2024 - 2025

Impact Report

Energy Upgrades for Australian Homes

October 2025

RACE for 2030
RELIABLE
AFFORDABLE
CLEAN
ENERGY

Australian Government
Department of Industry, Science and Resources

Cooperative Research Centres Program

RACE for Homes

Research Theme H2: Enhancing home thermal efficiency

Industry Report

Prepared for RACE for 2030.
October 2025

Acknowledgements

The research team thanks our Industry Reference Group for their insights and support.

Additional thanks to our Community and Industry Partners for their feedback and input.

Acknowledgement of Country

The authors of this report respectfully acknowledge the Traditional Owners of the ancestral lands throughout Australia. We recognise their continuing connection to the land, waters and culture. We pay our respects to them and to their Elders past, present and emerging.

What is RACE for 2030?

RACE for 2030 CRC is a 10-year cooperative research centre with AUD350 million in resources to fund research towards a reliable, affordable and clean energy future.

www.racefor2030.com.au

RACE for 2030
RELIABLE AFFORDABLE CLEAN ENERGY

Research and Industry Project Partners

CLIMATEKIC Australia
CSIRO
KNAUF INSULATION
MONASH University
NSW GOVERNMENT
RMIT UNIVERSITY
University of South Australia
UNSW SYDNEY
UTS Institute for Sustainable Futures

Welcome

> Energy upgrades in homes create a win-win – they save people money and lower emissions. Councils and community groups are the key to scale.
>
> – Jenniy Gregory, Program Leader, RACE for 2030 CRC

We are proud to present the second annual report for the Energy Upgrades for Australian Homes (EUAH) project. Over the past year, we have made considerable progress, moving from foundational research into supporting practical, locally led action.

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In our first year, we laid the groundwork for the project. We built a shared understanding of the challenges facing energy upgrade programs and established the relationships, frameworks and research pathways needed to address them.

This year, we have taken the next step. We have translated year one's insights into scalable solutions that empower councils and community groups to build energy upgrade programs.

Our work continues to be guided by a holistic, whole-of-system approach. We know that upgrading energy efficiency in homes is not just a technical challenge, it's also a social, behavioural and institutional matter. That's why we've focused on developing fit-for-purpose tools and resources that support place-based programs. These programs are now being tested and refined in partnership with communities across Australia.

A major milestone this year has been the launch of the Upgrade Accelerator Program (supported by Rewiring Australia), which is working with 10 councils and community groups to design and deliver tailored energy efficiency upgrade programs. These partnerships have helped us understand what works, what doesn't, and what is needed to scale impact.

Local leadership is central to success. That's why the EUAH project works alongside councils and community organisations already leading the way in supporting households to upgrade their homes.

This includes:

- APY Lands and Geelong, where we've been working together since the start of EUAH and are now exploring new phases in collaboration with our researchers.
- New partners in Western Sydney, Armidale and the Hunter region, where we are supporting existing initiatives by sharing research insights and co-developing tools to enhance their impact.

These partnerships allow us to ground our work in real-world experience, ensuring that the tools and resources we develop are practical, relevant and responsive to local needs.

We have also deepened our engagement with policymakers and other groups in the system, contributing to consultations and sharing evidence that supports more coherent and supportive policy environments.

Our 6 research areas are guided by our unique approach that focuses on:

- Grounding in social and behavioural insights
- Delivering place-based research; and
- Developing tools to support end-to-end program design.

This ensures the resources we are developing reflect the complexity of the challenge of scaling home energy upgrades. The development of our prototype platform (being tested behind the scenes) is another significant milestone, bringing together insights and tools to support program organisers across all work packages of program delivery. This platform will go live in 2026.

We are grateful to our Community and Industry Partners, whose insights and feedback have shaped our work at every stage. We also thank our Industry Reference Group, whose contributions have helped us stay connected to the realities of implementation and the needs of households and organisations on the ground.

As we look ahead, we remain committed to our goal of enabling energy upgrades for one million homes by 2030. The work is ambitious, but the momentum is real. We are seeing growing interest, deeper collaboration and a shared recognition that energy upgrades are essential – not just for reducing emissions, but for improving comfort, affordability and resilience in Australian homes.

Thank you for being part of this journey. We look forward to continuing our work together in the year ahead.

Prof. Rob Raven
Deputy Director (Research)
Monash Sustainable Development Institute
Monash University

Prof. Liam Smith
Director BehaviourWorks Australia
Monash Sustainable Development Institute
Monash University

Co-Chief Investigators, Energy Upgrades for Australian Homes

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Year 2 highlights

In our second year, we are translating research insights into practical action, laying the foundation for scalable, locally-led energy upgrades across Australia.

