Steven Haddon BACHELOR OF ENGINEERING (MECHANICAL), CURTIN UNIVERSITY

Technical Director - Power

Location
Perth, WA, Australia

Experience
20 years

Qualifications/Accreditations
– Bachelor of Engineering (Mechanical), 1997
– Certificate of Renewable Energy Systems
– Trade Certificate (Fitting and Turning)

Key technical skills
– Power generation technology
– Power station operation and maintenance practices

Relevant experience summary

Steven is a Mechanical Engineer with over 20 years' experience in power industry projects including:
- Feasibility Studies;
- FEED studies;
- Detailed design and Project Management;
- Construction and commissioning; and
- Consulting including Technical Due Diligence.

This experience has been gained over a range of projects and includes technologies such as gas turbines and gas and diesel reciprocating engines in applications including grid connected power systems, remote power systems and cogeneration. Steven also has an excellent understanding of operations and maintenance practices utilised throughout the power industry. With a trade background and tertiary training Steven brings a combination of practical and technical knowledge.
Steven has been involved in the several studies utilising renewable energy including solar PV and Hydrogen.

Project experience

Power Option Studies

Role: Principal Mechanical Engineer
Client: Various
Location: Perth, WA, Australia
Date(s): 2017 – Present

- 25 MW Solar PV
- Denham Hydrogen demonstration plant
- BHP Billiton Iron Ore long term power Identification study. Generation Study Lead for Yarnima Power Station expansion Selection Phase Study.
- BHP Transmission line replacement project
- TransAlta power station re-powering options study;
- Public Utilities Office new entrant power station pricing.
- Harmony Mines Hidden Valley power station upgrade options study;
- BHP Billiton Newman – Area C transmission line definition phase study;

PP13/14

Role: Engineering Manager
Location: Riyadh, Saudi Arabia
Date(s): 2014 - 2017

PP13/14 consists of two combined cycle power plants each with a capacity of 1800 MW being delivered to Saudi Electricity Company on an EPCM basis. Engineering was completed in multiple offices around the world. Steven's role as Engineering Manager included managing coordination and planning between offices, management of the engineering team in Riyadh and liaison with client team for the partial integration of the new plant with adjacent plants.

Role: Power Generation Sector Manager
Location: Perth, WA, Australia
Date(s): 2011 - 2013

Various Projects

Responsible for all WorleyParsons power generation projects in Western Australia. Steven leads a team of specialist power engineers working on projects ranging from consulting to detailed design and construction management.

Projects include:

- Yarnima Power Station - Steven was the Project Manager for the Yarnima power station project (192 MW CCGT) during the project start up and the commencement of the detailed design.
- Chichester power stations due diligence – Study lead and technical input for a Purchaser's technical due diligence for two reciprocating engine power stations with capacity of approximately 60 MW. There was particular focus on the historic reliability of the power stations and the ability of the O&M Contractor to manage the power station.
- SouthWest Creek power station options studies and definition phase study – Project director for a greenfield power station development utilising combined cycle gas turbines and gas reciprocating engines. The power station capacity considered was up to 250 MW with a staged development to determine the least lifecycle cost power solution. The study also considered site options and grid connection requirements.
- Jinidi Mine power supply options studies – Project Director and power generation lead for the study on the power supply options available for a new mine development for BHP Billiton. Options included a new gas pipeline and power station and expansion of an existing power station with a transmission line solution. The power transmission solution also incorporated evaluation of future expansion options for the supply of power to future mine developments.
- Solomon power station technical due diligence – Sellers technical due diligence for the sale of a new power station consisting of LM6000 and Solar gas turbines.
- Argyle Diamond Mine power station expansion – Project Director for the expansion of the Argyle diamond mine power station to supply load growth due to changes in mining operations.
- Kanudi Power Station due diligence – technical due diligence of the Kanudi Power station in Papua New Guinea. Kanudi Power station consists of two, 12 MW reciprocating engine driven generators operating on heavy fuel oil.
- GasAtacama power station technical due diligence – GasAtacama power station is located in Mejillones in northern Chile and consists of a 340 MW combined cycle power station based on four GE Frame 9E gas turbines.

Role: Principal Mechanical Engineer
Location: Perth, WA, Australia
Date(s): 2007 - 2011

Steven was responsible for the management and development of power options studies and project implementation for BHP Billiton Iron Ore's expansions in the Pilbara region of Western Australia. The study work involved evaluation of various transmission systems and various power station configurations to meet power demands up to 250 MW.

