FULL PROJECT LIFECYCLE SERVICES FOR OIL AND GAS PROJECTS
Clough works with some of the world’s largest energy and resources companies to engineer, construct, commission and maintain a comprehensive range of infrastructure for energy and resources projects.

Established in 1919, Clough’s services are underpinned by a dedication to project delivery excellence that has spanned over 95 years. Today the company utilises a workforce of nearly 6000 people from operating centres across Australia, Papua New Guinea, UK and Asia.

Backed by an experienced leadership team, talented people and sophisticated project management systems, Clough is committed to safety, sustainable development and the wellbeing of the people, communities and environments in which we operate.

A Full Project Lifecycle Delivery model

Clough reduces project risk for major Energy & Resources clients, by providing engineering and project services that span the full project lifecycle. We engineer to construct, and construct to operate, optimising safety, productivity and cost across every phase of a project.
Clough has been delivering oil and gas projects for more than 50 years and has 30 years’ experience in the delivery of LNG projects.

Over time we have developed high value skills to support the complex and global nature of the industry. Today we specialise in the delivery of project management, 3D design, sophisticated process engineering, modular construction, commissioning services and brownfield engineering, operations and maintenance services for oil and gas projects of all sizes and complexities.

We aim to maximise the value of our clients’ projects through excellence in project execution, cost efficiency and enhanced productivity performance.

4 + 2 + 3

Clough’s 4+2+3 operating model describes the services, markets and regions in which Clough operates.

From an established base in Australia, Clough’s global footprint includes a 30 year history of successful project delivery in Papua New Guinea and Asia, and expands into Europe, Middle East and Africa (EMEA).

Clough has four delivery functions that operate across the project lifecycle. These functions deliver high value services to blue chip clients operating in the Energy & Chemicals and Mining & Minerals sectors, servicing complementary markets such as water and power, where our skills and capabilities add value.

Clough’s 4+2+3 Operating Model
Oil and Gas Value Chain

Clough designs, constructs, commissions and maintains a comprehensive range of infrastructure for major oil and gas projects. Our services cover civil infrastructure, unconventional gas, gas processing facilities, liquefaction facilities, load-out jetties, offshore platforms, FPSOs and floating LNG facilities.
1 Civil Infrastructure
Roads, bridges, wharves, camps and airports provide critical access to remote LNG project sites. Clough designs and constructs fit for purpose civil infrastructure for LNG projects located in remote and challenging environments.

2 Unconventional Gas
Clough designs, constructs, commissions and maintains upstream infrastructure for Coal Seam Gas and Shale Gas projects, including gas gathering systems, processing and compression facilities and gas and water pipeline and plant.

3 Gas Processing Plants
Since the early 1980s Clough has been delivering full turnkey services to gas processing plants, including Conceptual and Front End Engineering Design, EPC/EPCM, modularisation, fabrication, construction commissioning and production operations services.

4 Liquefaction Facilities
Clough provides high value engineering, project management, commissioning, process optimisation, debottlenecking and maintenance services to liquefaction facilities.

5 LNG Loadout Jetties
BAM Clough is the recognised market leader in jetties and near shore marine design and construction. The Group have over 30 years’ experience in the delivery of LNG approach jetties, module offloading facilities, LNG loading platforms, dolphin berthing structures, roadways, piping support structures and other critical near shore marine infrastructure.

6 Offshore Platforms
Clough has been providing engineering and project management services to the offshore sector for more than 30 years. Today we design, fabricate, transport, commission, and provide production operations support for offshore platforms.

7 FPSO
Clough provides project management, engineering, procurement, fabrication, hook-up, commissioning and long term production operations support to Floating Production, Storage and Offloading (FPSO) projects.

8 Floating LNG
Ground breaking floating LNG (FLNG) technology is the next step in the evolution of the LNG industry. Clough has developed high value engineering, project management, commissioning and production operations services to support FLNG requirements.
### 50 Years of Oil and Gas

In 1964 Clough was awarded its first oil and gas project, which helped to deliver Western Australia's first major oil development. This project set the tone for Clough's future, and today the company has a track record of oil and gas project delivery spanning 50 years.

Over time the company has developed a reputation as a specialist in the delivery of technically and logistically challenging projects.