10
TEAMS PARTICIPATING IN OUR UPGRADE ACCELERATOR PROGRAM

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PARTNER PROGRAMS ENGAGED

1
GOVERNMENT POLICY SUBMISSION

11.3M
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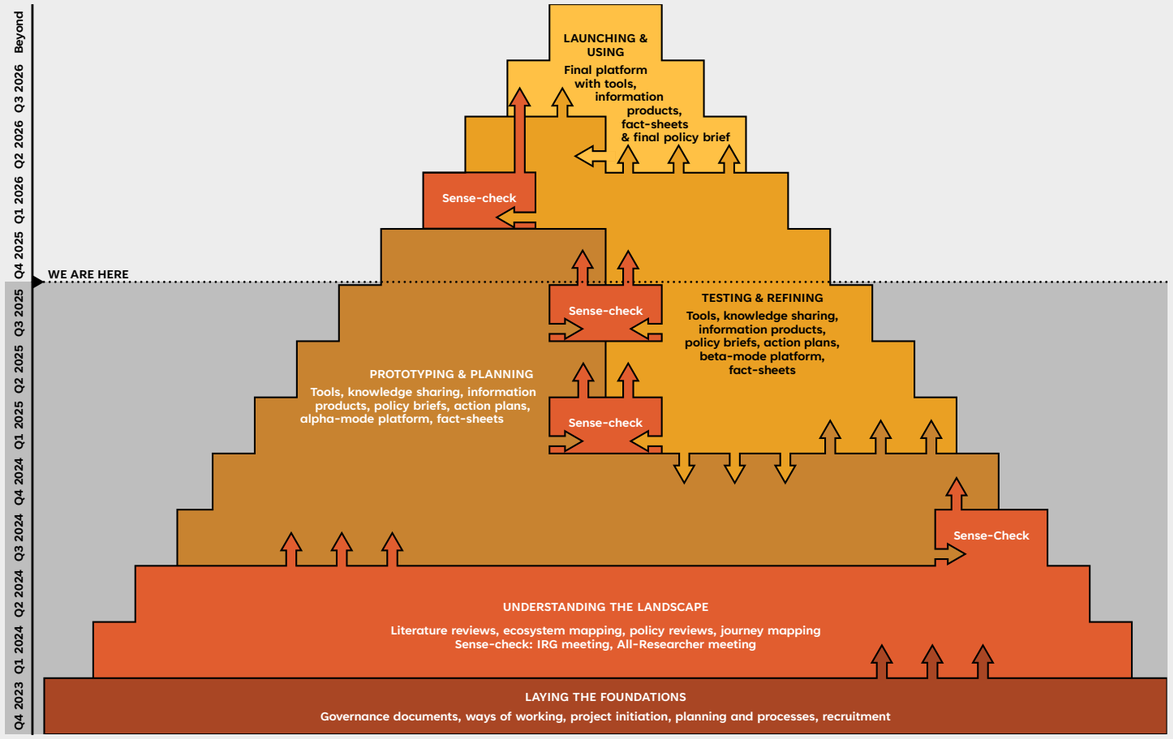
14.4K
READS AND 7 MEDIA SYNDICATIONS OF THE CONVERSATION ARTICLE



Project progress

In our second year, the Energy Upgrades for Australian Homes (EUAH) project has shifted from laying foundations to putting insights into action. We are now actively supporting councils and community groups to design and deliver locally-led energy upgrade programs that reflect the needs of Australia's diverse communities.

The launch of our Upgrade Accelerator, supported by Rewiring Australia, was an important milestone. This structured initiative which includes five sessions from June 2025 until November 2025, helps 10 local teams develop and implement community-driven energy upgrade programs. The Upgrade Accelerator was oversubscribed by 500%, indicating strong national demand for locally tailored solutions.

Our Building Stock Model has now profiled 11.3 million homes, unlocking data-driven strategies for targeted and scalable upgrades. We have also advanced our online platform, now in its prototype phase, which integrates behavioural insights, retrofit modelling, supply chain data, community program structures, and monitoring and evaluation guidance to support program organisers from planning through to delivery. The platform will go live in 2026.

Collaboration remains central to our approach. In addition to the 10 groups participating in the Upgrade Accelerator Program, we have partnered with five place-based programs to deepen research into barriers to participation and ensure upgrades are inclusive, effective, and community-driven. Fifty-four experts contributed to 2 industry workshops, while 42 researchers brought multidisciplinary expertise to deliver practical solutions.

Our evidence-based work is shaping the policy landscape, including through a government submission and 7 national conference and public event presentations. In partnership with Rewiring Australia and Merri-Bek City Council, we have also launched a Speaker Series to amplify local leadership and foster peer learning.

Together, these efforts are building the foundation for a coordinated, equitable, and scalable shift toward energy-efficient, resilient homes, empowering households, supporting communities and accelerating Australia's energy transition.

About the Energy Upgrades for Australian Homes (EUAH) project

EUAH aims to enable energy upgrades for one million Australian homes by 2030.

With rising energy costs, thermally-poor housing, and increasing climate variability, community groups and local councils are eager to help residents improve household energy efficiency. However, the lack of guidance, resources, and scalable models makes launching and sustaining these programs challenging. This is especially true when trying to align with local community aspirations and housing characteristics, which can vary across Australia.

EUAH is solving this. We are creating an online platform that will equip program coordinators with the tools and resources needed to deliver localised home energy upgrades, making energy efficiency accessible to all Australians. By tackling the barriers to participation, financing, delivery and evaluation, we are accelerating the transition to energy-efficient, climate-resilient homes, and creating a framework to scale solutions nationally.

EUAH is part of the RACE for 2030 Cooperative Research Centre (CRC). We are taking a whole-of-system approach to expedite the transition to energy-efficient, climate-resilient homes across the country.

Now 2 years into a 3-year collaboration, this transdisciplinary project brings together 6 research organisations to uncover systemic, social, and behavioural insights, and develop practical solutions that are relevant to individuals and communities.

