



*Clean Energy Council*



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## Australia's renewable energy industry – are we prepared?

[www.cleanenergycouncil.org.au](http://www.cleanenergycouncil.org.au)

Australia needs to implement new workforce and training strategies if the country is to achieve its renewable energy targets. The clean energy industry is projected to expand significantly over the next decade but this is dependent on the availability of a skilled workforce.

In March this year, the Clean Energy Council, with funding from the Department of the Environment, Water, Heritage and the Arts (DEWHA), initiated a project to develop the *Australian Renewable Energy Training and Workforce Strategy for 2020: Strategies for six technologies – what we need to do today* (Report 3).

The report draws attention to the workforce and training gaps within each state of Australia and recommends possible solutions to address the renewable energy industry's challenges.

In developing this strategy report, two pieces of research were commissioned to measure current employment figures, availability of training, and future requirements needed to build a skilled workforce. The results of this research have been documented in two supporting reports:

- *Renewable Energy Training in Australia 2009* (Report 1)
- *Renewable Energy Jobs in 2009 and Forecasts for 2020* (Report 2)



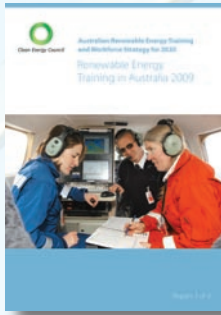
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Australian Renewable Energy Training  
and Workforce Strategy for 2020

**REPORTS**

Full reports for the Australian Renewable Energy Training and Workforce Strategy for 2020 are provided here on the attached CD. For additional information or to download the full reports, please visit [www.cleanenergycouncil.org.au](http://www.cleanenergycouncil.org.au) or contact us on 03 9929 4100.

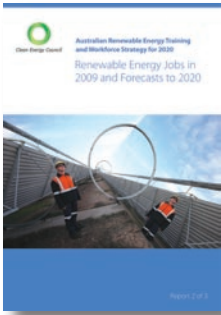


## Report 1: Renewable Energy Training in Australia 2009

This report provides an assessment of the existing training courses accessible to the industry. This involved an in-depth analysis of all currently available courses at universities, TAFEs, registered training organisations and within industry.

**The results revealed the following:**

- Not enough undergraduate courses or local TAFE colleges cover renewable energy technologies
- There is no management training for technical staff
- A lack of qualified trainers



## Report 2: Renewable Energy Jobs in 2009 and Forecasts to 2020

This report documents the results of the industry survey conducted to quantify employment numbers across the renewable energy industry. Based on cautious estimates, the results show that there are currently more than 10,300 employees in the renewable energy industry.

Conservative projections show that these employment numbers need to more than double over the next decade, with 2020 workforce requirements being estimated at more than 24,000 jobs, **as shown in the graph on the back cover of this document.**



## Report 3: Strategies for Six Technologies – What we need to do today

Government and industry need to act now if Australia is to meet its 2020 renewable energy target and reduce its greenhouse gas emissions. Some of the key strategies include:

- Prepare courses geared toward professionals and tradespeople in order to bridge knowledge gaps and quickly improve skills in the renewable energy sector
- Provide flexibility in how training is delivered to support distance learning, and access to training for those in regional areas
- Improve communications and information about where training is available
- Develop stronger relationships and cooperation between universities, TAFEs and industry to support the sharing of resources, the up-skilling of teaching staff and recruitment of new trainers

### Bioenergy

Results show that over 70% of the bioenergy companies surveyed reported skills gaps in their industry.

Of these:

- Over 85% indicated that there was currently a lack of suitably skilled engineers in the industry
- Over 50% indicated that staff were currently unable to obtain suitable training from standard training providers e.g. universities and TAFEs
- 70% of bioenergy companies have difficulty finding suitably trained staff to carry out renewable energy-related work

Respondents also made the following comments and identified the following gaps in bioenergy training:

- Biomass processing for energy is a new field and is not served by current tertiary training
- There is little investment from the sugar industry into renewables, so skills and training opportunities have reduced
- Power engineers are in short supply

Employment in this sector is expected to increase by 60% in the next 10 years. If the strategies in the Australian Bioenergy Roadmap are implemented, the uptake of bioenergy will be significantly increased, creating further workforce demand.

### Solar Photovoltaic (PV) Energy

For both on and off-grid solar PV sectors, the survey indicated that there was a lack of suitably trained, accredited and experienced designers and installers, and that staff with suitable qualifications were not readily available.

The survey of installers identified some specific gaps in solar PV training:

- Renewable energy teaching staff were sometimes unqualified
- Insufficient training in solar PV and renewable energy standards throughout electrical qualifications
- Not enough dedicated undergraduate university courses in solar PV
- Lack of flexibility in training models (e.g. online, distance learning)
- Lack of safety training and awareness about working on roofs/at heights

There has been significant growth in the number of people entering the grid-connect sector in recent years. Employment is expected to be 1.2 to 4 times higher in the solar PV industry by 2020. Many of these employment demands will need to be met in the next 12–18 months to complete installations committed under the Solar Homes and Communities Plan, National Solar in Schools Program and Solar Cities.

### Solar Thermal Electric Systems

Future workforce projections indicated that there could be over 300 people working in the solar thermal electric industry by 2020 – taking into account the recent announcement of the Federal Government's \$1.6 billion Solar Flagship program.