<table>
<thead>
<tr>
<th>Year</th>
<th>Project Name</th>
<th>Client</th>
<th>Location</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>The Harbourworks Clough Joint Venture</td>
<td></td>
<td></td>
<td>Awarded to deliver Western Australia's first major oil development.</td>
</tr>
<tr>
<td>1966</td>
<td>Barrow Island Oilfield Development</td>
<td>Western Australian Petroleum</td>
<td>Western Australia</td>
<td>Awarded the Barrow Island Oilfield Development, Western Australia's first significant petroleum resource development.</td>
</tr>
<tr>
<td>1970</td>
<td>Clough expands internationally, entering Indonesia and executing several major oil and gas contracts in the region.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>Operations are established in Queensland.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td>North Rankin 'A'</td>
<td>Woodside Offshore Petroleum Pty Ltd</td>
<td>Western Australia</td>
<td>Award of Woodside's North Rankin 'A', Clough's first major offshore construction project.</td>
</tr>
<tr>
<td>1985</td>
<td>North West Shelf LNG and Condensate Jetty</td>
<td>Woodside Offshore Petroleum Pty Ltd</td>
<td>Western Australia</td>
<td>Construction of the LNG and Condensate Load Out Jetty, the first structure of its kind ever built in Australia.</td>
</tr>
<tr>
<td>1988</td>
<td>Wesfarmers LPG Natural Gas to Liquids Plant</td>
<td>Wesfarmers</td>
<td>Kwinana, Western Australia</td>
<td>Wesfarmers LPG natural gas to liquids plant is completed, Clough's first turnkey gas processing contract.</td>
</tr>
<tr>
<td>1989</td>
<td>Clough Niugini is established in Papua New Guinea after several years of operation in the region.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1991</td>
<td>Pagerungan Besar Gas Field Development Project</td>
<td>Atlantic Richfield Indonesia Inc.</td>
<td>Indonesia</td>
<td>EPC contract for a major gas field development project on Pagerungan Besar Island.</td>
</tr>
<tr>
<td>1992</td>
<td>Dhodak Field Gas Condensation Plant</td>
<td>Pakistan Oil &amp; Gas Development Corporation</td>
<td>Pakistan</td>
<td>EPC contract for the gas condensate processing facilities in the Dhodak field, Pakistan.</td>
</tr>
<tr>
<td>1995</td>
<td>East Spar Development</td>
<td>WMC Petroleum</td>
<td>Varanus Island, Western Australia</td>
<td>EPCI for two-well subsea development, pipeline and two gas plant trains on Varanus Island. The project was awarded Australia's top engineering honour, the Sir William Hudson Award.</td>
</tr>
<tr>
<td>1997</td>
<td>QPL Phosphoric Acid Plant</td>
<td>WMC Fertilisers</td>
<td>Queensland</td>
<td>Turnkey development of a phosphoric acid plant including project management, detailed design, procurement, construction, pre-commissioning and testing services.</td>
</tr>
<tr>
<td>1998</td>
<td>Sales Gas Line</td>
<td>Apache Energy Ltd</td>
<td>Varanus Island, Western Australia</td>
<td>Design, installation and pre-commissioning of a 16” sales gas line between Varanus Island and the mainland.</td>
</tr>
<tr>
<td>2000</td>
<td>Wesfarmers LPG Plant Upgrade</td>
<td>Wesfarmers LPG</td>
<td>Western Australia</td>
<td>Design, procurement, construction and commissioning of a fast track expansion of the existing Wesfarmers LPG plant.</td>
</tr>
<tr>
<td>2001</td>
<td>Roma to Brisbane Pipeline</td>
<td>Agility</td>
<td>Queensland</td>
<td>EPC services for duplication (looping) of existing Roma to Brisbane pipeline.</td>
</tr>
<tr>
<td>2001</td>
<td>Ravva Satellite Gas Field Development</td>
<td>Cairn Energy India Pty Ltd</td>
<td>India</td>
<td>EPIC contract for a gas wellhead platform pipelines, and onshore gas processing facilities.</td>
</tr>
<tr>
<td>2001</td>
<td>Bayu-Undan Hook-Up and Commissioning Project</td>
<td>ConocoPhillips Australia</td>
<td>Timor Sea</td>
<td>Commissioning of the wellhead platform, topsides the entire field production systems.</td>
</tr>
<tr>
<td>2001</td>
<td>LNG Expansion Project – EPCM, Phase IV</td>
<td>Woodside Energy Ltd</td>
<td>Western Australia</td>
<td>EPCM for the expansion of the North West Shelf's LNG facilities.</td>
</tr>
<tr>
<td>2001</td>
<td>Sawan Gas Field Development</td>
<td>OMV Pakistan</td>
<td>Thar Desert, Pakistan</td>
<td>EPC contract for a gas plant consisting of two process trains, and all associated infrastructure.</td>
</tr>
<tr>
<td>Year</td>
<td>Project Description</td>
<td>Location</td>
<td>Key Details</td>
<td></td>
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</tr>
<tr>
<td>2002</td>
<td>PNG Oil Refinery Project</td>
<td>Papua New Guinea</td>
<td>Engineering, Procurement, Construction (EPC) of an offshore production platform, subsea and onshore pipelines, and onshore gas plant.</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>BassGas Project</td>
<td>Bass Strait, Australia</td>
<td>EPCIC of an offshore drilling/wellhead platform, pipeline development, and fabrication.</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>Panna Field Development Project</td>
<td>Arabian Sea, India</td>
<td>EPCIC for three additional platforms and four pipelines off the west coast of India.</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>Pluto LNG Jetty</td>
<td>Karratha, Western Australia</td>
<td>Construction of a 300m long approach jetty.</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Mars Phase 2A Project</td>
<td>Varanus Island, Western Australia</td>
<td>Construction of a solar compressor with associated piping and instrumentation.</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>Devil Creek Development Project - Engineering, Procurement &amp; Fabrication</td>
<td>Western Australia</td>
<td>Engineering, design works, procurement of and fabrication of all modules for the onshore facility.</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>PNG LNG Project Upstream Infrastructure</td>
<td>Papua New Guinea</td>
<td>Construction of critical infrastructure for the PNG LNG Development project.</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>Wheatstone Hook-up and Commissioning</td>
<td>Western Australia</td>
<td>Pre-commissioning, commissioning of integrated float over deck systems, offshore hook-up, and start-up assistance.</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>Arrow Upstream FEED</td>
<td>Gladstone, Queensland</td>
<td>FEED for the full upstream development of the Arrow CSG to LNG project.</td>
<td></td>
</tr>
</tbody>
</table>
CLOUGH IS EXPANDING ITS GLOBAL FOOTPRINT BY PROVIDING HIGH VALUE ENGINEERING AND PROJECT MANAGEMENT CAPABILITIES TO NEW INTERNATIONAL REGIONS INCLUDING EUROPE, MIDDLE EAST AND AFRICA (EMEA), WHILE CONTINUING TO DELIVER FULL PROJECT LIFECYCLE SERVICES IN OUR CORE REGIONS OF AUSTRALIA, PAPUA NEW GUINEA AND ASIA.

