



Rajesh Nighot

B.E, M.S, FIEAUST, CPENG, NER, RPEQ,
SMIEEE, APEC, INTPE (AUS)

Technical Director – Power System Studies



Location

Brisbane, QLD, Australia

Experience

21 years

Qualifications/Accreditations

- B.E Power & Electronics (First Class), National Institute of Technology, Nagpur, India, 1996
- M.S in Power Systems (Distinction), University of Saskatchewan, Saskatoon, Canada, 2003

Memberships

- Member of Engineers Australia, Senior Member IEEE-USA. Senior Member IEEE PES and IEEE Standards Association
- Working Group Chair-IEEE SA Guide P2882.

Relevant experience summary

Rajesh has more than 21 years of international experience in specialised power system studies. He has completed significant power system projects for clients in Australia, India, Philippines, Kingdom of Saudi Arabia, and New Zealand. He has performed studies for EHV grid planning, frequency-based load shedding, EHV equipment switching, generation connection, STATCOM sizing, and inter-area power transfer studies. He has lead studies for more than six power plants from 700 MW to 4800 MW. He is currently providing consulting services to wind farms, solar farms, and battery energy storage facilities in Australia for grid connection compliance assessment as per AEMO / NER requirements. He has experience in using software such as PSS/E, PSCAD, ETAP, PSS-Sincal, and DigSilent Power Factory. He has published more than 16 conference and journal papers in Kuwait, Saudi Arabia, New Zealand, UK, and the USA.

Project Experience

Adelaide Desalination Plant Stage-2 GPS Studies

Role: Technical Lead

Client: SAPN

Location: Adelaide, SA, Australia

Date(s): DEC 2019 - JUNE 2021

GHD was engaged by SAPN for GPS assessment studies as per AEMO and NER requirements. The plant consists of Solar Farm, Battery Energy Storage, and Hydro Generators.

Christies Beach Water Treatment Plant Stage-2 GPS Studies

Role: Technical Lead

Client: SAPN

Location: Adelaide, SA, Australia

Date(s): DEC 2019 - DEC 2021

GHD was engaged by SAPN for GPS assessment studies as per AEMO and NER requirements. The plant consists of Solar Farm, Battery Energy Storage, Biogas, and Diesel Generators.

Due Diligence Review for Lincoln Gap Wind Farm Stage-2

Role: Technical Lead

Client: Nexif

Location: Adelaide, SA, Australia

Date(s): APR 2020 - JUNE 2020

GHD was engaged by Nexif for due diligence of GPS assessment package as per AEMO and NER requirements. The plant consists of Senvion and Vestas Wind Turbine Generators.

Due Diligence Review for Darlington Point Synchronous Condenser

Role: Technical Lead

Client: Transgrid

Location: Darlington Point, NSW, Australia

Date(s): MAR 2020- MAY 2020

GHD was engaged by Transgrid for due diligence of GPS assessment package as per AEMO and NER requirements. The syncon is connected at 220 kV and is required for Darlington Solar Farm.

Technical Support to 204 MW Bulgana Green Hub Wind Farm

Role: Technical Lead

Client: Neoen

Location: Melbourne, VIC, Australia

Date(s): NOV 2019 - JAN 2020

GHD was engaged by Neoen for reviewing the compliance of wind farm and battery energy storage with AEMO and NER requirements. The plant consists of Siemens Gamesa Wind Turbine Generators and Tesla BESS.

Due Diligence Review for Adelaide Desalination Plant Stage-1

Role: Technical Lead

Client: SAPN

Location: Adelaide, SA, Australia

GHD was engaged by SAPN for due diligence of GPS assessment package as per AEMO and NER requirements. The plant consists of Solar Farm, Battery Energy Storage, and Hydro Generators.

Due Diligence Review for Bolivar Wastewater Treatment Plant

Role: Technical Lead

Client: SAPN

Location: Adelaide, SA, Australia

GHD was engaged by SAPN for due diligence of GPS assessment package as per AEMO and NER requirements. The plant consists of Solar Farm, Battery Energy Storage, and Biogas Generators.