Employment levels are likely to ramp up in line with increasing installation rates, with around 280 installation jobs and 30 operation and maintenance jobs required by 2020 in order to achieve the 1000MW outlined under the Solar Flagships Program. A significant proportion of the new solar thermal electric staff will require technical training at either TAFE or university level, with a potential demand for up to 200 new engineers and 200 new technicians.

There could also be demand for a significant number of additional solar thermal material scientists, consultants and manufacturing personnel. There is also likely to be a significant number of other, less technical jobs created in administration and support.

As the clean energy industry grows in Asia there will be an increasing demand for solar thermal training from international students.



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The Clean Energy Council invites you to read more detailed findings in the research reports: *Renewable Energy Training in Australia 2009 and Renewable Energy Jobs in 2009 and Forecasts for 2020*, and consider the strategy recommendations in the *Australian Renewable Energy Training and Workforce Strategy for 2020: Strategies for six technologies*.

**For these full reports or additional information, please visit [www.cleanenergycouncil.org.au](http://www.cleanenergycouncil.org.au) or contact us on 03 9929 4100.**

## Solar Water Heating

Research results highlighted that there was a lack of staff with suitable qualifications within the solar water heating industry.

The survey of companies that manufacture, sell and/or install solar water heating systems identified some specific gaps in solar water heating training:

- A general lack of training courses for plumbers wanting to install solar water heating systems
- A lack of safety training and awareness about working on roofs/at heights
- Renewable energy teaching staff were sometimes unqualified
- A lack of flexibility in training models (e.g. online, distance learning)

The current skills gaps that were identified:

- Poor knowledge of where to site or position solar water heating collectors to ensure best performance of the system
- Inadequate understanding of the plumbing processes for solar water heating systems – particularly for heat pump systems in relation to the finishing aspects required to be done by the plumber
- Heat pump installations generally require an understanding of refrigeration processes. This is poorly understood by plumbers who install, commission and service heat pump systems

## Wind Energy

Of the wind energy companies surveyed, 40% reported skills gaps in their industry. Of these, 75% indicated that there was currently a lack of suitably skilled technicians/installers.

Survey results also indicated that 60% of wind energy companies have difficulty finding suitably trained staff to carry out renewable energy-related work.

The research shows that there may be a fivefold increase in demand of engineers over current levels. A similar case can also be seen for technicians and administration staff. While the administration staff are unlikely to require specific wind energy training, it is clear that there will need to be significant wind engineering and technician training options available. Also, there is a very strong potential future demand for wind energy consultants and miscellaneous staff.

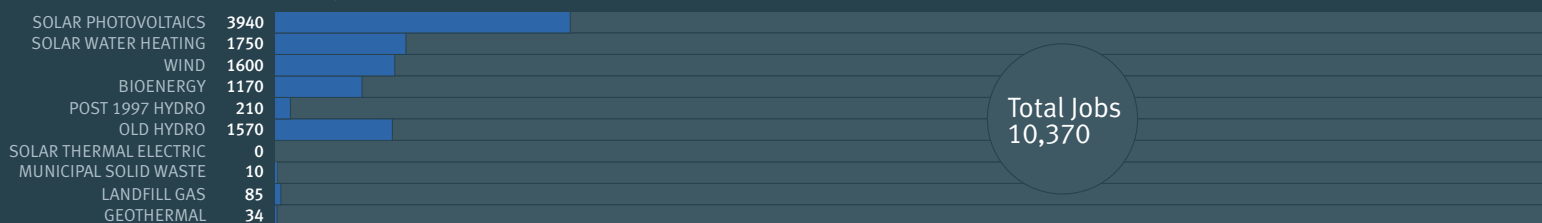
In order to meet this demand, bridging or professional development courses are required to assist engineers and technicians entering the wind industry. There also need to be more wind energy-specific subjects and training in TAFE, undergraduate and postgraduate courses.

*Government and industry need to act now if Australia is to meet its 2020 renewable energy target and reduce its greenhouse gas emissions.*

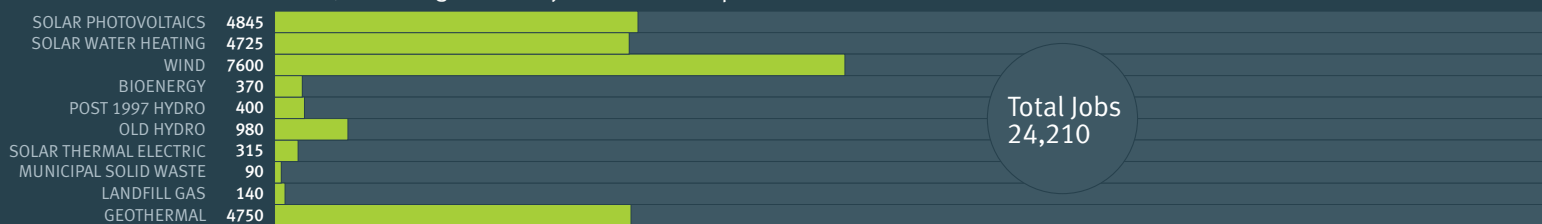
## Renewable energy industry employment

Detailed analysis of the research conducted revealed a common problem across all states of Australia – significant skills gaps in each area of technology could be a barrier to the expansion of the renewable energy sector.

### 2008 Jobs



### 2020 Jobs Using MMA Projections & Multipliers



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For more information please contact the Clean Energy Council today on +61 3 9929 4100 or [info@cleanenergycouncil.org.au](mailto:info@cleanenergycouncil.org.au)

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