Australia

Clough’s Australian project delivery service is underpinned by a track record spanning 95-years. With 50 years of oil and gas experience, including 30 years servicing LNG projects, Clough is one of the most experienced oil & gas contractors in the Australian region. We work seamlessly with global engineering centres in the United Kingdom, South Africa, Indonesia and China to bring low cost, high value engineering services to Australian oil and gas projects.

Over time we have worked on some of the world’s largest and most technically and logistically challenging projects, and have developed specialist skills in industrial relations, security, logistics and quarantine to service the Australian energy and resources industry.

Through our work in global LNG centres of excellence, Western Australia and Queensland, Clough has also developed a reputation as a market leader in the provision of LNG process engineering services.

With a head office in Western Australia and operating centres in Queensland, the Northern Territory and Victoria, Clough can quickly mobilise professional engineering, construction, commissioning and operations and maintenance teams to deliver energy and resources projects Australia wide.

Asia

Clough has been working in Asia since the early 1970s and has delivered major engineering and construction projects across Indonesia, Mongolia, Thailand, Vietnam, China and India.

Today Clough has an established engineering office in Jakarta, and through our Clough Coens Joint Venture, located in South Korea, Clough delivers integrated commissioning and completions services to the world’s largest fabrication yards located in Korea and China.

Papua New Guinea

Clough has been delivering energy and resources projects in Papua New Guinea (PNG) for over 30 years and is one of the most experienced contractors in this region. We understand the unique requirements of delivering projects in PNG. Utilising disciplined processes, tailored project management systems and an excellent understanding of the PNG culture, we deliver a comprehensive range of engineering, construction, commissioning and operations and maintenance services that achieve client outcomes and deliver sustained benefits to local PNG communities.

Over time we have worked on some of the country’s most logistically challenging projects, and have developed specialist skills in landowner consultation, local workforce management, logistics, accessibility, pioneering and forest clearing. We maintain an extensive database of supervisors, superintendents and local construction workers, allowing rapid mobilisation of an experienced workforce to meet project requirements.

EMEA

Clough’s EMEA engineering centres in the United Kingdom and South Africa provide high value engineering services to operating oil and gas assets in the North Sea, and to new and existing energy and resources assets in Europe and Africa.

