Annual review

2023–2024

ATSE

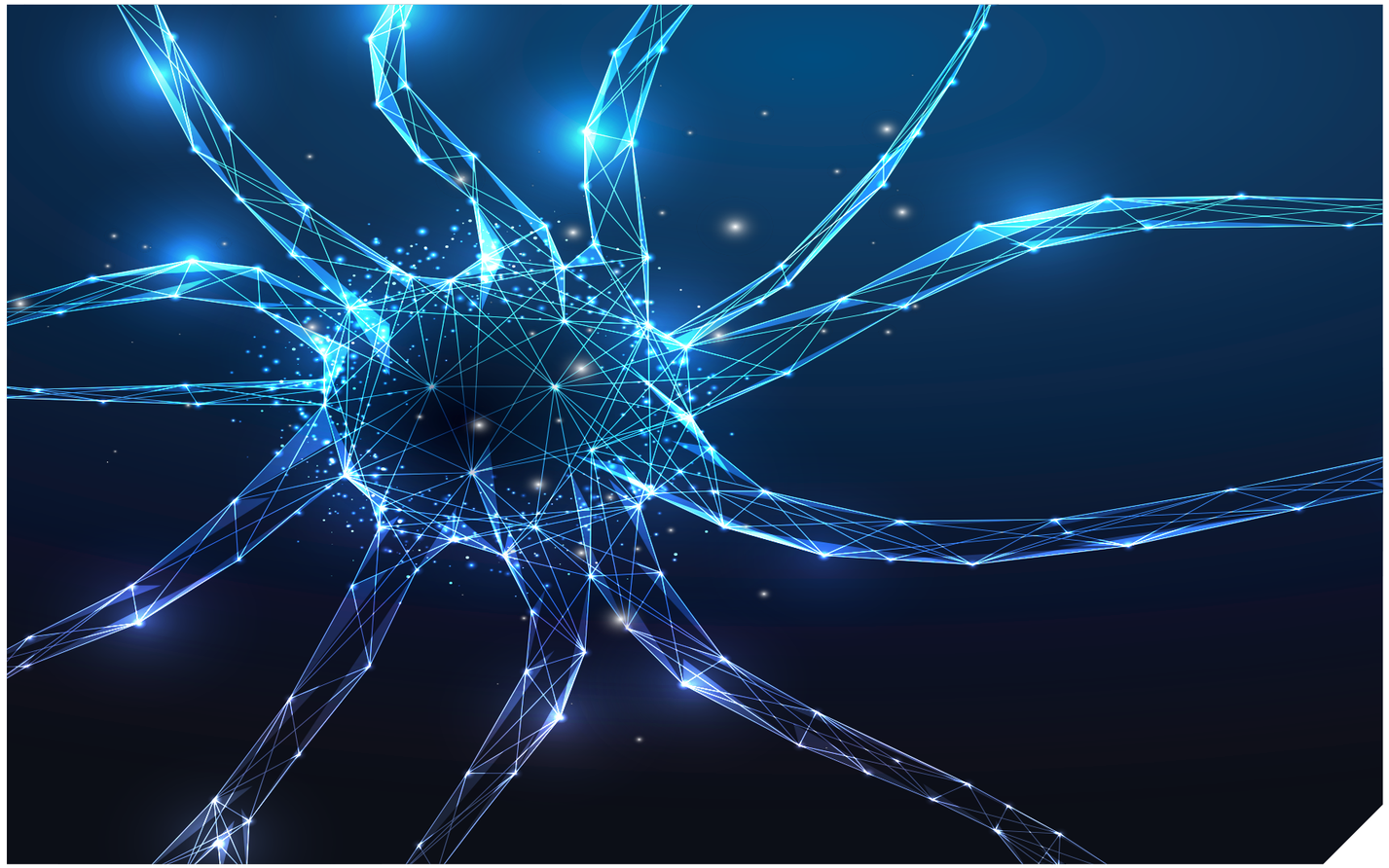
Australian Academy of Technological Sciences & Engineering

Australian Academy of Technological Sciences & Engineering

The Australian Academy of Technological Sciences and Engineering (ATSE) Fellows and staff live and work on Aboriginal and Torres Strait Islander lands and waters across Australia.

As we help Australians understand and use technology to solve complex problems, we remain mindful of the 60,000 years of science, technology and innovation represented by the world's oldest continuing cultures.

We acknowledge the Traditional Owners and pay respects to their Elders. We seek always to respect Aboriginal and Torres Strait Islander peoples, both from history and today, and to respect the deep knowledge and history of innovation embodied in their ancient and sustainable cultures and Knowledge.



