

9. Power Generation



Overview

The power generation sector is an essential service industry that uses technologies ranging from the mature steam turbine to pioneering marine current turbines. Since privatisation in 1990, the main objective of the sector has been profitability for shareholders, although issues such as health, safety, sustainability and fuel shortage have also become increasingly important on the corporate agenda. The core components are generation, transmission and distribution networks, metering and sales.

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Sector information

Power generation is one of the major sectors in the Australian economy. Electricity demand across the NEM in 2013 was almost 8 terawatt hours (TWh), or 4.3 per cent lower than in the peak year of 2009. Prior to 2008 it was assumed that economic growth (GDP) and electricity demand would move together, and that therefore electricity demand in Australia would grow by at least 2 per cent in a year of GDP growth. The renewable energy sector directly employed 2,810 full time equivalent personnel in 2013/14, including 1,430 in wind industry and 1,060 in solar in 2013/14. Although growth in employment has stalled recently, there is now strong future growth potential.

Power Generation subsectors:

1. Diesel/Petrol generation*
2. Gas generation*
3. Electricity generation
4. Renewable energy systems*
5. Generator maintenance and installation*
6. Design and engineering*
7. Generator calibration

*Indicates that potential employment opportunities exist in the sub sector for automotive engineers transitioning.

Statistics, Trending and History

The Clean Energy Council estimates that the Victorian Energy Efficiency Target (VEET) scheme currently results in 2,000 jobs, including 1,400 installers of appliances and equipment. There is also significant potential across the supply chain to create additional jobs to support and maintain new energy technologies. This trend indicates that, there are numerous opportunities for growth of the new energy technology sector across the State of Victoria. These include opportunities for growth in renewable energy resources, energy efficiency and demand management activities in metropolitan Melbourne and regional Victoria.

High level skill mapping

Power Generation	Diesel Generation	Gas Generation	Electricity Generation	Renewable Energy Systems	Generator Maintenance and Installation	Design and Engineering	Generator Calibration
Mechanical Engineer	X	X	X	X	X	X	X
Electrical Engineer	X	X	X	X	X	X	X
Software Engineer	X	X	X	X	X	X	X
Control Systems Engineer	X	X	X	X	X	X	X
Data Analysis						X	X
Problem Solving	X	X	X	X	X	X	X
Research & Development				X	X	X	X
Design and Development	X	X	X	X	X	X	X
CAD and 3D Modelling	X	X	X	X		X	X
CAE (Simulation and Analysis)				X		X	X
Product Development				X		X	X
Production Engineering	X	X	X	X	X	X	
Testing	X	X	X	X	X	X	X
Validation Engineering	X	X	X	X	X	X	X
Vendor Management				X		X	
Quality Engineering	X	X	X	X	X	X	X
Project Management	X	X	X	X	X	X	
Technical Sales Engineering	X	X	X	X		X	
Maintenance	X	X	X	X	X	X	X
Business Development			X				
Business Management							
Strategic Planning	X	X	X	X	X	X	X
Leading Teams	X	X	X	X	X	X	X

Potential Opportunities and Synergy

Subsector	Potential Opportunity Areas	Job Synergy
Diesel/Petrol generation	Production Engineer, Production Manager, CNC machine programmer and generator operator	Subsector finding it difficult to fill positions of Production Engineer, Production Manager Also demand for generator operator
Gas generation	Production Engineer, Production Manager, CAD engineers, testing and validation	Subsector finding it difficult to fill positions of Production Engineer, Production Manager
Electricity generation	Production Engineer, Production Manager, Operator and quality engineering	Subsector finding it difficult to fill positions of Production Engineer, Production Manager
Generator maintenance and installation	Maintenance Engineer, Production Manager, CNC programmer, design and development engineer, quality control	Subsector finding it difficult to fill positions of Production Engineer, Production Manager High demand for maintenance engineer
Design and engineering	Production Engineer, Production Manager, CAD, CAE, R&D, design and validation engineering	Subsector finding it difficult to fill positions of Production Engineer, Production Manager also high demand for CAD, design and development, CAE, and validation engineers
Generator calibration	Production Engineer, Production Manager, R&D, testing and validation engineering	Subsector finding it difficult to fill positions of Production Engineer and Production Manager. Also demand for design and development, R&D, and validation engineers