



ENGINEERS
AUSTRALIA



Ongoing Climate-responsible Engineering by Australia's Engineering Profession

Engineers Australia recognises the scale and urgency of the challenges presented by climate change, the disruptions it causes, and the pivotal role of engineering in enabling a socially just transition to a sustainable society.

Climate Action

Our engineering perspective is grounded in science and concerned with the management of risk and engineering resilience.

From a risk perspective, when the projected consequence is unacceptable, what can be done should be done to avoid, adapt and enhance resilience unless proved impracticable.

Engineering is not only fundamental to ensuring our prosperity and standard of living, but it is also pivotal in enabling society's choices to address climate change and help remedy associated impacts.

Engineering leadership and multi-disciplinary problem solving is crucial to achieving the necessary step changes toward a more sustainable society.

Practical solutions and innovative engineering are essential to transform systems, technologies and infrastructure.

Engineers must be at the forefront in policy formulation and decision-making affecting the scoping, planning, design, delivery and operation of systems for climate change mitigation and adaptation.

Immediate action at pace and scale must occur to minimise climate disruption. This includes rapid reductions in greenhouse gas emissions and adaptation to improve the resilience of communities, the environment and infrastructure.

Engineers Australia calls on governments, investors, the private sector and the wider community to work with the engineering profession to accelerate engineering innovation for a swift transition to a more sustainable economy.

Initiatives must include:

- *the principles of near zero emissions, climate resilience, and a circular economy in all policy, regulations, standards and technical specifications applicable to engineering*
- *a standardised means of calculating the emissions footprint of engineering works, products and services across the entire project and product lifecycle*
- *a mechanism to factor external costs including greenhouse gas emissions into product design, use, maintenance and project feasibility assessments*
- *a means of assessing the exposure of new and existing engineered systems to climate disruptions*
- *to inform and motivate mitigation and adaptation responses*
- *a means of monitoring and measuring progress to inform learning and improvement actions needed for climate change mitigation and adaptation*
- *improved education and training of members of the engineering team and the wider community on climate change, resilience and sustainability*

These initiatives will support engineers in their ethical responsibility to tackle climate change, and to proudly deliver the trusted products, assets and services that are the foundation for our future well-being.

Climate change is a complex and multifaceted problem. It requires an ambitious and effective national strategy for emissions reduction in support of near zero and zero emission industries underpinned by clean energy.

Substantial investment is needed, which will create new social and economic opportunities in all sectors and regions. Dedicated support must be provided to vulnerable industries, communities and workforces so they can take advantage of the opportunities the transition will deliver.

This climate action plan is being implemented under Engineers Australia's **Climate Smart Engineering Initiative (CSEI)** and aims to further the profession's public commitment to addressing climate change consistent with our climate position statement¹.

It includes 13 workstreams with 29 activities, with progress reviewed annually. Its implementation approaches support Engineers Australia's role as the peak body for the profession, as well as the critically important role of its membership in being impactful on climate change.

There are six key focus areas including:

1. Mitigation
2. Adaptation
3. Resilience
4. Circular economy
5. Capacity building
6. Economic opportunity

Our CSEI aims to support engineering innovators and changemakers to discuss, partner and collaborate on climate solutions in their professional lives.

The CSEI:

- serves as a central vehicle for climate action within the engineering profession
- demonstrates practical commitment to engineering-climate leadership
- identifies high-value engineering opportunities that align the systems and innovations necessary to decarbonise the world
- inform decision making on future engineering works and investments
- advocate for high value, real solutions that lead to measurable emissions reductions

The profession continues to adopt strong proactive approaches to practicing climate-responsible engineering on a life-cycle basis, including the adoption of world's best standards and deployment of near zero and zero technology applications across all engineering disciplines.



Nick Fleming
National President and
Chair of the Board

"Climate change is a critical and complex challenge impacting every sector of society. Engineers have a pivotal role to play in creating practical, effective, and affordable solutions that businesses, governments, and households can embrace at scale."



Romilly Madew AO
Chief Executive Officer
Engineers Australia

"Our overarching objectives for this climate action plan are to support our members and the engineering profession to respond to climate change in a manner that can help stem global warming with a sense of agency and urgency; and assist Australia to be more resilient in the face of increasingly frequent and extreme climate events – while also looking to help regenerate natural systems impacted by climate change.

We continue to work with our members to adopt innovative engineering approaches in their workplaces to enable Australia secure a rapid and just economic transformation to a future net zero emissions economy as soon as is possible."



Jane MacMaster
Chief Engineer
CSEI Executive Sponsor

"Engineers exist to make the world a safer place by creating sustainable solutions that serve the needs of the people, businesses, communities and the planet.

In this critical decade of action, it is more important than ever we support our members to be more impactful in leading the necessary shift in focus to the future sustainability and resilience of whole of life systems starting with more circular designs and resource use.

Our climate plan sets out a framework, and importantly, the activities and actions that can help Australia's engineering sector deliver real-world impacts to ensure these outcomes are supported, while also positioning it as one of the most important professions capable of addressing society's big issues, including climate change."