Household energy upgrades can potentially reduce energy consumption by

30-50%

and an energy costs saving of

20-40%

in 2022 dollars with the aim being an

average of

$400-600

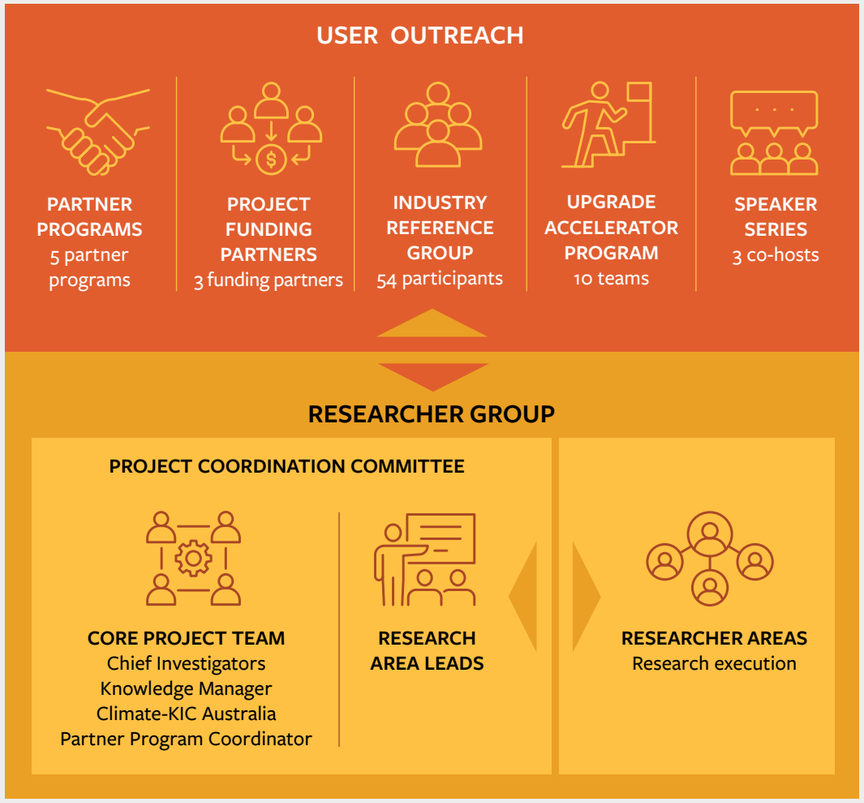
per house per year for currently poor performing homes

Source: RACE for 2030 H2 Fast Track – Pathways to scale: Retrofitting One Million+ Homes Final Report 2021

Who are we?

The EUAH project is organised into 6 interconnected research areas, each tackling a critical aspect of home energy upgrades, supported by a dedicated coordination stream. These areas impact one another, so we have researchers working in multiple areas and meeting regularly to maximise efforts and ensure the success of the project.

A coordination stream of work, led by Climate-KIC, manages the complexity of the project by facilitating collaboration, aligning research efforts and ensuring timely delivery.



Our research areas

Policy and Regulation

To scale energy upgrades, local initiatives need a supportive policy and funding environment. Led by University of New South Wales (UNSW), this research identifies the policy settings and financial levers that enable scalable, community-driven upgrades – ensuring the EUAH platform can connect program organisers with relevant policy insights and opportunities for funding or guidance.

Research Lead:

- Dr Natasha Larkin, UNSW

Community implementation models

Community-led and council-led programs face different delivery challenges. Led by Monash University's Monash Sustainable Development Institute (MSDI) and University of Technology Sydney's Institute for Sustainable Futures (UTS-ISF), this research identifies success factors and scalable delivery models. It guides program organisers through the program design process, providing tools and resources that support tailored upgrade programs across various community, housing, and climate contexts.

Research Leads:

- Dr Paris Hadfield, Monash University, MSDI
- Dr Ed Langham, UTS-ISF

Household and community behaviour change

Real change starts at the household level. Led by MSDI and Monash University's BehaviourWorks Australia, this research ensures the EUAH platform incorporates behavioural insights that reflect how households make upgrade decisions, helping program organisers design outreach and support strategies that work.

Research Lead:

- Dr Mark Boulet, Monash University, BehaviourWorks Australia

Building stock analysis and retrofit cost-benefit modelling

Communities need to understand what upgrades make sense for their housing stock. This research, led by CSIRO, provides the modelling backbone for the EUAH platform. It delivers tools that help program organisers assess potential energy savings, upgrade costs, and co-benefits at a local, regional, or national scale.

Research Lead:

- Dr Dong Chen, CSIRO

Supply chain mapping, review, and development

For home energy upgrades to succeed at scale, reliable access to quality products, suppliers, and skilled service providers (installers) is essential. The Royal Melbourne Institute of Technology (RMIT) research team maps gaps in the supply chain and co-develops training and product selection tools. This is helping program organisers to make informed decisions and to connect with trusted suppliers, high-quality products, and emerging workforce pipelines.

Research Lead:

- Associate Prof. Muhammad Abdulrahman, RMIT

Home energy upgrades platform design and development

All research insights feed into the design and development of the online EUAH platform. MSDI and UTS-ISF are working closely with partner programs to ensure that research outputs are accessible, intuitive, and tailored to real-world program delivery, from first engagement to successful installation. The platform's content and design will draw on the evaluation of participating partner programs and the supporting activities of the EUAH project.

Research Leads:

- Prof. Chris Riedy, UTS-ISF
- Prof. Rob Raven, Monash University, MSDI
- Prof. Liam Smith, Monash University, BehaviourWorks Australia
- Jaime Comber, UTS-ISF
- Dr Christoph Brodnik, Monash University, MSDI

Want to get in touch?

Email us at **EUAH@climate-kic.org.au**

Our research approach

At the heart of our approach is the development of evidence-based tools and resources that support program organisers to build collaborative, place-based home upgrade programs. We are bringing together research institutions, governments, industry stakeholders, and community-led upgrade programs to co-design and implement solutions that are equitable, practical, and scalable. We are taking a holistic, whole-of-system approach, which means our work is:

Grounded in social and behavioural insights:

We are exploring household decision-making processes and assessing community readiness to participate in home energy upgrades. This helps us identify the behavioural drivers and barriers that influence uptake, enabling the design of interventions that resonate with diverse communities.

Place-based applied research:

We are working directly with communities to understand their unique needs that are shaped by local climates, housing types, and regional contexts. This ensures our work enables program organisers to develop solutions that are tailored, inclusive, and responsive to the lived realities of households across Australia.

End-to-end program delivery design

We are developing best-practice models for community implementation, informed by policy and regulatory analysis, building stock characteristics, and supply chain dynamics. This supports program organisers in enhancing existing initiatives or launching new ones with confidence and impact.

