

CEFC helps accelerate the University of Melbourne's clean energy goal

\$9.1 million for energy efficiency and innovative renewable technologies

The Clean Energy Finance Corporation (CEFC) has committed up to \$9.1 million in finance to the University of Melbourne to accelerate initiatives that will help it improve its sustainability in its push towards carbon neutral operations.

The University of Melbourne is undertaking projects involving a range of energy efficient technologies and innovative renewable technologies which are expected to reduce grid electricity use by about eight per cent, while demonstrating the potential to create more sustainable living and working environments.

The University's annual energy use is roughly the equivalent of a town the size of Warrnambool, and it expects the CEFC-financed projects to deliver savings of over 9,000 tonnes of carbon emissions per year upon completion.

Australian universities, which employ more than 100,000 staff and have more than 1.3 million students enrolled nationwide, are significant contributors to the Australian economy, with international education being Australia's largest service export.

Australia's university sector faces ongoing challenges of budget restraint, intensifying global competition and the need to use cutting edge technology to meet increasing student expectations. Energy efficient and renewable energy technologies offer university campuses, with their varied facilities, a way to demonstrate their commitment to sustainability while reducing energy costs and increasing productivity.



PROJECT IMPACT

The University of Melbourne is one of the leading universities across the sector working to reduce its emissions of greenhouse gases, by cutting energy use, adopting more renewable and sustainable energy sources and developing its campuses for a sustainable future. The project is being carried out in stages and involves both energy efficiency and renewable technology installations. The University is working towards a goal of being carbon neutral by 2030 and the CEFC program of works will help move the University closer to zero emissions electricity.

With research showing energy use for Australian universities is expected to grow considerably in the current decade, there is a compelling case for universities to invest in effective measures to reduce their energy use and lower costs and emissions, while providing a vitally important demonstration of the benefits of sustainability for students and the university communities.

THE UNIVERSITY OF MELBOURNE



The University of Melbourne energy usage has been relatively flat over the last 10 years despite the floor area increasing by 26 per cent over that time. Consequently, the University's energy intensity has reduced by 24 per cent between 2006 and 2015 based on usage per floor area.

The CEFC funding enables the University to increase the scale of energy efficiency and generation projects on campus to move more rapidly towards its aspiration of zero emissions electricity.

THE TECHNOLOGIES

The University of Melbourne is expecting to reduce its grid electricity use by around eight per cent through the project, which will be carried out in stages.

- The installation of voltage optimisation equipment, which is part of the project's first stage, is expected to produce the biggest energy saving, reducing consumption by more than four gigawatt hours (GWh) per annum. Voltage optimisation accurately controls and corrects incoming power voltage to increase building energy efficiency. Voltage optimisation also has the added benefit of reducing operating and maintenance costs.
- The University is also planning to upgrade outdated freezers used at its medical and science research facilities with more energy efficient models that are expected to use around half the energy, saving about 0.6GWh per annum.

- A widespread rollout of solar photovoltaics, 1,500kW across 18 roof spaces, will provide further grid energy savings by generating over 2.2GWh of energy a year. To preserve the heritage value of certain buildings the installation of the solar is being carried out so that the panels are not visible from the ground.
- The University is also planning to install three micro turbines on three buildings with the potential capacity of 0.18GWh per annum to demonstrate their potential.
- A concentrated solar thermal power system will be used for space heating and swimming pool heating with expected savings of 0.75GWh.

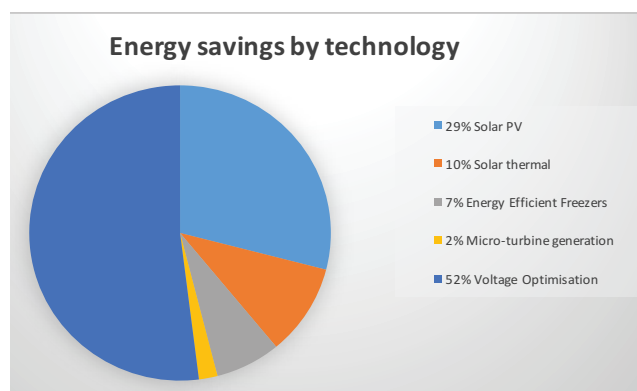


Chart shows the overall savings each technology is expected to contribute to the eight per cent grid electricity saving total.