¹ [<https://www.engineersaustralia.org.au/policy-and-advocacy/climate-change>]

WS1 Stewardship

Leadership | Vision | Principles | Risk | Advocacy | Ethics

Objective: Leadership for the profession

Outcome: Enhanced policy outcomes

Activity 1.1

Develop, adopt and articulate a suite of climate objectives, principles and outcomes of which Engineers Australia's actions and advocacy efforts aspire to align to

Activity 1.2

Design and advocate for mechanisms that can embed the impact and cost of externalities into product design, pre- and feasibility assessments

Activity 1.3

Develop peer reviewed approaches of evaluating climate-related risks and exposures of new and existing engineering systems, and apply them to engineering decision-making

WS2 Workforce skills

Education | Competencies | Practices | Capacity building

Objective: Supportive pathways for cohorts

Outcome: Responsive profession

Activity 2.4

Provide education and training opportunities for members (and the wider community) on engineering-related climate change, resilience and sustainability matters

Activity 2.5

Educate the wider community (students, local governments, corporates) on engineering solutions to climate change, circular economy and sustainability

WS3 Competencies

Standards | Codes | Ratings | Regulatory

Objective: Strong standards framework

Outcome: Responsive profession

Activity 3.6

Develop near and net zero emissions engineering standards and technical specifications across lifecycles

Activity 3.7

Standardise existing carbon footprint calculations and methodologies (including for emissions and offsets) across the lifecycle; and reposit centrally for practicing engineers to access

WS4 Transparency

Measurement | Accounting | Assurance | Governance

Objective: Timely and accurate disclosures

Outcome: Responsive profession

Activity 4.8

Identify the engineering safeguards in standards and verification systems giving confidence of the climate credentials of solutions (e.g., offsets, H2)

Activity 4.9

Help engineers to transparently measure, monitor and publicly disclose their climate actions to inform learning and the implementation of continuous improvements

WS5 Tool kits

Tools | Advisory | Analysis | Data

Objective: Pragmatic resources

Outcome: Responsive profession

Activity 5.10

Analyse and communicate important global and national analysis and publications with opinion pieces on the most significant collateral

Activity 5.11

Develop guidelines, technical specifications and scorecards on practices of near and net zero emissions, climate positive and circular economy

WS6 Impact responses

Disaster management | Adaptation | Resilience | Indigenous knowledge

Objective: Disaster risk management and reduction

Outcome: Responsive profession

Activity 6.12

Explore how engineers might assist the disaster planning, recovery and resilience efforts of relevant agencies across all levels of government

WS7 Future pathways

Supply chains | Jurisdictions | Technology | Circularity

Objective: Engineering trajectories and options

Outcome: Responsive profession

Activity 7.13

Assist divisions advocate preferred climate futures with state and local governments including both top-down and bottom-up actions

WS8 Acting locally

Community | Transition | Empowerment

Objective: Value to community

Outcome: Responsive profession

Activity 8.14

Open, create and exploit opportunities for engineering students to evolve into professional climate responsible engineers

Activity 8.15

Inspire communities to take climate action by raising awareness and providing guidance

WS9 Communications

Communications | Portal | Champions | Showcasing

Objective: Knowledge sharing

Outcome: Responsive profession

Activity 9.16

Establish and make accessible a central repository for ideas, best-practices, strategic documents, climate-relevant policies and collateral

Activity 9.17

Support EA's Climate Smart Engineering conference

Activity 9.18

Develop FAQs and fact-sheets on engineering aspects of climate change

Activity 9.19

Promotion of key dates (UN Observance dates and others)

WS10 Working together

Missions | Partnerships | Collaborations | Conduit | Networks

Objective: An effective network

Outcome: Responsive profession

Activity 10.20

Support and leverage Learned Society led initiatives

Activity 10.21

Establish and nurture a deep and diverse professional climate network

Activity 10.22

Engage in the Professional Bodies Climate Action Charter (ANZ Forum) as co-chair

Activity 10.23

Engage in Griffith University's Alliance of Peaks as a founding partner

Activity 10.24

Engage in Materials & Embodied Carbon Leaders' Alliance (MECLA)

WS11 Inspiring action

Engineering incubator | Accelerator

Objective: Transitional and transformative engineering

Outcome: Responsive profession

Activity 11.25

Champion climate-engineering awards and competitions to encourage creative collaborations and disruptive engineering ideas to accelerate climate positive outcomes

WS12 Globally engaged

International | Sustainability | Nature solutions

Objective: Strengthening and leveraging global responses

Outcome: Responsive profession

Activity 12.26

Identify and support sustainable development opportunities (e.g., United Nations Sustainable Development Goals)

Activity 12.27

Engage in the business of the United Nations Framework Convention on Climate Change (UNFCCC) as an accredited stakeholder

Activity 12.28

Engage in the business of the United Nations Environment Assembly (UNEA) resolution for an international treaty to end plastic pollution as an accredited stakeholder

WS13 Ancillary actions

Ancillary | Actions | Responses | Challenges

Objective: Fit for purpose actions

Outcome: Responsive profession

Activity 13.29

Co-development of a climate risk tool