Operations Support, Brownfields Project Execution, Hazardous Area Equipment Selection and Electrical Safety in Design.



Craig Bloxham
Managing Director

Craig is responsible for managing, growing and diversifying the business to drive improved financial performance, robust corporate governance and positive health, safety and community outcomes. Craig leverages his considerable 25+ years of experience in leading major infrastructure projects to fulfil the company's growth and ESG ambitions. He was the Delivery Director for the \$10 billion Roy Hill iron ore project, in the Pilbara region of Western Australia (WA). He also served as the Project Director – Infrastructure for this mega-scale Greenfields development, managing all the early works packages for the aerodrome, access roads, bulk earthworks, utilities (power, water and backbone communications) and NPI facilities.



Tony Comerford
Technical Director

With more than 35 years' experience, Tony manages the technical delivery of projects for Agilitus's clients, in the fast-paced Resources, Energy and Industrial sectors. Tony sets the technical and engineering standards for client engagements, which spans conceptual design, detailed design, documentation, project management, construction management and commissioning of complex, multidisciplinary Greenfield and Brownfield projects. He draws on this experience coupled with his expertise in metals processing and refining, chemical plants, port facilities and industrial operations, to deliver tangible and measurable value to clients.

Our Energy Team



Leighton Brunn
Principal Electrical Engineer

40 years of experience in delivering projects for power station, mining and refinery industries. Leighton has held key positions in engineering projects responsible for feasibility studies, tendering, estimating, detailed design, off site testing (FAT), construction support on site and on site commissioning.

His key skills include Solar Power Generation, Diesel and Gas Power Generation, HV Overhead Lines and Power Distribution, Switchyards and Substations, Transportable Switchrooms, Motor Control Centres and Variable Speed Drives, LV and MV SEL Protection, and PLC Control and Fibre Optic Communications.



Rob Mond
Head of Energy Delivery

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 multidiscipline 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.



Jules Bird
Energy Project Engineer

4 years of experience with a background in energy, hydrogen storage, physics, environmental science, decarbonisation and sustainability. Jules is an experienced HOMER Pro 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. 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.



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.



Cameron Walker
Senior Project Engineer

6 years of experience as a driven Project Engineer within the energy, offshore gas and heavy manufacturing industries. Drawing from his Mechanical background, he has experience in material processing, fabrication, SMP and E&I. From his most recent energy experience, Cameron is experienced in renewable energy generation and systems, including WTG, solar, BESS and generators. Cameron has also been involved in the installation, commission and operation of specialist equipment and assemblies for offshore drilling and subsea operations. Lastly, he has experience in project management including contract development, and exposure to programs including P6, MS Project and Autodesk.



Shaping Tomorrow Together

Agilitus is a multidisciplinary engineering, design, project delivery and advisory consultancy, providing technical solutions for clients in the Resources, Energy and Industrial sectors. We are majority owned by our employees, who are united by our purpose – together, we embrace innovation to solve complex problems, for today and future generations.

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