

# **Advocating for Net-Zero Energy Sustainable Houses through the International Solar Decathlon Competition**

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The US Department of Energy has been running the Solar Decathlon since 2002. This contest challenges teams of university students to design, build and operate a solar powered net-zero energy house. The contests are held in the US and at locations around the world. Transporting the house to the contest location is a major challenge for the teams. The University of Wollongong became the first Australian team to enter the Solar Decathlon when it's house was constructed at Datong, China for the SD China 2013 competition. Team UOW won that competition against 18 other universities from around the world. The university will be in the final of the Solar Decathlon Middle East 2018 to be held in Dubai in October/November of that year. The new house, named Desert Rose, is a net-zero energy, dementia friendly eco house designed for the harsh Gulf climate.

This paper will summarise the history of the 16 Solar Decathlon contests to date. The impact of the competition on the 224 international teams will be examined to demonstrate how the Solar Decathlon is a vehicle for educating engineers, architects and universities about sustainable and net-zero energy buildings. Case studies, including Team UOW's winning entry to SD China 2013 will examine the value of such a large educational initiative from multiple perspectives. The paper will conclude with an update on the Solar Decathlon Middle East and an examination of the sustainability and dementia friendly features of the Desert Rose House.