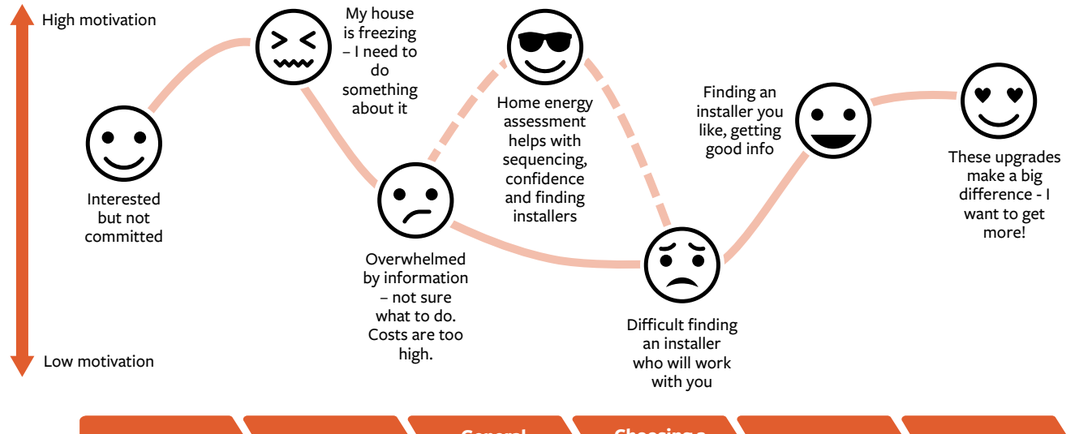
Grounded in social and behavioural insights

Overview

Our project recognises the importance of meeting households and communities where they are, while in the process of upgrading their homes. Without this, we risk producing resources that do not connect with the people they intend to help. Through conversations with households thinking about undertaking the home energy upgrade process, we understand that the current system is complex and time-consuming. Considering the vast range of upgrade options, it can be overwhelming for time-poor households who just want to reduce their energy bills. This results in people ending their upgrade journey before they have been able to make informed decisions or take meaningful action.

With our research, we have been able to identify patterns in households' journeys of when they start and stop the process of considering and actioning energy upgrades in their homes. By understanding these patterns, we have identified tools that program organisers can use to re-engage people.

Highs and lows in the journey



Key insights

- Households find it difficult to navigate relevant upgrade incentives because the policy landscape is fragmented, with programs varying widely across regions and levels of government.
- Positive household behaviour change and decision-making with regard to energy upgrades can be driven by policy and programs that are designed around an understanding of behavioural drivers and barriers.

Activities

To support program organisers in designing locally-led home upgrade initiatives that truly reflect household needs and behaviours, we are developing a suite of practical information, grounded in lived experience and behavioural research, including:

Impact likelihood matrix

A data-driven decision-support tool to deliver programs tailored to a community's specific context by allowing program organisers to prioritise energy upgrades based on 3 criteria:

- potential impact
- likelihood of adoption
- current adoption rates

Behavioural diagnosis field guide

A structured interview and analysis framework that helps program organisers understand barriers to local energy upgrades via step-by-step conversations and behavioural analysis. This enables the design of programs that address challenges specific to local socio-economic and cultural contexts.

Intervention matching tool

A systematic framework that connects behavioural insights (such as what stops people from upgrading and what motivates them) to evidence-based intervention strategies for energy upgrade programs.

Behavioural systems map

A map that looks at the entire ecosystem and at specific 'sub-systems' associated with insulation, draught-proofing, heating / cooling, etc. The map focuses on the different actors in the energy upgrade system, their ideal behaviours, and their connections and relationships. The map is for program organisers.

Multi-level framework of householder behaviour and energy upgrades

A framework that captures the known influences of household behaviours in relation to energy upgrades and organises these to micro, meso and macro contextual levels. The framework is for program organisers and researchers.

Key data

Resources

- Accelerating Energy Upgrades by Improving the Household Journey – Report
- These 5 roadblocks are standing in the way of energy-efficient homes
- Home energy efficiency upgrades are easy right?! A systematic review of factors influencing homeowner behaviour across multiple levels

Events

- **Oct 2024 - Local Government Electrify Everything Community of Practice, Melbourne, Victoria:** Dr Mark Boulet from EUAH presented the outcomes of the literature review and behavioural framework
- **July 2025 – State of Energy Research Conference, Sydney, NSW:** Jaime Comber presented the journey map, *'Understanding Household Decisions About Energy Saving Upgrades for Their Homes: A Behavioural Science Journey Mapping Approach'*

Place-based applied research

Overview

Around Australia, different communities have diverse types of homes, are made up of different people and are situated in different climate zones. Upgrading houses effectively requires many place-based programs, each responding to the needs of their local households.

We are working closely with 5 active upgrade programs to capture their learnings and to enhance the research programs. Additionally, we are supporting 10 teams from around Australia to develop local upgrade programs using evidence and tools developed by the project. This has given us unique insight into the tools and programs needed to respond directly to community needs and the support, both practical and financial, that they require to succeed.

We have been mapping the Australian policies related to home energy upgrades. This work has revealed a fragmented policy landscape, with varying levels of commitment across federal, state and territory governments. A clear need has emerged for rental reform and innovative financing models that can address the high upfront costs faced by low-income households. Our mapping also highlighted the important role of local councils and community organisations in developing place-based upgrade programs.

To accelerate momentum, funding is needed from the Commonwealth, state and territories for community-level, place-based programs capable of delivering upgrades effectively and equitably. These efforts are vital to ensure that all homes are upgraded efficiently and that no one is left behind in the transition to energy-efficient living. This can be seen in our APY Lands partner program, where the South Australian government has partnered with local community and thermal envelope experts to design and deliver remote home upgrades, while also growing a local workforce.

To support and strengthen such initiatives, robust tools are needed to guide implementation and track progress. Our monitoring and evaluation toolkit provides program organisers with guidance on how to collect information about their communities and evaluate their programs. This allows programs to respond to local needs and to continue to improve over time to reach new parts of the community.

Key insights

- Government and industry home energy upgrade policies need to be supported by aggregator platforms and community-level programs.
- Local councils and community groups understand the benefit of upgrade programs for their communities and want more support to help run these, as demonstrated by the enthusiastic demand for our Upgrade Accelerator Program (more than 50 applications received).

