**Affordable Heating and Cooling Innovation Hub (iHub)**

**$6.48m** Funded by ARENA

**$18.37m** Total project cost

* **Lead Organisation** The Australian Institute of Refrigeration, Air Conditioning and Heating

**Location** Melbourne, Victoria

* **Start Date** November 2019
* **Project Partners** Commonwealth Scientific and Industrial Research Organisation, Queensland University of Technology, University of Melbourne, The University of Wollongong

**Summary**

The Affordable Heating and Cooling Innovation Hub (iHub) project aims to demonstrate how renewable energy technology can be optimally integrated with heating, ventilation, air-conditioning and refrigeration (HVAC&R) equipment in commercial buildings.

**Need**

The Affordable Heating and Cooling Innovation Hub (iHub) project has identified that the Australian HVAC&R sector consumes around 22 per cent of all electricity produced and is responsible for around 50 per cent of peak demand on the electricity grid. The Affordable Heating and Cooling Innovation Hub project aims to address the largely untapped sector that provides an opportunity for enhanced [demand response](https://arena.gov.au/renewable-energy/demand-response/), load flexibility, renewable energy uptake and integration of various technologies.

**Action**

The [Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH)](https://www.airah.org.au) will work closely with industry and a number of leading research institutes, such as CSIRO, Queensland University of Technology, the University of Melbourne and the University of Wollongong, in order to deliver the iHub.

Through the Affordable Heating and Cooling Innovation Hub (iHub), AIRAH will distribute funding to support a series of sub-projects under one of three activity streams:

* Integrated Design Studios for real building projects, to build industry knowledge and competence in early design strategies for maximising the utilisation of onsite renewable energy in conjunction with HVAC&R.
* Living Laboratories in the education and healthcare sectors where innovative and emerging technologies can be independently tested in a real-world scenario and their potential benefit to the sector quantified.
* Buildings to Grid Data Clearing House digital platform for receiving and making available building data relating to HVAC&R and onsite renewable energy equipment. Hosted ‘applications’ will enable supervisory control of users’ building HVAC&R equipment in order to unlock megawatts of demand response potential.

**Outcome**

iHub’s activity streams aim to:

* improve the control of HVAC&R by demonstrating the capability within a selection of building types to reduce onsite energy use, including how to reduce peak demand and demand charges, and increase the hosting capacity of solar
* identify a range of new technologies able to contribute to the decarbonisation of commercial buildings over the next decade
* demonstrate how open data digital platforms can be applied to deliver innovation in the built environment to deliver energy savings, including identifying and demonstrating 100 MW of potential demand response
* improve developer and building owner decision making capabilities by demonstrating the benefits of energy productivity measures, and increase the co-design approach to delivering lower cost and higher performance buildings.

**Additional impact**

Through a comprehensive knowledge sharing and engagement program, iHub will engage closely with industry and building owners to ensure the knowledge developed and demonstrated has a clear utilisation pathway.