Services range from concept, feasibility studies and detailed design, through to production optimisation and debottlenecking. Our engineers are trained to deliver optimal designs to provide a better return on investment and shorter payback period for our clients. The engineering centres also provides 24-hour engineering support to Australian projects, lowering cost and enhancing productivity.

Together with our parent company, Murray & Roberts, Clough can offer an integrated project delivery solution to African and European energy & resource projects. This combines Clough’s engineering and project management expertise with Murray & Roberts extensive African and European construction resources, and experience in local project delivery.
OUR PROJECTS

CLOUGH IS PRESENT ON EVERY MAJOR LNG PROJECT UNDERWAY IN AUSTRALIA AND PAPUA NEW GUINEA TODAY.

Key
- Engineering
- Minor & Medium Capex Projects
- Major Capex Projects
- Jetties and Near Shore Marine
- Commissioning
- Operations & Maintenance
- Clough Offices

Contract Value
- <$50 million
- $51 - $250 million
- $251 - $400 million
- $401 million - $1 billion
- >$1 billion

* percentages are Clough % share in the project
CLough uses advanced technology and nine decades of engineering and construction expertise to deliver a full suite of engineering services across the entire asset lifecycle, from concept and feasibility studies through to design, delivery, and long term production operations and optimisation.

Our engineers design with a construction mindset to maximise safety, cost, quality and productivity outcomes during the construction and operations phases of a project.

Engineering services are incorporated into three delivery solutions:

- Consulting Services cover all asset planning, optimisation and sustainability solutions including concept, feasibility and select studies, basis of design, safety in design, geospatial services, process and plant optimisation and debottlenecking.

- Multidiscipline engineering supports asset definition and execution planning requirements and includes FEED and detailed design services across process, mechanical, piping, pipeline instrumentation, electrical, civil and structural engineering disciplines.

- Engineering and Project Management covers all engineering requirements during the execution phase of a project including project management, project, field and package engineering, procurement support, cost estimating, constructability analysis and safety reviews.

Our engineering delivery model is underpinned by extensive Australian engineering resources and a global network of high value engineering centres in the UK, Indonesia and China.
MINOR & MEDIUM CAPEX PROJECTS

Capabilities include
- Brownfield Expansion and Modification Projects
- Process Facilities
- Balance of Plant Infrastructure
- Power Generation
- Compression Facilities and Infield Pipelines
- Offshore Fabrication

CLOUGH’S MINOR & MEDIUM CAPEX PROJECTS DELIVERY FUNCTION OFFERS A LEAN, FIT FOR PURPOSE SMALL DELIVERY MODEL THAT IS DESIGNED TO SIGNIFICANTLY REDUCE EXECUTION COSTS FOR SMALLER PROJECTS TYPICALLY LESS THAN $100M IN VALUE.

Specifically designed for smaller greenfield projects and brownfield expansion and modification projects, this unique and structured service manages risk and drives efficiency across the project lifecycle.

The delivery model is supported by project management systems that have been developed with a small project delivery mindset, and in-house engineers trained to design to industry standards to reduce costs without compromising safety or integrity. Dedicated small project delivery teams are specially trained to perform a broad remit of project roles, ensuring resourcing costs are kept to a minimum.

PROJECT EXPERIENCE

Kumul Terminal Rejuvenation Project
CLIENT: Oil Search PNG
LOCATION: Offshore Papua New Guinea
CONTRACTING ENTITY: Clough AMEC
SCOPE: Construction management and execution services for the rejuvenation of the Kumul Marine Terminal, located approximately 40km off the southern coast of PNG.

Ammonium Nitrate/Nitric Acid Plant Number 3
CLIENT: CSBP Limited
LOCATION: Kwinana, Western Australia
CONTRACTING ENTITY: Downer Clough
SCOPE: Project management, engineering, procurement, pre-fabrication, construction and pre-commissioning for the NAAN3 Ammonium Nitrate plant. The contract was awarded after successful completion of the ECI phase.

Mars Compressor Station
CLIENT: Apache Energy Limited
LOCATION: Varanus Island, Western Australia
CONTRACTING ENTITY: Clough
SCOPE: Installation of an additional solar compressor with associated pipe work and instrumentation, on the existing Varanus Island plant in Western Australia’s Pilbara region.

Devil Creek Module Engineering, Procurement, Fabrication and Assembly
CLIENT: Apache Energy Limited
LOCATION: South West of Dampier, Western Australia
CONTRACTING ENTITY: Clough
SCOPE: Onshore engineering, procurement and module fabrication for the Devil Creek Development Project, located in the north west of Western Australia.