ATSE is Australia's foremost impact network for leading applied scientists, technologists and engineers.

The Academy celebrates excellence in science, technology, engineering and mathematics (STEM) by appointing prestigious Fellows, awarding upcoming innovators and equipping the next generation with skills to build a better Australia and world.

We are an authoritative and independent voice to decision-makers, and our world-class STEM career programs are shaping the knowledge-makers and innovators we need to tackle our most urgent challenges.

VISION

A sustainable and prosperous Australia where engineering and applied sciences protect our environment, nurture a skilled workforce, grow competitive industries and enable all Australians to reach their greatest potential.

MISSION

We are a Learned Academy of independent experts helping Australians understand and use technology to solve complex problems.

WHAT WE DO

Inaugurated in 1976, ATSE was formed as a Fellowship of Australia's leading applied scientists, technologists and engineers, and mobilised their expertise behind government and community priorities.

ATSE has since grown to more than 900 Fellows who are at the forefront of innovation in response to climate change and energy transitions, digital transformation, technologies to support national security, food and water security, personalised medicine, advanced manufacturing, resilient infrastructure, and many other areas of applied science, technology and engineering vital to Australia's and the world's economic, social and environmental sustainability. We independently advocate for decisions, policies and planning based on the best available evidence. We build the STEM skills and help catalyse national investment in research and development (R&D) urgently needed to solve these issues.

An independent, non-government organisation and registered charity, we help grow a diverse and thriving STEM sector in Australia through:

STELR

Our hands-on, sustainability-focused science and engineering education program, STELR, is in more than 1,000 schools Australia-wide and internationally.

ELEVATE

Elevate is our undergraduate and PhD scholarship program which is propelling women and diverse people into STEM studies, networks and careers.

IMNIS

IMNIS, our industry mentoring network in STEM, pairs hundreds of PhD students and early-career researchers with industry leaders every year

GLOBAL SCIENCE & TECHNOLOGY DIPLOMACY FUND STRATEGIC ELEMENT

The Global Science and Technology Diplomacy Fund provides grants to grow international collaboration in our region and drive innovation and commercialisation across advanced manufacturing, quantum computing, artificial intelligence, hydrogen production and RNA vaccines and therapies.

President's message

Dr Katherine Woodthorpe
AO FTSE FAICD
ATSE President

Now in my second year as President of ATSE, I am energised by our Fellows and staff who continue to push our Academy into major national debates where engineers and applied scientists have a clear and urgent role to play.

In the past year, collectively we have helped inform and guide the national conversation on Artificial Intelligence, injecting fact-informed insights into how Australia can take a leading role globally in safe and responsible use of AI, which minimises harms and maximises its potential. We've helped set the agenda on climate change by urging for more ambitious emissions reductions targets that align with science and can help galvanise hearts, minds and innovation to get on with the decarbonisation challenge. We've led by example by growing our STEM career programs with schools, early career researchers and aspiring industry leaders with a critical focus on diversity and supporting those often left behind by Australia's education system. We've strengthened international science and technology diplomacy and fostered new collaborations between our near neighbours on major global challenges.

Our advice to decision makers and media engagement has never been more pertinent and embraced in this age of misinformation.

It's a privilege to work and collaborate with our Fellows and drive systems change on national and global scales, through and with their ingenuity.

Chief Executive Officer's message

Kylie Walker
ATSE Chief Executive Officer

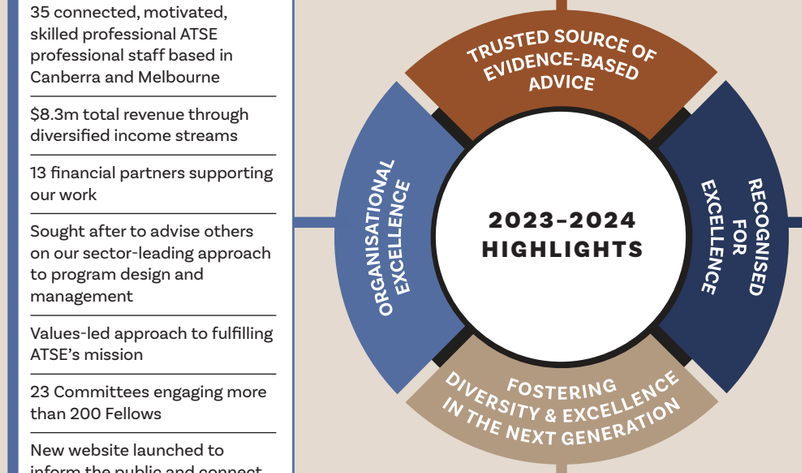
ATSE has never shied from complex problems: it's baked into our mission. Our strength lies in our expertise, independence, and broad convening power, and the partnership of our expert Fellows with skilled professional staff. Building on a foundation of nearly half a century of providing timely evidence-based advice to national leadership, this past year has brought unprecedented opportunity to support Australian leaders to navigate – and find opportunity in – increasingly complex and interwoven challenges.

