

A 🕲 UANTA SERVICES COMPANY



POWER GENERATION

ENERGY INFRASTRUCTURE Management, engineering & commissioning services

COMPANY OVERVIEW

Enscope provides project management, engineering, procurement, construction and commissioning services in support of energy infrastructure developments.

Enscope was formed in 2009 in Perth, Western Australia, as an outcomes focused project services organisation providing project feasibility, management, engineering, project controls and completion services to the mid-size gas and energy sector.

Since formation, Enscope has established a strong and dynamic team of engineers and project managers. We offer our clients and partners a unique, specialised and valuable skillset in the delivery of energy infrastructure projects. With a breadth of services ranging from concept development and feasibility through to EPC, EPCM and D&C project delivery and commissioning, we add value across all phases of the project development and delivery lifecycle. In 2015, Enscope was integrated into the Quanta Services group of companies and has offices in Perth, Melbourne, Brisbane and Darwin. Enscope works closely with other Quanta businesses in Australia and overseas, and can provide our clients with access to the full suite of Quanta capabilities and services directly via Enscope, or through JV partnering under a range of contract models tailored to deliver best outcomes for the project.

As a wholly owned subsidiary of Quanta Services Inc., a NYSE listed company (NYSE: PWR) with an annual turnover of approximately US\$60 billion, we bring a strong financial position which provides our clients with the necessary surety to embark on high capital energy infrastructure developments.

LEGAL ENTITY

Enscope Pty Ltd

TRADING AS

Enscope

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Enscope is an active industry participant in the Australian Hydrogen Council, Australian Pipelines & Gas Association, and Future Fuels CRC.





GENERAL POWER GENERATION CAPABILITY AND EXPERIENCE

Since 2009, Enscope has been trusted to deliver high quality engineering, procurement, construction and commissioning and support services for Australian energy infrastructure projects; including both islanded and grid-connected and islanded power generation applications across a range of generation featuring both thermal generation technologies including thermal and and renewable. energy.

The Enscope team has a wide range of complementary design, engineering and project delivery skill sets to provide fit for purpose end-to-end a unified energy solutions. We offer a design, procurement, construction and commissioning model that is cost effective, low risk and assures on time delivery.

As a technology-agnostic design and engineering firm, Enscope makes it our duty to stay current on the latest technologies and industry standards influencing the power generation sector. Enscope strives to understand and define the objectives, constraints and success factors for each project opportunity and adopt a 'best for project' approach to help our clients and partners achieve an efficient and effective outcome.

Enscope are experts in at integrating balance of plant technology into power generation projects. We have strong and established relationships with all the major OEMs and an inhouse team of engineers who have a thorough understanding of OEM technology. Our expert team includes specialist rotating equipment and high voltage engineers who can work with key project stakeholders ensuring technical excellence on complex power generation projects. Leveraging our deep knowledge from the Australian gas and liquids production industry including natural gas, LNG, coal seal gas, hydrogen, renewable gases and other sustainable fuels allows Enscope to optimise gas-fired power projects specifically for fuel efficiency, emission reduction and operational reliability.

Enscope can leverage our experience in the delivery of hybrid renewable energy projects comprising of Solar PV, Wind, BESS and Synchronous Condenser technology to support clients energy transition ambitions and climate commitments. We have a thorough understanding of renewable technologies and established relationships with the major renewable OEMs. We understand the complexity of hybrid renewables and our specialist team have solutions to both grid connected and islanded applications. gas, employing in-house rotating equipment specialists, who are comfortable providing solutions for a variety of gas types, including natural gas, LNG, H2 Blending, coal seam gas and biogas.

Leveraging our deep understanding and involvement in the Australian gas industry from production and treatment to compression and distribution, allows Enscope to optimise gas-fired power projects specifically for fuel efficiency, emission reduction and operational reliability. Enscope also understands the increasing importance of energy storage and is actively deploying BESS and other longer duration energy storage technologies in support of our clients energy storage projects.

From delivering gas fired power generation solutions to major utilities and independent power providerscompression and distribution packages for tier 1 clients in the gas and energy sector, toleadinto gleading gridconnected green energy projects for Australian RGenerenewable Ddevelopers, Enscope has gained hands on experience and a significant track record with a wide range of power generating and energy storage technologies.





GAS TURBINES

Aeroderivative and Industrial types, combined and open cycle configurations.

RECIPROCATING GENERATOR SETS

Featuring either high speed or medium speed gas or diesel engines.