Murray Basin Stage 2 Development
CLIENT: Iluka Resources
LOCATION: Ouyen, Victoria
CONTRACTING ENTITY: Clough
SCOPE: ECPM contract to upgrade Iluka’s existing mineral separation plant in Hamilton including construction of a 900 tonne re-locatable mining unit concentrator plants and associated infrastructure.
MAJOR CAPEX PROJECTS

Clough delivers a fully integrated engineering, procurement and construction (EPC) service, or any part thereof, including design and construct and construct-only solutions, to effectively deliver on client safety, quality, cost and schedule objectives for major capex projects.

This service is underpinned by nine decades of project management experience, leading edge project management systems and behavioural based safety programs that embed a strong safety culture and commitment to Zero Harm.

We employ over 3000 highly skilled engineering, construction and project management professionals from bases across Australia and Papua New Guinea. Our aim is to drive project execution excellence through industry leading productivity performance.

PROJECT EXPERIENCE

**Gorgon Project**
- **CLIENT**: Chevron Australia
- **LOCATION**: Barrow Island, Western Australia
- **CONTRACTING ENTITY**: Kellogg Joint Venture Gorgon (KJVG)
- **SCOPE**: EPCM, as part of KJVG, for all downstream facilities on the Chevron-operated Gorgon Project – one of the world’s largest natural gas projects.

**K128 Upstream Facilities**
- **CLIENT**: Santos / Fluor Australia
- **LOCATION**: Surat Basin, Queensland
- **CONTRACTING ENTITY**: Clough Downer JV
- **SCOPE**: Construction of more than 400 kilometres of gas and water transmission pipelines, two compression facilities, six water storage dams an 800-person camp and expansion of the existing Fairview compression facilities.

**PNG LNG Project Hides Gas Conditioning Plant**
- **CLIENT**: ExxonMobil PNG Limited
- **LOCATION**: Hela Province, Papua New Guinea
- **CONTRACTING ENTITY**: CBI Clough JV
- **SCOPE**: Engineering, procurement and construction work for the gas conditioning plant, nearby wellpads and associated piping and infrastructure.

**PNG LNG Project Upstream Infrastructure**
- **CLIENT**: ExxonMobil PNG Limited
- **LOCATION**: Hela, Southern Highlands and Gulf Provinces in Papua New Guinea
- **CONTRACTING ENTITY**: Clough Curtain JV
- **SCOPE**: Construction of critical upstream infrastructure across 12 geographically dispersed sites in PNG. Scope included roads, bridges, wharves, laydown and camp areas, gas pipelines and wellpads.

**Queensland Curtis Liquefied Natural Gas (QCLNG) Phase 1 Compression Station**
- **CLIENT**: Queensland Gas Company (QGC)
- **LOCATION**: Surat Basin, Queensland
- **CONTRACTING ENTITY**: Transfield Services Clough JV
- **SCOPE**: Early site civil works and front end planning for the construction phase of compression facilities.

**Macedon Onshore Pipeline**
- **CLIENT**: BHP Billiton
- **LOCATION**: Onslow, Western Australia
- **CONTRACTING ENTITY**: STREICHER Clough
- **SCOPE**: Construction of onshore pipelines and associated umbilical and cable installation.
JETTIES, NEAR SHORE MARINE AND TERMINALS

WITH A REPUTATION FOR DESIGN AND CONSTRUCTION EXCELLENCE, BAM CLUGH IS THE MARKET LEADER IN JETTY AND NEAR SHORE MARINE PROJECT DELIVERY IN AUSTRALIA AND PAPUA NEW GUINEA.

Since 1964 BAM Clough has combined worldwide resources with local project delivery expertise to deliver jetty and near shore marine projects for some of the world's largest energy and resource clients.

With a worldwide talent pool, state of the art design and construction methods, and technologically advanced equipment, BAM Clough presents a low risk, high quality option for near shore marine challenges. BAM Clough leverages the international resources of each parent company.

Clough is taking its reputation for world class jetty construction and integrating this with Murray & Roberts' international marine engineering division to create CMR (Clough Murray & Roberts) for jetty and terminal projects located outside Australia and PNG.

