# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants | |
| Advertised Job Title | Research Engineer – Renewable Fuels in Reciprocating Engines |
| Job Reference | 78181 |
| Tenure | Indefinite  Full-time |
| Salary Range | AU$102k to AU$111k pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Newcastle, NSW |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * All Candidates |
| Position reports to the | Team Leader, Low Emission Power & Transport Technologies |
| Client Focus – Internal | 70% |
| Client Focus – External | 30% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Dr Louis Wibberley via email at Louis.Wibberley@csiro.au or phone +61 2 4960 6050 |
| 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 area 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).

### Role Overview

The role of Research Scientist/Engineering Staff in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. You may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. You will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts.

The Research Engineer in Renewable Fuels in Reciprocating Engines position will be part of CSIRO Energy’s Low Emission Power & Transport Technologies team. The role will undertake research leading to the more efficient use of alternative feedstocks (ammonia and bioenergy) by alternative fuel processing plant and engine fuelling combinations. As such the work will range from fuel processing, fundamental combustion research using a large high pressure spray combustion chamber, operation/monitoring of test engines from kW-MW scale with field work on land-mounted generators, locomotive and ship engines. The Engineer will establish/update engine control systems using National Instruments MathCad, carry out detailed emissions monitoring from engines (laboratory and field) and assess environmental and health impacts, and assist in the establishment of National Demonstration programs in zero emissions electricity generation and transportation.

### Duties and Key Result Areas

* Under the supervision of more senior researchers, assist in the planning and preparation of research proposals and carry out research investigations, requiring originality, creativity and innovation.
* Undertake fundamental combustion research using a large high pressure spray combustion chamber.
* Establish/update engine control systems using National Instruments MathCad.
* Detailed emissions monitoring from engines (laboratory and field) and assess environmental and health impacts.
* Operate both laboratory engines and demonstration engines in the field (e.g. locomotive) to test new injection equipment, fuelling strategies, and emissions for ammonia and MRC fuels.
* Design of equipment (lab and full scale) using Autodesk Inventor/Fusion 360.
* Assist in the establishment of National Demonstration programs in zero emissions electricity generation or transportation.
* Select the most profitable line of attack upon a problem, prepare detailed design proposals and experimental protocols.
* Draw on professional expertise, knowledge of other disciplines and research experience to recognise opportunities for innovation and generate new theoretical perspectives by pursuing new ideas/approaches and networking with scientific colleagues across a range of disciplines.
* Participate in identification of further opportunities which arise from their research and may initiate new lines of research.
* Undertake activities focused on one or more elements of larger research projects.
* Apply discretion to decide and implement strategies appropriate to the successful completion of their work.
* Liaise with clients to determine their needs and take personal responsibility for client satisfaction.
* Present results in a meaningful format, prepare reports for clients and/or write scientific papers for publication.
* Address problems promptly and in a constructive manner.
* Undertake experimental and/or observational research activities and may supervise and/or train others to ensure experiments are established in accordance with research design.
* May provide supervision and coaching to students and technical staff.
* Maintain confidentiality when working with commercially sensitive information.
* Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Work collaboratively as part of a multi-disciplinary, regionally dispersed research team to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
* Other duties as directed.

## **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 responses by adapting/creating and testing alternative solutions.
* **Independence:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **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 change.

## **Selection Criteria**

#### Essential

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

1. A PhD (or an equivalent combination of qualifications and research experience) in a relevant field such as Chemical or Mechanical Engineering.
2. Proven experience in fuels combustion mechanisms in engines and fuel systems.
3. Practical knowledge of establishing / updating engine control systems.
4. Expert level experience of National Instruments Mathcad.
5. A history of working effectively as part of a multi-disciplinary, regionally dispersed project team, plus the motivation and discipline to carry out autonomous research.
6. Demonstrated ability to undertake original, creative and innovative research by generating and pursuing novel ideas and solutions to scientific research problems.
7. Excellent oral and written communication skills and a publication history of authorship on scientific papers in peer reviewed journals or reports, grant applications or inventorship on patent applications.
8. A current driver’s licence.

## **Desirable**

1. Expert level - Autodesk Inventor/Fusion 360.
2. Experienced in life cycle analysis.
3. Experience of carrying out detailed emissions monitoring from engines.
4. Knowledge of assessing environmental and health impacts of emissions from engines.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check as well as other security/medical/character clearance requirements.

* The successful candidate will be asked to obtain and provide evidence of a National Police Check or equivalent. Please note that people 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/
* To be willing and able to undertake travel and fieldwork as required.

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We solve the greatest challenges through innovative science and technology. To find out more visit us [online](http://www.csiro.au/)!

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

* 1. People First
  2. Further Together
  3. Making it Real
  4. Trusted

Find out more about CSIRO [Energy](https://www.csiro.au/en/Research/EF)