As society runs to keep up with the implications of rapidly evolving digital technologies, juggles the urgent and significant challenge of energy transition, works to integrate new approaches to health and medical diagnostics and care, grapples with how to educate the workforce of the future, and grows new industries, I'm proud that our Academy is called upon to advise state and federal political and policy-making leaders, and decision-makers in business, education, and local communities. I'm proud, too, that we're working in schools, universities and workplaces, to educate, empower and equip a new generation of technologically-skilled knowledge-makers and innovators through national award-winning initiatives.

We know the work of our expert Fellows, in partnership with our high-performing professional team, is making a difference – helping Australians to understand and use technology, build opportunity, and craft an informed and empowered future.

At a glance

- 52 submissions guiding decision makers, with 32 acted on
- 43 government reports released that mentioned or adopted ATSE's advice
- 6 parliamentary hearing appearances to provide expertise
- 9 Policy Forums uniting 500+ experts from agriculture, digital technology, education, energy, health, industry & innovation, infrastructure, mineral resources and water
- Leading our international community through positions on the Board and committees of the international Council of Academies of Engineering and Technological Sciences
- 8 major research reports
- 2000+ media mentions across major Australian and international news media
- 3 major press briefings
- 7 published opinion pieces
- 59 ATSE events uniting 4200+ people, spearheaded by our 7 state and territory Divisions and professional team
- 110,000+ website visitors



- 35 connected, motivated, skilled professional ATSE professional staff based in Canberra and Melbourne
- $8.3m total revenue through diversified income streams
- 13 financial partners supporting our work
- Sought after to advise others on our sector-leading approach to program design and management
- Values-led approach to fulfilling ATSE's mission
- 23 Committees engaging more than 200 Fellows
- New website launched to inform the public and connect Fellows

- 917 Fellows
- 33 new Fellows elected in 2023 from across Australia
- 100+ awards and honours received by Fellows
- 7 State and Territory ATSE Divisions NSW, VIC, SA & NT, WA, QLD, TAS and ACT
- 9 ATSE award winners spanning innovators in Traditional Knowledge applications, laser technology and climate change
- 17,810 social media followers
- 2 editions of IMPACT magazine featuring 32 articles written by Fellows

IMNIS

- 371 STEM PhD student mentees matched with industry mentors
- 2000+ alumni still engaged
- 16 IMNIS Catalysts empowered as ambassadors
- 5 high-level networking events
- 12 professional development and industry-focused sessions

STELR

- 1000+ schools, education centres and universities reached
- 1410 new hands-on science and engineering kits supplied to 109 schools
- 26 new schools have joined the STELR school network this year
- Online and live Shape Your Future STEM Career Webinars bringing leaders and young STEM professionals live to 95 schools, 117 teachers and 1036 students

ELEVATE

- 1263 applications
- 116 scholarships awarded
- 74 undergraduate scholars, 32 postgraduate research scholars, and 10 leadership scholars
- 32 universities across seven states and territories host scholars
- 13 events and workshops
- Welcomed the Department of Defence as a new program partner
- Highlighted in the federal Diversity in STEM review as a national exemplar program

OTHER

- Launched the ATSE Emerging Leaders Network with 15 early career STEM professionals
- Diversity & Inclusion Toolkit received merit recognition - 2024 Tech Diversity Awards
- Launched the Traditional Knowledge Award, recognising STEM-based application of ancient knowledge in the modern context

ANNUAL REVIEW 2023-2024 — Australian Academy of Technological Sciences and Engineering
5

Trusted source of evidence-based advice

Drawing on our expert network of Fellows which counts Chief Scientists, CEOs, ASX Directors, Vice-Chancellors, and other STEM leaders, ATSE is a trusted adviser to industry, government, education, and society. In 2023-24, we provided independent, timely and solutions-focused advice on Australia's most wicked challenges spanning climate change, artificial intelligence, digital security, robotics, education, research and development, diversity in STEM, energy and water security, to name a few.