### PROJECT EXPERIENCE

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</thead>
<tbody>
<tr>
<td><strong>CLIENT</strong></td>
<td>Fortescue Metals Group</td>
<td>JGC Corporation, KBR and Chiyoda Corporation Joint Venture (JKC JV)</td>
<td>JGC Corporation, KBR and Chiyoda Corporation Joint Venture (JKC JV)</td>
<td>Bechtel Chiyoda JGC Joint Venture</td>
<td>Woodside Energy Limited</td>
</tr>
<tr>
<td><strong>LOCATION</strong></td>
<td>Port Hedland, Western Australia</td>
<td>Darwin, Northern Territory</td>
<td>Darwin, Northern Territory</td>
<td>Gulf of Papua, Papua New Guinea</td>
<td>Karratha, Western Australia</td>
</tr>
<tr>
<td><strong>CONTRACTING ENTITY</strong></td>
<td>BAM Clough</td>
<td>BAM Clough</td>
<td>BAM Clough</td>
<td>BAM Clough</td>
<td>BAM Clough</td>
</tr>
<tr>
<td><strong>SCOPE</strong></td>
<td>Design and construction of a 306-metre long wharf extension, seven berthing dolphins, and the supply and installation of wharf conveyor modules.</td>
<td>Design and construction of a 1.2 kilometre jetty with operations and product loading platforms, a single LNG and condensate loadout berth, and associated piping modules and piping installation.</td>
<td>Design and construction of two separate vessel load-out berths, one for LNG carriers and a second for LPG / condensate carriers.</td>
<td>Design and construction of a 2.4 kilometre trestle with substation platform, loading platform and single berth. Scope included fabrication and construction of the topsides.</td>
<td>Design and construction of a 300 metre long approach LNG jetty including a 40 x 50 metre platform, four breasting dolphins, six mooring dolphins and navigational aids.</td>
</tr>
</tbody>
</table>

Capabilities include:
- Oil, Gas and Minerals Import and Export Jetties
- Ports and Port Developments
- Import and Export Terminals
- Berthing Structures, Quay Walls and Breakwaters
- Intake and Outfall Structures / Pipelines
- In-house Design and Construct Capability
SUCCESSFUL COMMISSIONING PLANNING AND EXECUTION CAN REDUCE THE SCHEDULE AND COST OVERRUN RISKS PRIOR TO THE START-UP OF OPERATIONS.

Clough is Australia’s largest commissioning contractor, offering an integrated and independent commissioning service aligned with client objectives. We bridge the gap between the construction phase and operations phase to enable safe and orderly asset handover, while minimising the risk of production downtime.

Our commissioning teams integrate with client project teams to plan for commissioning requirements across the entire project lifecycle, from conceptual and detailed design through to procurement, construction, start up and handover. This service applies engineering techniques that identify and schedule commissioning requirements early, enabling timely detection and intervention on potential schedule delays. As part of this service, we work with clients to ensure commissioning procedures are developed in line with operating needs.

Through its wholly owned subsidiary e2o, Clough has access to over 2000 commissioning technicians across Australia. From its base in Goje, South Korea, the Clough Coens JV delivers commissioning services to projects under construction in the world’s largest shipyards in Korea and China, supporting projects all over the world.

Commissioning services are supported by sophisticated commissioning systems and an extensive database of blue collar resources that check, inspect and test every operational component of the asset prior to handover.

Capabilities include:
- Completion Services
- Hook-Up Services
- Onshore and Offshore Pre-Commissioning and Commissioning
- Supply of Technical Trades
- Hazardous Area Inspection

PROJECT EXPERIENCE

Wheatstone Project Hook-Up and Commissioning

- **CLIENT**: Chevron Australia
- **LOCATION**: 200 kilometres north of Onslow, Western Australia
- **CONTRACTING ENTITY**: Clough
- **SCOPE**: Provision of an independent commissioning team to assist the client with pre-commissioning, commissioning of integrated float over deck systems, offshore hook-up, and start-up assistance.

APLNG Upstream Commissioning

- **CLIENT**: Origin
- **LOCATION**: Surat and Bowen Basins, Queensland
- **CONTRACTING ENTITY**: e2o
- **SCOPE**: Commissioning, structural design and implementation of the completions/ commissioning management software (CCMS).

Gladstone LNG Commissioning Management Services

- **CLIENT**: Santos
- **LOCATION**: Surat Basin, Queensland
- **CONTRACTING ENTITY**: e2o
- **SCOPE**: Commissioning management services for the upstream field development, and commissioning of the pipeline for the upstream project.

Gorgon Commissioning

- **CLIENT**: Chevron Australia
- **LOCATION**: Barrow Island, Western Australia
- **CONTRACTING ENTITY**: Clough
- **SCOPE**: Deployment of commissioning personnel to support commissioning of the downstream facilities.