AUSTRALIAN UNIVERSITIES: A CRITICAL PART OF OUR ECONOMY

Australia has 39 universities with the majority in the eastern states of Queensland, New South Wales and Victoria. International education is Australia's fourth highest export earner, with new figures from the Australian Bureau of Statistics showing that exports from international education services reached a record \$18.1 billion in 2014-15. According to Universities Australia there are more than 1.3 million students enrolled across universities nationwide and Australia's universities employ more than 100,000 staff. Challenges for the university sector include public budget restraint, intensifying global competition, the evolution of technology and the increasing demand and expectations of students, particularly in regard to leadership in sustainability and climate change.



UNIVERSITY ENERGY SAVINGS

An IBISWorld industry report on University and Other Higher Education in Australia forecast the sector would achieve an annual revenue growth rate of around 5.4 per cent to 2020. IBISWorld identified the development of digital technology programs as stretching university budgets and said Australian universities would need to adapt to changing times to remain globally competitive.

Universities have large building and campus footprints, which provide potential for technology and equipment upgrades that reduce energy consumption. In its Universities of the Future report, EY found that the use of assets was an area with scope for much greater efficiency for Australia's universities. The EY report said that most universities own and maintain a sizeable asset base, much of which is used only for four days per week over two 13-week semesters — not much more than 100 days per year.



Research undertaken for the Council of Australian Governments on *Baseline Energy Consumption and Greenhouse Gas Emissions*, published in 2012, examined the energy use of more than 400 buildings across 17 universities.

The research demonstrated that some 50 per cent of a typical university's energy consumption was directly related to heating, ventilation and air conditioning (HVAC), while lighting (18 per cent), equipment (15 per cent) and process energy use (e.g., in laboratories, 15 per cent), accounted for the majority of the balance.

THE FINANCE

Under its Investment Mandate, the CEFC has a focus on financing emerging and innovative renewable energy technologies and energy efficiency for cities and the built environment.



The University of Melbourne was established in 1853 and is regarded as one of Australia's leading research institutions. It is a research-intensive comprehensive institution of 47,000 students, ranked by the Times Higher Education Supplement as first in Australia and number 33 in the world.

The University's Sustainability Plan for 2016-20 will set pathways for the University's longer term sustainability objectives, including a transition to carbon neutrality by 2030. Since 2006 the University has implemented an environmental sustainability strategy for its operations that has so far reduced energy intensity (energy use by floor area) by around 24 per cent.

A key focus will be on further energy reduction and transitioning its energy supply to renewable energy sources.

Learn more about The University of Melbourne at <http://www.unimelb.edu.au/>

The CEFC is financing the University of Melbourne through a staged direct loan facility that is designed to work with the University's rollout of its sustainability upgrade plans.

The CEFC's finance has been structured over a longer term than traditionally offered by banks to enable loan repayments that are supported by savings made through the reduction of grid energy use.

The CEFC is able to replicate finance for similar projects at other Australian universities to help achieve increasing sustainability through energy efficient and renewable technologies that reduce energy costs.

The Clean Energy Finance Corporation (CEFC) invests commercially to increase the flow of funds into renewable energy, energy efficiency and low emissions technologies. The CEFC has supported projects across the Australian economy, benefitting a diverse range of businesses, large and small. The CEFC's mission is to accelerate Australia's transformation towards a more competitive economy in a carbon constrained world, by acting as a catalyst to increase investment in emissions reduction. The CEFC does this through direct investments which attract private sector finance, as well as through its strategic co-financing partners. The CEFC was created by the Australian Government and operates under the *Clean Energy Finance Corporation Act 2012*. More information is available on the CEFC website: www.cleanenergyfinancecorp.com.au

Clean Energy Finance Corporation
Suite 1702, 1 Bligh Street
Sydney, NSW 2000 Australia
ABN: 43 669 904 352

e info@cleanenergyfinancecorp.com.au
t 1300 002 332
i +61 2 8039 0800
cleanenergyfinancecorp.com.au