Local programs are facing familiar challenges, such as how to engage broader communities with upgrade programs. Overcoming these challenges requires equipping local groups with the knowledge of potential solutions, residual funding and the capability to test different solutions to determine what works in their area.

Activities

Upgrade Accelerator Program

A structured, 5-month program to help a diverse cohort of community groups and local government organisations design upgrade programs for their local areas. This has been designed in collaboration with Rewiring Australia.

Partnering with upgrade programs

As well as Upgrade Accelerator participants, we have partnered with 5 existing upgrade programs at various stages in their journey to capture their lessons and to provide evidence-based tools and insights to support their design, delivery, and evaluation.

In-depth stakeholder interviews with project partners

We have conducted interviews with broader program partners, Upgrade Accelerator participants, and one-stop-shop providers to gain a better understanding of upgrade program models. Findings will be developed into case studies to help inform program organisers and policy makers.

Best practice case studies

Program organisers can learn from successful upgrade programs through structured case studies, enabling them to gain inspiration, select and adapt proven and credible approaches that match their capabilities and build stakeholder support. The case studies will include insight into how policy is supporting or inhibiting program organisers and agents from helping people action home energy upgrades. This will be for program organisers and policy makers.

Connecting communities and councils speaker series

We are partnering with Rewiring Australia and Merri-Bek City Council to lead a speaker series, bringing together program organisers from around Australia to unpack how community groups and local councils can successfully partner to deliver upgrade programs.

Industry Reference Group

We have brought together representatives from industry, government and community organisations to provide feedback on the project, ensuring that our work considers their unique perspectives and the needs of their customers. The group meets twice each year, and members are consulted as the project demands.

Key data

Events

- **October 2024 – All Energy Conference, Melbourne, Victoria**
  Belinda Whelan, Jaime Comber, Prof. Liam Smith from the EUAH project and Dan Cowdell from Geelong Sustainability formed a panel discussing the barriers and opportunities to scaling home upgrades in Australia.
- **May 2025 – Energy Efficiency Council National Conference, Melbourne, Victoria**
  Dr Paris Hatfield represented EUAH on a panel discussing how Australia might 'Think global, act local: The role of councils in electrifying Australian homes'.
- **August 2025 – All Electric local government Community of Practice, Online**
  Dr Ed Langham from EUAH presented EUAH research on organising energy upgrade programs and one-stop-shop delivery models.
- **September 2025 – Connecting Councils and Communities Speaker Series, Online**
  Belinda Whelan from EUAH, Rewiring Australia and Merri-Bek Council co-hosted an online event focused on 'Connecting Councils and Community to scale energy upgrades'.

Partnering with place-based initiatives to scale up impact

The EUAH project is engaging with community and council partners who are already doing great work in supporting households to upgrade their homes. Our work involves learning from and providing them with our latest research and tools to further support their work.

We are collaborating with 10 initiatives through the Upgrade Accelerator Program, and are working closely with 5 partner programs that display a range of social, environmental, and economic conditions for which we are adapting our tools.

Upgrade Accelerator Program

Helping organisations build energy upgrade programs across Australia

The Upgrade Accelerator Program is supporting organisations across Australia to design and launch a range of local home energy upgrade initiatives, such as community workshops, first-home buyer programs, rural and culturally tailored solutions, and strategies for renters and low-income households.

Participants include:

- A collective of Central Coast community energy groups (NSW)
- Ku-ring-gai Council with EnergyZE & Electrify Bradfield (NSW)
- Lane Cove Council (NSW)
- Energetic Communities (Qld)
- City of Launceston (Tas)
- City of Clarence (Tas)
- Alpine Shire Council & Sustainable Upper Ovens (Vic)
- Dja Dja Wurrung Clans Aboriginal Corporation (Vic)
- City of Stirling (WA)

We are also working with other regional councils and community groups that are helping households to install energy-saving upgrades in their local areas.

Participant outcomes

Participants in the Upgrade Accelerator Program are learning how to design and launch effective home energy upgrade programs tailored to their communities. They are gaining practical skills in program planning, delivery models, and governance, supported by research-based tools and data insights. The program is also building capacity in stakeholder engagement, monitoring and evaluation, and creating scalable solutions, equipping organisations to design and deliver home energy upgrade programs tailored to their local needs and priorities.

EUAH outcomes

Upgrade Accelerator Program participants will also play a critical role in shaping the future of home energy upgrades by testing the tools and resources that will be available on our upcoming online platform. This real-world testing ensures that our tools are practical, user-friendly, and capable of solving the challenges faced by organisations on the ground.

Anangu Pitjantjatjara Yankunytjatjara (APY) Lands Energy Efficiency Retrofit Pilot

Improving thermal comfort for remote communities

Research Lead: University of South Australia (UniSA)

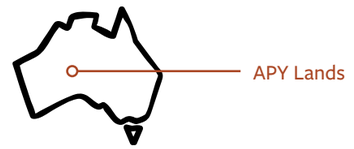
Partners

- South Australian Department for Energy and Mining
- University of South Australia
- South Australian Housing Trust
- Aboriginal Affairs and Reconciliation, South Australian Attorney-General's Department
- Pointsbuild
- Deep Space
- Powertech Energy
- Insulation Council of Australia & New Zealand (ICANZ)
- Healthabitat
- Efficiency Matrix
- Kingspan
- Sika Australia
- Nganampa Health Council
- The Air Tightness Testing & Measurement Association
- TAFE SA

Upgrades

Building envelope upgrades to improve insulation and air tightness and to reduce thermal bridging.