Arkutun-Dagi Project

- **CLIENT**: ExxonMobil
- **LOCATION**: Samsung Heavy Industries, South Korea
- **CONTRACTING ENTITY**: Clough Coens
- **SCOPE**: The deployment of qualified commissioning technicians to support operators in the completions and commissioning of multiple offshore assets.

Commissioning Support Asia

- **CLIENT**: BP, Shell, Chevron, SSHI, DSME, HHI
- **LOCATION**: South Korea
- **CONTRACTING ENTITY**: Clough Coens
- **SCOPE**: The deployment of qualified commissioning technicians to support operators in the completions and commissioning of multiple offshore assets for various clients across the major fabrication yards in South Korea.
OPERATIONS & MAINTENANCE

Clough provides a full range of operations and maintenance solutions to maximise the life and profitability of operating assets.

These solutions include production engineering, operational readiness, asset management, shutdowns and general maintenance planning and execution, and decommissioning.

Clough has a track record of successfully executing major shutdowns, turnarounds and maintenance programs for onshore and offshore oil and gas facilities. Our brownfield project management systems are designed to maximise workforce productivity while minimising facility downtime and cost through effective planning, scheduling, workpacking and job carding.

Our sophisticated competency assessment and training programs utilise a combination of classroom and e-learning systems that provide skilled and qualified operating staff. Clough can also develop operations procedures and operator training and development programs based on our client’s requirements.

PROJECT EXPERIENCE

Wheatstone Project ORM Bayu-Undan Operations and Maintenance

CLIENT Chevron Australia
LOCATION 200 kilometres north of Onslow, Western Australia
CONTRACTING ENTITY Clough AMEC
SCOPE Developing the maintenance database, assuring operational readiness for the offshore facilities, development of operations procedures and training and development programs, and engineering and support services.

Bayu-Undan Operations and Maintenance ConocoPhillips Australia
LOCATION Timor Sea
CONTRACTING ENTITY Clough AMEC
SCOPE Operations and maintenance services for ConocoPhillips’ Bayu-Undan facilities consisting of a floating storage, offloading facility and three fixed platforms.

Blacktip

CLIENT ENI Australia
LOCATION Northern Territory and Western Australia
CONTRACTING ENTITY Clough AMEC
SCOPE Provision of trades labour to support routine and campaign maintenance and supporting services including specialist consultancy services, multidiscipline engineering, procurement, and management of subcontractors and fabrication.

Barrow Island Engineering Services

CLIENT Chevron Australia
LOCATION Barrow and Thevenard Islands, Western Australia
CONTRACTING ENTITY Clough AMEC
SCOPE Engineering Services Contract for Chevron’s oil production facilities at Barrow and Thevenard Islands.

Offshore Maintenance Services

CLIENT Woodside
LOCATION North West Shelf, Australia
CONTRACTING ENTITY Clough AMEC
SCOPE Supply of maintenance and trades personnel for all of Woodside’s Australian offshore oil and gas assets.

Barrow Island Engineering Services

CLIENT Woodside
LOCATION Barrow and Thevenard Islands, Western Australia
CONTRACTING ENTITY Clough AMEC
SCOPE Engineering Services Contract for Chevron’s oil production facilities at Barrow and Thevenard Islands.

Capabilities include
- Operations Engineering
- Reliability Modelling
- Maintenance Management and Execution
- Shutdowns and Turnarounds
- Operational Readiness
- Competency Assurance and Training (classroom and e-training)
- Decommissioning
OUR TARGET ZERO VISION — ZERO HARM TO OUR PEOPLE, COMMUNITY AND ENVIRONMENT.

Safety excellence
Safety is a value on which we never compromise. While Clough’s safety performance is significantly better than the Australian contracting industry average, we continue to work towards a workplace that is incident and injury free.

Our Target Zero safety program takes a full project lifecycle view on safety - from design through to execution and operations. We employ behavioural based safety programs across every phase of a project. Leading indicators play a key role in the measurement of our safety performance while Major Accident and Event risk management programs have been implemented to lock in safety learning and proactively manage risks on every project.

Environment
Clough is committed to continuous improvement in environmental performance throughout our global operations.

Over and above the commitments stated in our HSE policy, we actively seek out ways to continually deliver environmental excellence for our clients and the communities in which we operate. Our environmental management processes are embedded into our business delivery processes, championed by our environmental specialists and delivered by our management, engineering and project teams.

Community
Clough embeds dedicated and proactive community relations professionals on our projects to implement programs that deliver tangible community benefits while achieving project objectives. Community engagement strategies are developed to facilitate community support and involvement, meet local stakeholder needs, minimise disruption and provide local and indigenous employment opportunities.

We understand the importance of giving back to the communities in which we live and work. Clough supports a range of local community groups in line with our six pillar Corporate Social Responsibility (CSR) program, which aims to provide sustained benefit to local communities, strengthen stakeholder relationships and encourage employee involvement in community initiatives.
Clough is responding to industry productivity challenges, by implementing programs to develop the people, skills and capabilities to service the energy and resources sector.

The pursuit of excellence philosophy has been introduced to drive cultural change and develop a high performance culture.

We take a long-term view to people development, to avoid hiring off the street. Talent development and succession programs ensure that we have a strong pipeline of future leaders, from graduates to executives. Our aim is to ensure we fill core positions on our projects with talented Clough employees who understand our project delivery systems and culture.

Recognising that project managers are critical to the success of a project, Clough has invested in a Project Management Academy. This structured program aims to have “Clough certified” project managers recognised as the best in the industry.

We are also investing in a Leadership for High Performance framework, to create an organisational climate that promotes high performance.

Key to delivering strong project performance is a reward and recognition program, that drives the right focus on safety, cost and schedule.
Engineering Design

Clough offers multi-disciplined engineering design services for a wide range of mining & minerals processing development projects. We adopt a full lifecycle ‘Total Installed Cost’ approach to design and project implementation, to enhance project value without compromising safety, quality or schedule.

Clough uses the very latest engineering technology available to maximise the value from engineering deliverables across the project lifecycle. Clough is now a market leader in engineering technology. Our engineers have significant experience and capability in the use of Intergraph’s SmartPlant Enterprise suite while our systems, procedures and workflows enable effective and efficient project management, cost control and concurrent, multi-discipline design. By utilising 3D modelling and intelligent design systems (Smart 3D), we maximise the benefits of data integration throughout the engineering, fabrication and construction phases of our projects.

Engineering disciplines provided by Clough, include process, safety, piping, mechanical, civil structural, electrical, instrumentation and controls and communications.

Sophisticated Process Engineering

Clough’s process design know-how covers all project phases. Key competencies include concept definition and evaluation, process simulation and optimisation, specification of process and utility equipment and piping, P&ID development, hydraulic design and process safety system design.

Clough’s process engineering capability extends to all the main areas of activity in onshore and offshore Oil and Gas, including LNG, gas processing and coal seam gas gathering, as well as petrochemicals and water treatment.

Coupled with Clough’s in-house engineering tools, documentation, systems and processes, Clough has the experience and proven record to successfully implement projects from conceptual design right through to commissioning on site.

Project Management Systems

Clough is recognised as a pioneer in the development of integrated project management systems that take a full asset lifecycle approach to project execution. This is achieved by controlling the links between engineering, procurement, construction, commissioning and operations and maintenance.

Clough is harnessing new mobile platforms and tools to drive information into our geographically dispersed operations, and has invested significantly in data, systems and technologies. The results is an ability to sustain field variations to less than 2 per cent.

SmartPlant Foundation is used for document management and control while SmartPlant Materials provides materials management and procurement. Cost control and subcontract management are catered for via PRISM, with Primavera providing scheduling and planning controls.

Clough’s project management systems are supported by a core team of systems experts who are disciplined in system compliance, and focused on real time information provision and continuous improvement to optimise safety, cost and productivity performance on every project.
A ClearView on Productivity

Our clients are calling for better productivity performance. Clough is responding by setting the industry benchmark for productivity, by driving performance, not just reporting it.

We deploy metrics and systems to provide real time reporting on productivity performance. Through our ClearView™ proprietary software, Clough will deliver productivity reports that make our project and construction managers accountable for driving project performance.

Reports include a detailed summary of critical path progress against plan, including HSE performance, schedule, productive and non-productive time, cost and potential productivity or safety issues that could impact project performance.

These detailed reports enable early detection and intervention, if productivity issues arise.

Logistics Innovation – 4PL

Clough applies innovation to adapt to the changing needs of the industry by learning from our experience on some of world’s largest and most logistically challenging projects.

This experience has led to the development of a new logistics service: Clough 4PL. This innovative service aims to reduce complexity and significantly improve the cost and productivity performance for projects by providing a single logistics and supply chain interface across the life of the project.

The Clough 4PL service is underpinned by access to a network of industry leading, pre-qualified logistics service providers, and is managed by logistics and supply chain experts with decades of experience.

Logistics will be tracked through our Tracker database, a user friendly interface that utilises GPS technology to provide real time reporting on supply chain status.

Logistics savings of up to 15 per cent are estimated on projects that implement the 4PL program.

Clough’s 4PL business model