ENERGY STORAGE

Enscope is experienced with BESS in 2-6-hour storage duration and other long duration energy storage (LDES) technologies which can up to 8-24hrs duration.





5

END-TO-END POWER GENERATION SOLUTIONS CONCEPT TO CONSTRUCTION

Enscope provides a comprehensive 'end-to-end' service for energy solutions that span the entire project lifecycle from initial concept assessments to full-scale EPC and commissioning of power generation projects including gas fired power generation, renewable energy generation, BESS and other long duration energy storage technologies, electrical distribution infrastructure and more. Enscope's integrated approach provides maximum flexibility for our clients and reduces project delivery risk.



Project Conceptualisation

Enscope works collaboratively with our clients from day one to define the objectives, constraints and success factors for each project. We openly and objectively evaluate the project's key drivers and adopt a 'best for project' approach, assessing, selecting and defining technical and economic options for delivery of power projects, balancing timeframe, budget and delivery risk to achieve the best possible outcome. Enscope has worked on numerous power station projects, through various stages from initial concept development and scoping, through to fully developed FEED packages. We deliver the relevant design documentation and engineering assessments, conduct market engagement for supply of equipment and materials, identifying and analysing strategic options / alternatives, and develop project execution strategies, delivery schedules and turnkey "EPC" project delivery budgets in consultation with our clients.



Front-End Engineering and Design (FEED)

From the project scoping and concept stage, Enscope then advance into FEED, defining the technical, commercial and regulatory aspects of the project, adding further definition to the power station design, capex and project delivery schedule and execution strategy. This stage includes working through key criteria such as:

- Power station site evaluation and selection considering geotechnical considerations, flood risks and environmental impact.
- Technology selection and power station configuration, factoring in redundancy / spinning reserve leading to overall footprint, orientation and services connection relative to site.
- Preliminary design and engineering works including diagrams, layout drawings and equipment specifications.
- Developing a detailed cost estimate, including capital expenditure, project delivery, and potential contingencies.
- Creating a schedule for project execution, from design and procurement to construction and commissioning.

Project Execution

Once the engineering and design stages are complete, Enscope is experienced in working with various project delivery models to suit our customer's needs, these include:

EPCM

Enscope provides management & advisory services during project delivery stage.

BOP EPC

Enscope provides EPC of the power station Balance of Plant (BoP). Client maintains control of the OEM / major equipment contracts.

EPC (FULL WRAP)

Enscope provides a fix lump sum / turnkey power station project.

DELIVERY Models

Our focus is on achieving best for project outcomes and we are experienced in working with various delivery models to suit our customer's needs. Enscope prides itself on understanding and meeting our customer's needs with efficiency and flexibility.

Options include:

Early Contractor Involvement (ECI)

Enscope brings experience to deliver complex projects utilising the ECI model. This delivery model helps identify and reduce risks early in the project by utilising complementary engineering, construction and commissioning skills, along with those of our clients, all in a fully transparent open book manner.

Engineering Procurement Construction Management (EPCM)

Enscope has extensive knowledge and experience in delivering projects under an EPCM framework. This delivery model is best suited to customers who want more control over decision making for the project and can reduce cost through better risk allocation.

Engineering Procurement Construction (EPC)

Enscope brings experience and balance sheet strength to deliver complex projects utilising an EPC model. Traditional 'turnkey' EPC contracting is best suited where clients wish to transfer delivery risk to the contractor and maximise cost surety.

Collaborative Partnerships (CP)

Enscope often works collaboratively with customer organisations to deliver early aspects of project initiation, concept design right through to commissioning and operations. This model helps reduce overheads and minimises interface risks across all aspects of a project's delivery. A great way to optimise project costs collaboratively with our customers.

	EPCM	BOP EPC	EPC (FULL WRAP)
Enscope's role	Provide management & advisory services	Provide EPC for Balance of Plant (BoP)	Provide fixed lump sum / turnkey project
Client Involvement	High	Medium	Low
Advantages for client	 Full flexibility in design, OEM / contractors utilized Lowest capex and fastest delivery: No 'margin-on-margin' No priced in risk Shortens schedule as Enscope can begin under a PO or similar Enscope oversee the project ensuring design, procurement and construction are executed correctly 	 Lowers capex and improves delivery vs EPC option via: Reduces margin-on-margin Reduces priced in risk Client procures major equipment while Enscope commences BoP Enscope takes on risk for delivery of BoP Client retains control over OEM / major equipment contracts 	 Cost surety Single point of contact for client throughout project delivery Simplified Project Management
Disadvantages for client	 Requires client resource as major contracts held by owner No single entity responsible for full project delivery 	 Client manages OEM / major equipment contracts procurement and warranties More contractual complexity vs EPC 	 Highest cost model (via margin- on-margin and risk premiums) Lowest amount of control Longest schedule
Risk	Higher for client	Moderate	Higher for Enscope
Total Cost	Low	Medium	High
Best Suited For	Clients who require lowest cost, full flexibility and control over project	Clients who want control over OEM / major equipment selection but not full project risk	Clients who want single point of responsibility