Location:



Climate: Arid

Remoteness Classification: Very Remote

Target Customer / Housing Segment: Community housing in a remote Aboriginal community

Program overview

This pilot upgrade program is taking place on the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands and aims to upgrade housing to be more comfortable and energy efficient. It addresses several tough upgrade challenges, including:

- Making homes thermally comfortable and energy efficient in the face of desert conditions (extreme cold and heat) and a warming climate.
- Delivering and maintaining upgrades in remote communities lacking a strong local workforce or supply chain.
- Building lasting relationships with communities to ensure upgrade solutions are understood and generate real improvements in the residents' lives.

In its first year, the project assessed the thermal and energy performance of housing in one APY community, interviewed residents to understand their lived experience, and trialled a series of targeted retrofits. The team modelled and tested solutions including air-tightness measures, ceiling and wall insulation and thermal bridging, refining approaches in custom-built test rooms in Adelaide before applying them in the community.

The project team assessed baseline home performance and gathered residents' behavioural insights on comfort and seasonal temperatures. Twelve houses were fitted with electricity and thermal comfort monitoring. Six of these homes then received building envelope upgrades, with monitoring before and after installation. The project team worked closely with a local maintenance contractor and provided on-site training at each stage of the upgrades. Interviews with households have provided early indicators that their homes were staying cooler for longer in hot weather.

What the program is finding:

- Residents struggled with heating in winter. Although combustion heaters are provided, access to fuel is limited, resulting in households using electric radiant heaters as their main source of heating with some also using ovens to stay warm.
- Like many homes built in remote communities, they had large amounts of air leakage and thermal bridging and required custom solutions and testing of multiple products to develop effective retrofits.

This project demonstrates the value of combining rigorous technical assessment, long-term community engagement and industry collaboration. It aims to build capacity for energy efficiency retrofit work in the region and across Australia. Materials developed by the training partners have already been used to train local retrofit installation crews, and a 'train the trainers' program was held in Adelaide in July 2024.

The insights are already being used by the SA Housing Trust and will be integrated into future retrofit programs across the APY Lands. The second year will focus on measuring the impact of the upgrades, providing education to communities to ensure they benefit from the change, and rolling out training to develop local capabilities.

EUAH contribution

We are exploring and testing upgrades to houses within one APY community, with the aim of providing a model for roll-out throughout the region, and informing the development of comparable programs across Australia. We have also contributed to the development of materials to engage with households about their energy usage.

Electric Homes Program

Expanding the reach and effectiveness of an existing upgrade community program

Partners

- Geelong Sustainability
- City of Greater Geelong
- Borough of Queenscliffe
- Colac Otway Shire Council
- Golden Plains Shire Council
- Surf Coast Shire Council
- Enviroflex
- Ephe
- Winki Energy
- Too Hot to Handle
- Reclaim Energy

Location:

Greater Geelong, **Victoria**

Upgrades

- Solar
- Batteries
- Heat pump hot water
- Reverse cycle air conditioning
- Insulation
- Draught-proofing
- Home energy audits
- Induction cooktops

Climate: Temperate

Remoteness Classification: Major City

Target Customer / Housing Segment: General community household upgrades

Program overview

- Help households in the Geelong and Surf Coast regions transition to all-electric, energy-efficient homes.
- Reduce energy bills and emissions through electrification and efficiency upgrades.
- Build local capacity and awareness via community engagement and education.

The Geelong Electric Homes Program is designed to make home electrification practical and accessible. Now in its second year, the focus is on supporting residents to adopt technologies such as heat pumps, induction cooking, and solar PV, while providing clear pathways and trusted information to overcome barriers to action.

The first stage of the program was rolled out in 2023. In 2024, the second stage trialled more upgrade types, different messaging and new processes for vetting and choosing suppliers. It continued to attract strong interest from households, with 658 households expressing interest in the program and 157 going on to purchase upgrades (a conversion rate of 24%). Compared to the initial rollout, households in the second stage were more likely to express interest in several types of upgrades, while maintaining a similar purchase rate.

EUAH contribution

Since the inception of EUAH, we have been working with the Geelong Electric Homes Program to explore how local households can be encouraged and supported to take up energy upgrades. Our researchers have worked with the program to refine their messaging, capture lessons learned and evaluate program outcomes.

A core strength of the program has been its ability to connect households with trusted advice and vetted suppliers. EUAH evaluation results showed that participants valued personalised support, information sessions, and supplier interactions, which often gave them the confidence to move forward. Supplier experiences were rated more positively in 2024 than in 2023, highlighting that the improved selection process developed by Geelong Sustainability resulted in better experiences for households.

EUAH research found social media campaigns that highlighted thermal comfort and bill savings proved effective in reaching households. This points to the importance of helping households understand the tangible benefits they can experience when they upgrade their homes. Evaluation of the 2024 program also showed that households that made upgrades had a high level of satisfaction with them and intended to make further energy upgrades.

At the same time, the program revealed challenges for repeat programs, with fewer households expressing interest in upgrades in 2024 than 2023. One possible factor is that many of the households contemplating upgrades had already acted in earlier rounds. These findings highlight the need for more targeted support and broader engagement approaches to reach the next wave of households.

Armidale Upgrade Program

Helping low-income households access energy upgrades

Partners

- Electrify Armidale
- Uniting Church
- Zapcat
- Armidale Regional Council

Location:

Upgrades

- Electrification
- Thermal envelope

Climate: Cool, temperate

Remoteness Classification: Inner Regional

Target Customer / Housing Segment: Low-income households

Program overview

- Developing a model to help low-income households access upgrades.
- Exploring partnerships between the council, community energy groups, and non-energy community organisations.
- Improving supply chains in a regional Australian community.

Energy upgrades are transforming homes across Armidale, but many low-income households risk missing out, widening the equity gap. This program will test how community support and tailored approaches can ensure these households are included, helping them overcome financial and practical challenges to access the benefits of more affordable, comfortable homes.

EUAH contribution

The local government in Armidale is setting up a program providing vetted suppliers for high-quality upgrades for households. Our researchers are working with local community organisations to trial new ways of providing trusted, in-person support that can be attached to this program to increase uptake by low-income households. This support will include information, encouragement and affordable product options that reduce upfront costs.

