# Position Details

## CSIRO Early Research Career (CERC) Engineering Fellowship– CSOF4

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| The following information is for applicants | |
| Advertised Job Title | CSIRO Engineering Fellowship in Data Driven Energy Modelling |
| Job Reference | 95145 |
| Tenure | Specified Term of 3 years  Full time |
| Salary Range | AU$92,624 to AU$101,459 pa (pro-rata for part-time)  plus up to 15.4% superannuation |
| Location(s) | Newcastle, NSW or Clayton, VIC preferred  Other locations will be considered |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Team Leader, Energy Systems program |
| Client Focus – Internal | 70% |
| Client Focus – External | 30% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Mark Goldsworthy via email mark.goldsworthy@csiro.au |
| How to apply | Apply online at <https://jobs.csiro.au/>  Internal applicants please apply via **Jobs Central**  If you experience difficulties when applying, please email [careers.online@csiro.au](mailto:careers.online@csiro.au) or call 1300 984 220. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

**Child Safety**

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](https://www.csiro.au/en/about/policies/child-safe-policy).

### Role Overview

**CSIRO Early Research Career (CERC) Fellowships** provide opportunities to scientists and engineers who have completed their doctorate or masters and have less than three years relevant research experience. These Fellowships aim to develop the next generation of future leaders of the innovation system through:

* A differentiated career development program to deliver capability excellence and breadth across all facets of the national innovation system.
* Research training via strategic research and development projects with a clear focus that will deliver real impact through science and engineering excellence;
* An innovative culture supporting the development and demonstration of original thinking and expertise leading to peer-recognition; and
* Opportunities to develop skills and experience in collaborative research teams to effectively work within national and global multi/transdisciplinary and multi-stakeholder environments.

CERC Fellows **are appointed for three years or full time equivalent.**

The CERC Fellow will work with the Energy Systems team to support CSIRO missions to enable affordable, reliable secure and sustainable electricity networks, and to enable flexible generation use and storage of electricity to support progress towards national emissions reduction targets.

The CERC Fellow will have formal training and or relevant experience developing high quality models of energy systems, specifically related to buildings, HVAC and/or Distributed Energy Resources. The CERC Fellow will have a strong code development background and a passion for deploying models and code for use in demonstration/prototype systems.

The CERC Fellow will work closely with internationally renowned research scientists and engineers to support Australia’s electricity system transition.

### Duties and Key Result Areas

In this role, you will develop physics informed data driven models for identifying opportunities for optimal operation and control of buildings and distributed energy resources including participation of buildings to deliver grid services. You will create new models and software and demonstrate their use in pilot facilities.

Under the direction of senior research scientists and engineers, the CERC fellow will:

* + Develop physics informed data driven algorithms for improving building operations.
  + Support development of packaged software for demonstration in real life scenarios/pilot setup.
  + Utilise best practice software management practices to work collaboratively with researchers.
  + Record, manage, and analyse data/information using relevant domain data science techniques and report results suitable for scientific dissemination.
  + Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
  + Recognise and exploit opportunities for innovation and the generation of new theoretical perspectives, and progress opportunities for the further development or creation of new lines of research.
  + Utilise design thinking methodology to plan and prepare research proposals, and apply non-academic impact methodology to research projects.
  + Carry out research investigations requiring originality, creativity and innovation.
  + Proactively undertake development to grow effective researcher capabilities to support career goals.
  + Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy and diversity initiatives.
* Other duties as directed.

The CERC Fellow learning, development and training programis developed between the CERC Fellow and their CSIRO supervisor. The program will focus on enhancing the Fellow’s capabilities to the level expected of an independent researcher and will include on-the-job and course-based development encompassing:

* Discipline-specific techniques and protocols
* Professional growth
* Project management
* Communication and influencing skills
* Working and collaborating with others

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A doctorate (or will shortly satisfy the requirements of a PhD) **OR** hold an engineering degree plus a Master of Science (MSc) or Master of Engineering (MEng) qualifications (or will shortly satisfy the requirements of a masters) plus significant contributions to research and development equivalent to that expected of a new PhD graduate. The doctorate or masters must be in a relevant discipline area, such as STEM (Science, Technology, Engineering, Mathematics). A PhD in the area of data driven building controls would be viewed favourable. Please note: To be eligible for this role you must have **no more than 3 years** (or full time equivalent) of relevant research experience.
2. Experience in writing high quality software in one or more common programming languages and using software development best practises including code repositories, continuous testing, and documentation.
3. High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including the presentation of research outcomes at national and international conferences.
4. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable**

1. Experience working with real-world data and implementing control solutions.
2. Energy domain experience.
3. A sound history of publication in peer reviewed journals and/or authorship of scientific papers, technical reports, grant applications or patents.

## **Required Competencies**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others reactions.
* **Resource Management/Leadership:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

To be appointed as a CERC Fellow within CSIRO, candidates are required to have **submitted** their doctoral or master thesis at the time of commencement, as a minimum requirement, if PhD or masters conferment has not been obtained. If a candidate has submitted, but their PhD or masters has not yet been formally attained, the starting salary will be CSOF4-1 ($89,680). Upon CSIRO receiving written confirmation that the PhD or masters has been awarded (within a six month period from commencement date), the salary will be increased to the negotiated level and the difference will be back-paid to the Officer’s start date.

Special Requirements

Appointment to this role is subject to provision of a pre-employment background check and may be subject to other security/medical/character clearance requirements.

* The successful candidate will undertake a pre-employment background check. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- https://ielts.com.au/

**Our value proposition**

We want CERC Fellows to join our world class science, engineering and digital teams to solve big, complex problems that make a real difference to the future of Australia and the world.

You'll get to work with some of the most talented minds in their fields, not just in Australia, but in the world. At CSIRO, we spark off each other, learn from each other, trust each other and collaborate closely to achieve more than we could individually.

CSIRO Early Research Career (CERC) Fellow Experience Employee Value Proposition (EVP). Find out more [here](https://www.csiro.au/en/careers/career-opportunities/Postdoctoral-fellowships)!

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [Towards net zero - CSIRO](https://www.csiro.au/en/about/challenges-missions/Towards-net-zero) and [Smart Energy - CSIRO](https://www.csiro.au/en/about/challenges-missions/Smart-Energy) if relevant for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted