

Energy Masters

Households and Networks

Information for research participants

About the research

From April 2024 to December 2027, researchers from the University of South Australia (UniSA), the Collaboration on Energy and Environmental Markets (CEEM) at UNSW and the Institute for Sustainable Futures (ISF) at University of Technology Sydney are undertaking a study to understand the implications and opportunities presented by flexible demand and home energy management systems (HEMS). This research project is funded by RACE for 2030 CRC and SA Power Networks (SAPN), with support from ARENA, the South Australian Department of Energy and Mining (DEM) and several industry partners.

As part of this research project, researchers from UniSA and UNSW are focusing on understanding how and why households interact with HEMS and different energy technologies, and exploring the impacts of these technologies, by answering the following questions:

- What are the financial costs and benefits of flexible demand technologies at the household level?
- What factors influence household decisions to adopt flexible demand technologies (or not), their interactions with these technologies and their energy behaviours?
- What are households' attitudes towards, and understandings of, flexible demand technologies and their impacts?
- How do different network management options most equitably maximise benefits and minimise negative impacts of HEMS?
- What are the opportunities and barriers to optimal deployment and operation of household electrical appliances and HEMS?

Researchers will collect energy data and carry out surveys and online interviews with household participants.

Your participation

All households participating in the Energy Masters pilot must also participate in some parts of the research project. Other parts are voluntary.

Required participation

- **Energy data:** All participants will allow researchers to access:
 - historic energy use data (meter data) for 24 months prior to the start of the project
 - energy use data collected through the HEMS
 - data concerning operation of the HEMS and appliances
 - operation and energy data from any solar PV and or battery system at the property
 - data relating to use of the Clipsal Cortex app

- **Surveys:** All participants will complete 3 surveys at the start, mid-point and end of the project. All completed surveys will be entered into a draw with a chance to win a \$1,000 digital gift card.

Voluntary participation

Researchers will invite *some* participants to participate in voluntary activities, including:

- **Semi-structured interviews**, carried out through an online app (such as Zoom or Microsoft Teams). The interviews will last approximately an hour and you may be invited to up to 4 interviews over the course of the project, or not at all. The interviews will be recorded and transcribed. All interview participants will be compensated for their time with a \$50 digital gift card.

We will ask you about your appliances (including electric hot water, air-conditioning, electric vehicles, solar and batteries, as appropriate), how and when you use them, your attitudes to and understanding of electrification, automation and demand response and your engagement with and experience of the Energy Masters Project.

In some cases, we will ask to interview several members of the household to understand different attitudes to energy use.

Your participation is entirely voluntary, and we will seek your consent to participate at the start of the interview. You are free to withdraw from participating at any time without providing a reason.

Use of information

- Your energy data, survey answers and transcripts of interviews will be de-identified by removing all personal information and stored securely.
- We will not identify any individuals when reporting the results of the research. Information you provide may be quoted in reports, but will not be attributed to you.
- De-identified energy data and survey responses will be shared with SAPN and the Energy Masters project partners.
- The deidentified energy data and survey responses will also be shared through open access (public) scientific databases, including internet databases. This will enable other researchers to use the data to investigate other important research questions.
- It is possible that a third party who already has access to your metered energy data could match energy usage data with their customer database to match this to the linked energy and survey dataset and identify your survey responses. There is no intention for this matching to occur as part of this research.

Outputs

One of the objectives of this project is to contribute to accelerating the development and deployment of systems that can help householders shift their demand for electricity to match the available supply of cheaper renewable energy. This will be done through providing information and advice to the HEMS industry and relevant policy makers to ensure they are prepared for the challenges and opportunities that HEMS present. This research will be compiled into a series of reports for SAPN and ARENA, along with a series of workshops with industry and policy stakeholders, presentations at industry focused conferences, and publications in industry and academic platforms.

Researchers

This research will be undertaken by

Dr Mike Roberts – UNSW (020 9065 0400), Dr Akshay Vij – UniSA, Dr Rob Passey – UNSW, Dr Shanil Samarakoon – UNSW, Dr Ali Ardeshiri – UniSA (08 8302 0817), Dr Lynette Washington – UniSA

Research ethics

Studies undertaken for this project have been approved in principle by the University of Technology Sydney, Human Research Ethics Committee. If you have any complaints or reservations about any aspect of your participation in this research you may contact the ISF Ethics Coordinators, (ISF-Ethics@uts.edu.au, +61 2 9514 4950) or the ISF Responsible Academic, Dr Jeremy Kohlitz (Jeremy.Kohlitz@uts.edu.au, +61 2 9514 4950).

You may also contact the UTS Ethics Committee through the Research Ethics Officer (02 9514 9772, Research.Ethics@uts.edu.au). Any complaint you make will be treated in confidence and investigated fully and you will be informed of the outcome.