Concurrently, we are gathering data on the larger upgrades low-income households need most. This evidence will support advocacy for future funding for energy upgrades.

Solar Neighbourhoods

Using behavioural science to overcome common barriers to upgrades

Partners

- City of Newcastle
- Maitland City Council
- Lake Macquarie City Council

Location:

Hunter Region, **NSW**

Upgrades

- Solar
- Batteries

Climate: Cool, temperate

Remoteness Classification: Major Cities, Inner Regional, Outer Regional

Target Customer / Housing Segment: General households, landlords, small businesses

Program overview

- Program model of council-led upgrade program.
- Success of strategies to overcome common barriers to uptake (cost, complexity, lack of trust).
- Reaching landlords through specific outreach.

Solar Neighbourhoods is a collaborative program led by three councils in the Hunter Region, designed to make solar and batteries accessible for local households. The program designers identified three main barriers for households – affordability, complexity, and lack of trust – and the program has been structured to overcome them. Extra rebates and finance options help households manage costs, while a streamlined process and after-sales support service reduce confusion and uncertainty. Local, vetted installers provide confidence and community connection.

EUAH contribution

Our researchers are contributing behavioural science expertise to the program's design and delivery, ensuring solutions are grounded in evidence showing how people make decisions. We are also supporting its evaluation, capturing data on uptake, experience, and impact. Over its three-year life, the program will learn and iterate each round, with behavioural science at its core to continually refine approaches and maximise participation.

Western Sydney Community Energy Project

Unlocking solar for diverse communities in Western Sydney

Research Partners

- Western Sydney Regional Organisation of Councils (WSROC)
- 8 Western Sydney councils (including Blue Mountains)
- Ironbark Sustainability

Location:

Western Sydney, **NSW**

Upgrades

- Solar
- Batteries

Climate: Mild, temperate

Target Customer / Housing Segment: General households, businesses, and council-owned/ operated properties

Remoteness Classification: Major Cities, Inner Regional

Program overview

The Western Sydney Community Energy Project is part of the Western Sydney Energy Program (WSEP) – a WSROC-led collaboration of 8 councils in Western Sydney. WSEP delivers projects and programs that provide cost savings, energy savings, and emissions reductions for councils and communities.

This project is a large-scale solar and battery bulk-buy program designed to unlock clean energy opportunities for residents, businesses, and council facilities. Covering a diverse area with many different communities, households, and geographies, it recognises that one size does not fit all. The bulk-buy model also enables the creation of a Virtual Power Plant (VPP), where households and organisations can contribute to a smarter, more resilient local energy system.

Key features include:

- A council alliance delivering a coordinated, region-wide program.
- Addressing barriers faced by harder-to-reach communities, with tailored strategies to improve accessibility.
- Building economies of scale to lower costs and increase participation.

EUAH contribution

Our researchers are conducting in-depth studies to identify the barriers households face in accessing solar and battery upgrades, and developing solutions to make upgrades more affordable and inclusive. We are also learning from this council alliance, exploring how this model can unlock opportunities through coordination and collaboration.

End-to-end program delivery design

Overview

EUAH is developing best-practice community implementation models, policy and regulation insights, and understanding building stock and supply chains to help program organisers enhance current, or establish new upgrade programs.

Key insights

- Councils and community groups are keen to learn from each other about developing policies and programs.
- The journey of upgrading homes is complex, so there is need for clear guidance and support, not only for households but also for suppliers and installers.
- Cooler regions have a greater demand for home-energy-saving products than warmer regions.
- Stakeholders appreciate that we are engaging with them to create the tools rather than merely give them the finished product at the end of our research.

Activities

Prototype platform

Developing a platform that will give local governments and community organisations the knowledge, tools and resources to design and deliver localised home energy upgrade programs. This platform is tailored to address the specific needs and challenges faced by program organisers and home energy upgrade advocates. The platform will empower and support users in designing and implementing equitable, integrated, and place-based home energy upgrade programs. This is by providing actionable knowledge, tailored program design and implementation support, and online peer-to-peer learning and collaboration opportunities.

Ecosystem map

Helps program organisers new to the area of energy upgrades to quickly understand relevant policy, funding, financing, and program delivery components and potential partners, to accelerate the program design process.

Policy brief on one-stop-shops

An initial policy prescription for seeding or stimulating the marketplace for more integrated ‘one-stop-shop’ home energy upgrade providers was tested with the Industry Reference Group and will be refined and elaborated on the final year.

Planning and evaluation design tools:

A suite of planning and evaluation tools that guide program organisers through mapping out how their programs will create change and setting up systems to track progress from the start. The tools will combine practical templates with step-by-step guides for developing program logic and monitoring frameworks.

Policy landscape analysis

Analysing existing home upgrade policies and regulations while gathering feedback from people planning or running these programs in various locations.

Policy gap report

This report systematically maps the existing policy landscape for home energy upgrades across Australian jurisdictions to make recommendations for policy reform. The focus of policy reform is on the State and Federal policy landscape supporting home energy upgrades. Further research is planned on new models for green finance, drawing from international case studies.

Policy insights from engagement with local councils and organisations

We're developing policy insights based on our research and engagement with local councils and community organisations. We'll be developing resources such as FAQs or factsheets responding to the issues identified by those working to design and deliver home energy upgrade programs.

Policy reform through advocacy and policy analysis

Contributing to policy development that accelerates home energy upgrades through submissions responding to terms of reference, consultation processes, and other formal processes for policy reform.

Building stock analysis tool

Over the past year, an online residential building stock model has been developed, capturing the characteristics of Australia's 11.3 million homes. The model maps construction typologies across the country, from local government areas to state and national levels. Through its interactive visual dashboard, it highlights the potential costs, energy savings, and carbon emission reductions from different home upgrade options for specific dwelling types or groups of homes in any region. This tool enables policymakers, communities, and households to assess upgrade opportunities and weigh the costs and benefits tailored to their unique needs.