Power System Studies for SWCC-Phase-1 & Phase-2 Shoaiba 900 MW Power Plant Saudi Arabia

Role: Technical Lead

Location: Saudi Arabia

Responsible for coordinating ETAP and PSCAD studies for Pumping Stations and Captive Power Generation. Completed studies such as load flow, short circuit, motor starting, TRV, Insulation Coordination, Relay Settings Coordination and Transient Stability are covered for 380/110/13.8/6.6 kV voltage levels.

White Hill Wind Farm 106 MW Expansion Studies New Zealand

Role: Technical Lead

Client: Meridian Energy Ltd

Location: New Zealand

Date(s): JUN 2008

Responsible for power system dynamic studies for the integration of DVAR and Vestas Wind Turbine Generators into 66 kV sub-transmission network.

Transient Stability Studies for 4800 MW Jazan Power Plant

Role: Technical Lead

Client: Saudi Aramco

Location: Saudi Arabia

Responsible for dynamic stability studies for the power plant for grid connected and islanded modes. The plant evacuates power to 380 kV national grid through six different point of connections.

Power system studies for integration of EHV Substations

Role: Technical Lead

Client: Royal Commission of Jubail and Yanbu Saudi Arabia

Location: Saudi Arabia

The task was to perform load flow, short circuit and frequency-based load shedding studies for new 115 kV substation load connected to 380 kV Marafiqq transmission network.

Integration of 700 MW Combined Cycle Power Plant into 220 kV captive grid

Role: Technical Lead/Package Manager

Location: Jamnagar, Gujarat, India

The power plant is for the world's largest refinery complex located in Jamnagar Gujarat. Responsible for feasibility studies, power system studies for integration with existing 1200 MW Combined Cycle Power Plant (CCPP). Lead studies for the decommissioning of 220/132 kV inter-connecting transformers. Also responsible for closing engineering problems related to 220kV GIS, 186 km of 220kV underground cable network, SCADA, EMS, 33kV GIS, MV network, statutory approvals, metering, and LV network. Also responsible for EMTP Switching Studies of EHV cable network.

Transpower Regional Planning Studies 132 kV New Zealand

Role: Project Manager/Technical Lead

Client: Transpower Wellington

Location: New Zealand

Responsible for coordinating regional power system studies for Transpower Wellington.

Seconded to Transpower New Zealand for 400/220 kV Grid Planning Studies

Role: Power System Analyst

Location: New Zealand

Responsible for feasibility studies for 400 kV transmission lines in the North Island and adequacy of interconnectors. Prepared 400 kV/220 kV Core Grid upgrade proposals. Performed annual grid planning studies for reviewing HVDC interconnection between South and North Islands and Critical Regional Planning Review. Prepared Annual Planning Reports (thermal & reactive planning), constraint analysis for wind farm dispatch (Meridian Energy). Completed connection studies for dispatch of hydro plants (Mighty River power) and supply security studies for North

Island and South Island. Voltage stability studies with QV and PV plots.

Quantification of network benefits due to the connection of Distributed Generation into New Zealand utilities.

Role: Technical Lead/Project Manager

Client: Energy Efficiency and Conservation Authority New Zealand

Location: New Zealand

Responsible for a high-level cost/benefit analysis for the Energy Efficiency and Conservation Authority New Zealand that deals with identifying the economic benefits of DG for local New Zealand networks.

Transmission Plan Development for 220kV and 132kV grid in Thailand (EGAT) and Laos (EDL)

Role: Power System Analyst

Location: Thailand, Laos

Performed power system studies for adequacy evaluation of interconnecting transformers and inter-area power transfer for 400/220/132 kV network.

Career history

2019 – Present	GHD, Team Leader & Technical Director-Power System Studies
2017 - 2019	DAR Engineering, KSA, Section Head-Power Systems
2011 - 2017	Reliance Corporate IT Park, India-HV System and Power Plants, Lead Design Engineer
2006 - 2011	AECOM & VARIOUS, New Zealand, Senior Consultant-Power System
2005 - 2006	L&T-Sargent & Lundy, India, Senior Executive-Energy and Power