9



POWER GENERATION & ENERGY STORAGE APPLICATIONS

Enscope has experience with and can support a wide range of power generation applications to suit our clients needs. Each application presents a unique set of challenges and Enscope's experienced team has solutions to complex project requirements:

GAS FIRED POWER STATIONS

which are increasingly being used in peaking and firming applications that require flexible, fast start dispatch that are called upon for a short periods of time in high demand or in a continuous, base load applications where high reliability and efficiency are critical.

BACK-UP POWERPLANTS

used only when utility / grid fails in mission-critical facilities where safety or commercial losses due to utility failure / local legislation requires standby installation (e.g. remote townships, data centres).

UNCONVENTIONAL GAS POWER PLANTS, typically

behind the meter (BTM) applications, utilizing client's gas provided from unconventional sources such as coal seam gas, biogas from anaerobic digestion and associated petroleum gas.

ENERGY STORAGE including short (<2hrs), medium (4-6hrs) and long (8hrs+) duration energy storage projects that integrate Lithium battery technology for grid stabilisation, short term renewable intermittency, peak shaving and time shifting and other longer duration energy storage technologies such as concentrated solar power in heat transfer fluids for energy shift to peak periods.

GRID FIRMING PROJECTS –

as renewable penetration increases and less inertia is available from large synchronous energy sources grid operators are increasing looking for support services from gas turbines, BESS and Synchronous Condensers to provide grid services and ancillary support to stablise the grid. Enscope has experience with Gas Turbines, BESS and Synchronous Condenser technology which can provide critical grid services including frequency regulation, voltage support, spinning reserve and help maintain power quality and reliability during sudden changes in supply or demand.

RENEWABLE ENERGY AND HYBRID SOLUTIONS

Enscope is a pioneer in the development of hybrid renewable energy projects in Australia, having completed our first hybrid project – the Kennedy Energy Park - in 2019.

Enscope is a renewable energy facilitator. We are committed to helping our clients achieve their sustainability goals by investigating opportunities for them to replace fossil fuel-generated electricity with Renewable Energy and Hybrid power station solutions which will reduce greenhouse gas emissions and provide a lower Levelised Cost of Electricity.

Enscope has extensive experience in advising clients on decarbonisation projects, across a suite of energy technologies and services



Enscope can assist in a wide range of Renewable Energy applications, including:

GAS COMPRESSION ELECTRIFICATION

Transitioning existing compression units from fossil fuel energy sources to electrification with renewable energy sources.

FUTURE FUELS / DIESEL DISPLACEMENT PROJECTS

Designing power plants to operate on alternative fuels, helping to reduce our client's reliance on liquid / fossil fuel (typically diesel) and lower operational emissions. Solutions can include gas, LNG, biodiesel, renewable diesel / HVO and ammonia.



HYBRID POWER STATIONS

Utilising renewables such as wind or solar combined with battery storage and enabling technologies to minimise or replace traditional energy sources such as diesel or gas.

UNCONVENTIONAL GAS

Enscope's extensive experience in engineering and project delivery of gas processing and gas storage assets enables Enscope to offer power generation options working with different types of gas fuels, including Coal Seam Gas, Biogas and Associated Petroleum Gas.

CARBON CAPTURE STORAGE (CCS)

Enscope has developed specific CO2 processing capability, including process modelling, flow assurance modelling and risk & release modelling. These developments coupled with Enscope's extensive experience in engineering and project delivery of gas processing and gas storage assets (comprised of similar technologies) enables Enscope to offer a complete solution to our clients' CCS objectives.

HYDROGEN BLENDING

Enscope are at the forefront of hydrogen development projects in Australia. The Enscope team has taken an active role within the local hydrogen industry via our membership and participation within Australian Hydrogen Council, APGA and Future Fuels CRC. Enscope's pipeline engineers are contributing towards the development of Australian's Pipeline Standard AS2885 relating to hydrogen transportation via the AS2885 committee.