- Selection and Definition phase studies for Rapid Growth Project 5 which included upgrades at three substations and a standby power station utilised for additional redundancy and grid voltage support;
- Selection Phase studies for BHP Billiton's inland and Port operations;
- Selection phase studies for Rapid Growth Project 6 which included a power station and transmission network expansion to Jimblebar;
- Selection and Definition phase studies for the conversion of an existing open cycle gas turbine power station to combined cycle;
- Selection and Definition phase studies for a new combined cycle power station.

Projects that were developed to execution phase include:

- EPCM for Yarnima power station, a 192 MW combined cycle power station;
- Jimblebar transmission line and substations detailed design and construction support – This project involved a new 132 kV transmission line, a new mine substation, upgrades to three existing substations and upgrades to the network SCADA system;
- RGP5 substation upgrades – detailed design for the expansion of two substations with new transformers and one with capacitor banks; and
- Area C power station – Owner's Engineer for a 20 MW diesel fired power station.

Role: Senior Project Engineer
Client: Minara Resources
Location: Perth, WA, Australia
Date(s): 2007

Acid Plant Upgrade project at Murrin Murrin.

Role: Senior Mechanical Engineer
Location: Perth, WA, Australia
Date(s): 2003 - 2007

Senior Mechanical Engineer in the Perth office of Burns and Roe Worley. Steven was involved in a range of projects including:

- The balance of plant mechanical design and construction support for the Esperance Power Station including the gas and distillate fuel systems;
- commissioning and performance testing in the Esperance Power Station;
- greenhouse intensity study for Muja and Collie Power Stations;
- compressor upgrade option study for Worsley Alumina;
- preliminary design and cost estimates for Exmouth Power Station; and
- Lead Mechanical Engineer for the design, construction and commissioning of Exmouth Power Station.

Role: Energy Division Manager
Location: Perth, WA, Australia
Date(s): 2001 - 2003

Responsible for marketing, financial management and personnel management. Steven carried out a lead role in the execution and management of projects. Studies carried out include:

- Site selection study for a 400 MW power station; and
- The scope of this study was to identify and rank the optimum sites for coal fired and gas fired power stations in Western Australia. As project leader, Steven was responsible for the delivery of the study and supervision of staff carrying out the parts of the study.

Role: Senior Mechanical Engineer
Location: Perth, WA, Australia
Date(s): 1999 - 2001

- Project management – managing complete projects including staffing and budget;
- Conceptual design of power projects – concepts for power and cogeneration applications particularly during feasibility studies; and
- Engineering reviews – assisted teams to carry out due diligence exercises for prospective developers and lenders for a number of power station assets and gas pipelines.

Role: Maintenance Manager
Location: Perth, WA, Australia
Date(s): 1997 - 1999

Responsible for the management of maintenance requirements for ABB's transformer manufacturing plant in Perth. Equipment in the plant included overhead cranes, winding machines, drying ovens and metal fabrication equipment. Duties included manufacturing process and materials handling improvements and supervision of maintenance staff. Maintenance shutdowns required the scheduling of maintenance whilst still allowing partial production. The shutdowns included the supervision of 15 maintenance staff plus specialist sub-contractors.

Role: Design Engineer
Location: Perth, WA, Australia
Date(s): 1989 - 1997

- Site supervision of the erection of acoustically treated buildings and the installation of diesel driven generator sets at the Ras Lafan LNG facility in Qatar.
- Design, manufacture and supply mobile, acoustically treated generator sets for the Water and Electricity Department in Abu Dhabi, United Arab Emirates.
- Supply and install fuel, cooling water and exhaust systems for three 1,500 kVA Gensets for the Defence Department satellite communication station in Geraldton. Steven was responsible for the delivery of the project including the design and management of the project through manufacture and installation of the equipment. This project required the scheduling of construction to meet the project requirements, and the supervision of up to ten installation staff including contractors.
- Design, manufacture and installation of acoustic modules for 3 MW prime power and emergency generator sets for various clients in Western Australia. Design included structural steel, ventilation system, exhaust systems, service platforms and acoustic treatment

Career history

2017 – present	GHD, Principal Mechanical Engineer
2014 – 2017	WorleyParsons, Engineering Manager
2011 – 2013	WorleyParsons, Power Generation Sector Manager
2007 – 2011	WorleyParsons, Principal Mechanical Engineer
2007	SNC-Lavalin, Senior Project Engineer
2003 – 2007	WorleyParsons, Senior Mechanical Engineer
2001 – 2003	Connell Wagner Energy, Energy Division Manager
1999 – 2001	Connell Wagner Energy, Senior Mechanical Engineer
1997 – 1999	ABB Transmission and Distribution, Maintenance Manager
1989 – 1997	Barclay Engineering, Design Engineer