Supply chain survey and interviews

We have been undertaking interviews and surveys with suppliers to understand supply chain challenges and provide policymakers with practical strategies to improve product availability.

Product Selector

A preference-based decision support tool designed to assist program organisers in selecting energy-efficient products and suppliers. Users can assign customised weights to key product attributes such as cost, durability, and energy performance, based on their specific priorities. The tool uses this information to generate a ranked list of recommended options, supporting transparent, consistent, and user-centred decision-making It is intended for use by local government agencies, community groups, and non-government organisations engaged in designing and delivering localised residential retrofit programs.

Insulation supply chain map

A map of the insulation supply chain from raw materials to end-of-life. This map will identify the interactions between stakeholders as well as the value created at each stage and key materials involved. It will be informed by the stakeholder survey and interviews and will highlight bottlenecks and constraints impacting the delivery of insulation. It is intended that the map will inform recommendations for improving the supply chain to reduce lead times and / or increase the resilience of the supply chain.

Key data

Resources

- 1 submission to the South Australian Government on their bill to introduce minimum standards for rentals and energy disclosure.

Events

- **July 2025 – State of Energy Research Conference, Sydney, NSW**
  Professor Chris Riedy presented his paper 'Evaluating energy transition: Identifying transformative outcomes for Australian home energy upgrades'.
- **August 2025 – Building Simulation Conference, Brisbane, Queensland**
  Dr Dong Chen presented the paper *'Development of an On-line Australian Residential Building Stock Model'*. The paper details the development and validation of the building stock model.

Organisations represented in the Industry Reference Group

The Industry Reference Group provides insight to the EUAH project by giving feedback on resources from the perspective of their organisation and those they work with. It is made up of various industry, government, and community organisations who meet with the researchers at least twice per year to give feedback.

If you would like to join the industry reference group, please email **EUAH@climate-kic.org.au**

Air Filtration and Ventilation Association of Australia (ATTMA)	Energy Consumers Australia
AIRAH	Energy Efficiency Council (EEC)
Association of Insulation Installers of Australia (AIIA)	Energy Efficiency Group
Australian Glass & Window Association (AGWA)	First Nations Clean Energy Network
Australian Institute of Landscape Architects	Green Business Council of Australia
Australian Sustainable Built Environment Council (ASBEC)	Housing Industry Association (HIA)
Blue Mountains City Council	Insulation Councils of Australia and New Zealand (ICANZ)
Brotherhood of Saint Lawrence	Master Builders Association (MBA)
Canberra Region Joint Organisation	Merri-Bek City Council
Cessnock City Council	Prevalent
Clean Energy Council	Renew
Climateworks Centre	Smart Energy Council
Coalition for Community Energy (C4CE)	Solar Citizens
Collaborative Energy	Solar Victoria
Community Services Directorate, ACT Government	State Electricity Commission (SEC) (Victoria)
Department of Energy and Economic Diversification (WA)	Victorian Council of Social Service (VCOSS)
Department for Energy and Mining (DEM) (South Australia)	Western Australian Council of Social Service (WACOSS)
Department of Climate Change, Energy & the Environment & Water (DCCEEW) (NSW)	Window Film Association of Australia and New Zealand (WFAANZ)
Department Energy, Environment and Climate Action (DEECA) (Victoria)	Western Australian Council of Social Service (WACOSS)
Department Energy, Environment and Climate Action (DEECA) (Victoria)	Window Film Association of Australia and New Zealand (WFAANZ)

Media

- August 2024 – **Keeping Australian homes warm in winter, cool in summer,** news article Monash Lens
- June 2025 – **'These 5 roadblocks are standing in the way of energy-efficient homes',** authored by EUAH researchers Jaime Comber, Ed Langham and UTS's Prof. Nimish Biloria, published in The Conversation online and syndicated by the Tasmanian Times, Architecture Magazine, MenaFM, Knowridge.com, UTS website
- June 2025 – **Interview with Ed Langham, ABC South East NSW Radio**

Web and newsletters

- May 2025 – **Climate-KIC Australia releases 2023-24 Impact Report,** authored by Chris Lee and Dominic McGann, news article on Climate-KIC website
- June 2025 – **Energy Upgrades for Australian Homes,** news article on UTS ISF website (also published in UTS ISF newsletter, The Wrap)

Social Media – LinkedIn

ISF LinkedIn

- **These 5 roadblocks are standing in the way of energy-efficient homes** – Impressions 636, Engagement 31
- **Energy Upgrades for Australian Homes (EUAH) project** – Impressions 877, Engagement 23
- **Transforming Australian homes: Major project addressing energy efficiency in existing Australian homes launches** – Impressions 996, Engagement 19

RACE for 2030

- **Driving energy upgrades in private rental homes** – Engagement 101

Climate-KIC

- **Energy Upgrades for Australian Homes** – Impressions 756, Engagement 54
- **Energy Upgrades for Australian Homes** – Impressions 816, Engagement 209
- **An update on the first year of Energy Upgrades for Australian Homes** – Impressions 493, Engagement 17
- **Energy Upgrades for Australian Homes (EUAH) project** – Impressions 448, Engagement 26
- **These 5 roadblocks are standing in the way of energy-efficient homes** – Impressions 942, Engagement 65
- **Connecting Community and Councils: Scaling Home energy upgrade programs** – Impressions 417, Engagement 19

How to connect with us

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Let's partner

- Financial institutions who have established Sustainable Upgrades home loan programs.
- State or federal departments who have or are programs developing home energy upgrade.
- Industry partners working across the supply chain and want more insights into delivery options for place-based programs
- NGOs and community groups leading other home energy upgrade programs.
- Anyone else interested and working across the ecosystem.

Energy Upgrades for Australian Homes

RACE for 2030

RELIABLE
AFFORDABLE
CLEAN
ENERGY

Australian Government
Department of Industry, Science and Resources

Cooperative Research Centres Program