THREE STREAMS

The 32 projects completed under i-Hub around Australia have engaged major organisations and businesses, showcased HVAC&R innovation and technologies, and demonstrated the potential for energy savings across a wide range of building typologies.
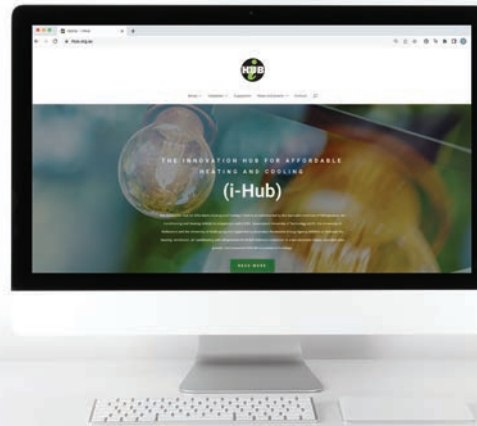
INTEGRATED DESIGN STUDIOS

LIVING LABORATORIES

DATA CLEARING HOUSE

THE INNOVATION HUB
HUB
FOR AFFORDABLE HEATING AND COOLING

THE KNOWLEDGE HUB

Discover more about the road travelled, the successes, the pitfalls, and the next steps to facilitating the HVAC&R industry's transition to a low emissions future at the i-Hub Knowledge Hub.

Explore the 32 projects in depth and download the technical, evaluation, and summary reports.

Watch the i-Hub Outcomes videos, detailing the work completed in each stream.

Apply the learnings of i-Hub projects to your own project or building.

visit ihub.org.au

Australian Government
Australian Renewable Energy Agency

ARENA

THE INNOVATION HUB
HUB
FOR AFFORDABLE HEATING AND COOLING

INNOVATION HUB FOR AFFORDABLE HEATING AND COOLING (I-HUB)

The Innovation Hub for Affordable Heating and Cooling (i-Hub) is an initiative led by AIRAH (the Australian Institute of Refrigeration, Air Conditioning and Heating) in conjunction with CSIRO, Queensland University of Technology (QUT), the University of Melbourne, and the University of Wollongong.

Supported by Australian Renewable Energy Agency (ARENA), i-Hub is helping to facilitate the heating, ventilation, air conditioning, and refrigeration (HVAC&R) industry's transition to a low emissions future and the stimulation of jobs in the sector.

> **The objective of i-Hub has been to support the broader HVAC&R industry with knowledge dissemination, skills development, and capacity building.**
>
> **By facilitating a collaborative approach to innovation, i-Hub has brought together leading universities, researchers, consultants, building owners, and equipment manufacturers to create one connected research and development community in Australia. We are proud of what i-Hub has achieved.**
>
> *Tony Gleeson, M.AIRAH*
> *Chair – i-Hub Steering Committee*

Thank you to all the i-Hub Project Participants. For a full list, visit ihub.org.au

AIRAH · CSIRO · QUT · THE UNIVERSITY OF MELBOURNE · UOW AUSTRALIA

LIVING LABORATORIES

Living Laboratories (LL) have been established in aged care, healthcare, and education buildings where the performance of innovative technologies and services has been tested. Highly instrumented and flexible, i-Hub's Living Laboratories have allowed a wide range of innovations to be investigated from both energy and user-experience perspectives.

LLHC2: Warrigal Aged Care, Shell Cove NSW
Independent evaluation of emerging HVAC&R, renewable energy and enabling technologies in a world-class aged care facility.

LLHC3: Fernhill Residential Aged Care, Caboolture QLD
Validation of innovations in building products, smart sensor and control devices and electricity generation, storage and trading in residential aged care.

Queensland Children's Hospital, Brisbane QLD
Independent validation of emerging technologies in demand management, demand reduction, renewable energy and enabling technologies in a hospital environment.

LLS2: ACT Schools, Canberra ACT
Observation and evaluation of technology upgrades within the context of the daily life of two school ecosystems.

INTEGRATED DESIGN STUDIOS

Integrated Design Studios (IDS) involve HVAC&R engineers at the earliest stages of the building design process – the conceptual design stage – when decisions are made that have the most impact on energy use, and changes to design come at least cost. i-Hub's Integrated Design Studios have challenged the conventional design process.

IDS-01: NEXTDC Data Centres, Melbourne VIC
Investigation of design innovations to reduce net energy consumption in a data centre environment.

IDS-02: ACT Schools 1, Canberra ACT
Exploration of design innovations to reduce net energy consumption in school environments through the application of renewables and other energy technologies.

IDS-04: Ambulance Victoria, VIC
Investigation of ambulance branch design to help Ambulance Victoria reach zero-net carbon by 2050.

IDS-12: Illawarra Aboriginal Land Council (LALC) Mixed Use Development, Wollongong NSW
Design exploration for the net-zero redevelopment of the former Unanderra Police Station for the Illawarra Aboriginal Land Council.

DATA CLEARING HOUSE

The Smart Buildings Data Clearing House (DCH) offers a single location, open platform for accessing a wide range of energy and building data. i-Hub's Data Clearing House has sought to increase the quality and value of building data sets, and empower Australian businesses to develop or adopt new data analytics services to optimise energy use.
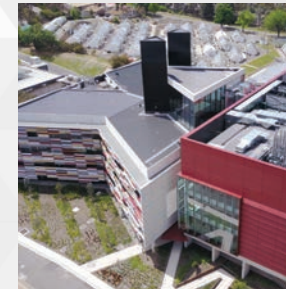
DCH1: CSIRO Senaps data platform demonstration and development
Development of a cloud-based data platform to host an ecosystem of applications that optimise the integration of HVAC and renewables in buildings.

DCH4: Sustainability monitoring and energy innovation
Demonstration of the implementation of IoT solutions with the DCH IoT platform as means of scaling the management of solar, batteries and HVAC in Property NSW's building portfolio.

DCH7: Improving the accuracy of PV and energy analytics in buildings
Demonstration of the benefits of integrated asset and building tagging systems to be used by analytics solutions through the utilisation of asset classification open standard.

DCH8: Exergenics Chiller Staging App
Integration of cloud-based chilled water optimisation software with the DCH to demonstrate energy savings in a CSIRO building.