CASE STUDY -Kennedy Energy Park

As a real-world example of Enscope's experience delivering projects using renewable energy, in 2018 Enscope helped deliver the Kennedy Energy Park (KEP) project, a 50 MW hybrid renewable power station connected to the distribution network in northern Queensland.

A first-of-its-kind project, KEP includes a 16.5 MWac solar PV system, 43.2 MW wind turbine generation and a 2 MW / 4 MWh BESS which provides renewable power to the Ergon Energy network via a single 50 MW grid connection. The project scope also included the delivery of two new substations which were transferred to the DNSP upon completion.

The KEP project was executed via an EPC contract engagement with Enscope's parent company Quanta Services Australia forming a joint venture with Vestas Wind Technology (wind turbine OEM) to deliver the EPC contract scope. QSA's subsidiary companies - Enscope, CPP and Nacap - all had a significant involvement in the delivery of this Project.

Enscope's involvement in the KEP included:

- Lead the EPC entity and Project Director position, as well as the co-ordination of the Quanta Services Australia works
- Overall site management, coordinating the various Quanta operating units, Vestas and various subcontractors
- All site earthworks and civils, utilising the services of local civil subcontractors
- Responsible for solar PV design, construction supervision and commissioning
- Fulfill the overall Project Management role for the EPC Contractor Preparation of PFD's, Process Modelling (Hysys) and H&MB.



HOW ENSCOPE IS WORKING IN SUPPORT OF ENERGY INFRASTRUCTURE

As the energy transition gains pace, our singular focus on having the most skilled and highly trained workforce in the industries we serve puts us at the intersection of creating both business and societal value.

By providing critical infrastructure for our customers, we are playing a key role in helping to accelerate this transition. Hydrogen is one fuel, but we are also involved in many other services lines for a decarbonised future.

In Australia, Enscope and our Quanta Services sister companies deliver...

RENEWABLE GASES

Design and construct of biofuel facilities and renewable natural gas, hydrogen or construction of fuel tanks to provide energy security.

SUBSTATIONS & HV LINES

Design and construct of transmission substations and lines up to 500kV. On the transmission network design and construct panels of all east coast transmission utilities. On all east coast utility panels delivering energy connecting infrastructre.

GAS FIRED POWER GENERATION

EPC or D&C of gas fired power generation facilities for baseload applications or peaking and firming to support wide spread adoption of renewable energy.

> Design and construct of grid scale battery energy storage systems (BESS). We are the contractor that has built more BESS projects in Australia than any other.



RENEWABLE **ENERGY**

Grid connection of all renewable generation (not just wind) and construction of windfarm electrical and civil balance of plant.

BESS

THE SINGLE POINT SOLUTION QUANTA SERVICES

Through the partnering of Quanta Services' companies Enscope, Consolidated Power Projects (CPP) and Nacap we can offer a unique Australian based single delivery solution for our customer's hydrogen projects.



CONSOLIDATED POWER PROJECTS (CPP) is a high voltage electrical engineering and construction company providing full EPC services including design, engineering, construction, procurement, commissioning, and maintenance for electrical infrastructure. This includes substations and overhead lines, connecting renewable energy sources or utility infrastructure to the grid.

CPP's unrivalled experience in electrical balance of plant for renewable projects and preferred delivery partner on all the major Transmission Network Service Providers has green hydrogen connection and delivery already part of their everyday business. conpower.com.au

nacap

NACAP is a specialist engineering, procurement, and construction contractor with over 30 years' experience delivering complex projects. These include power, pipelines, facilities and civil infrastructure in the oil & gas, power, renewable energy, mining, defence and water industries.

Nacap specialises in construction-led early contractor involvement and is building hydrogen ready pipelines today for tomorrow's use. Nacap also has existing experience in hydrogen pressure vessels and storage. As storage becomes the next issue in the hydrogen story, Nacap supports their clients to imbed innovation and optimise solutions. **nacap.com.au**



INTELLECT SYSTEMS specialise in providing end-to-end operational technology solutions. They focus on delivering electrical, control systems, communications, and industrial IT projects. Their services include: Control Systems, Electrical Engineering, Industrial IT, Switchroom and Switchboard Manufacturing, Functional Safety and Process Optimisation in Industrial Operations. They cater to industries such as resources, energy, infrastructure, and manufacturing, aiming to improve and streamline systems and processes through smart and practical use of technology. intellectsystems.com.au







CAPABILITY STATEMENT ENERGY INFRASTRUCTURE





DELIVERY FOR A LOW CARBON ECONOMY



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