IMPACTFUL POLICY STATEMENTS AND SUBMISSIONS

Universities Accord Review
ATSE engaged throughout the Accord process, starting with a submission on the Terms of Reference and responses to the discussion paper and interim report. ATSE welcomed the final report release in February 2024, which emphasised increasing investment in research and development (R&D), enhancing diversity and inclusion, and prioritising critical skills. The Accord adopted several ATSE recommendations, including better interfacing with vocational institutions, replacing the Job-Ready Graduates cost model, creating additional income support for research students, developing a research evaluation framework, and providing more opportunities for early-career researchers. The Accord also recommended a campaign to build aspiration for tertiary education – aligning with our recommendation in ATSE's 2022 report *Our STEM Skilled Future*.

Diversity in STEM Review
We provided submissions to all three stages of the consultation and welcomed the release of the final report in February 2024, and in particular the recommendation to expand ATSE's Elevate: Boosting Diversity in STEM program to additional diverse cohorts of STEM scholars. Many of the review's recommendations echo ATSE's submissions, including developing a centralised strategy for diversity in STEM, using government grant criteria to encourage uptake of diversity initiatives, and basing programs on evidence and best practice. The Review praised ATSE's approach to the Elevate program and our Diversity and Inclusion for STEM workforce's toolkit.

National Science and Research Priorities
ATSE engaged deeply throughout the process, making submissions to both stages of consultation, participating in roundtables and other conversations to refine the Priorities. The draft Priorities reflected many of ATSE's recommendations including creating a stand-alone priority for Traditional Knowledge, embedding references to skills and education, highlighting carbon removal technologies, and noting the need for anticipating future infectious disease outbreaks. The accompanying National Science Statement features commitments that ATSE has long advocated for including in a national vision of what science can be in Australia.

Federal Budget
The 2024-25 Federal Budget, released in May 2024, directly reflected advice provided by ATSE across a range of our submissions and government relations work including:

- Committing to an independent review of research and development
- Education and engagement to support compliance with the new Defence Trade Controls Amendment Act
- Investments to fast-track decarbonisation across high-emitting industries
- Support for workforce development and transitioning workers to clean energy jobs
- Implementing the Australian Carbon Credit Unit scheme
- Improving gender diversity in male-dominated workplaces
- Harmonising between university and vocational education
- Implementing aspects of the Murray-Darling Plan, including upgrading modelling and voluntary water purchases
- Funding for AI technology adoption.

SUBMISSIONS TO GOVERNMENT

ATSE's submissions to parliamentary inquiries and government reviews in 2023-24 covered a broad range of topics drawing on the skills and expertise of our Fellowship, including water security, defence trade legislation, emissions targets, artificial intelligence, energy, the establishment of the Net Zero Economy Authority, circular economy, electric vehicles, gas, hydrogen, RNA therapies, STEM education, among many others.

- ATSE was invited to provide evidence at 6 formal hearings demonstrating that our advice is valued by MPs and Senators at both state and federal levels.
- We were also invited to provide independent advice through private seminars and conversations with political leaders from across the spectrum
- ATSE's advice (from submissions and hearing appearances) was directly cited or quoted in 14 inquiry reports released this financial year.
- Recommendations from 32 ATSE submissions were being partially or fully adopted in government reports released this financial year.

Highlights of submissions impact include:

- **Murray-Darling Basin Plan Implementation Review** ATSE's ideas are reflected in five of the report's recommendations focusing on water buybacks, accounting for climate change, coordination and consolidating community engagement.
- **National Water Reform** The Productivity Commission's final report leaned on ATSE's advice on managing water resources for climate change and water security, and ensuring governments make transparent and compliant water investment decisions. The report extensively quoted and cited ATSE's submissions.
- **Critical Minerals List** ATSE's submission recommended tin, copper, nickel and zinc should be considered for future iterations of the Critical Minerals List. This was partially implemented with these elements being added to a new Strategic Minerals List.
- **Impact of Severe Weather Events on the National Road Network** The final report reflected ATSE's advice on probabilistic climate risk assessment, improved data collection, and Traditional Knowledge. ATSE was cited /quoted seven times in the final report.
- **ARC Act Amendment** The Ministerial ARC veto removal was legislated in March 2024 – representing years of advocacy from ATSE and peer organisations.
- **Defence Trade Controls Amendment Bill** ATSE and the Australian Academy of Science collaborated to urge the inclusion of a basic science exemption for the new defence trade controls regime. This recommendation was adopted using the suggested wording developed by both organisations.

You can read all of ATSE's policy statements and submissions: atse.org.au/what-we-do/strategic-advice

PROJECTS HELPING AUSTRALIA REALISE ITS INNOVATION POTENTIAL

Powering the Net Zero Transition: Electricity Security Explained
This explainer was launched and discussed during a parliamentary briefing convened by Independent MP Kylea Tink along with ATSE experts in September 2023. ATSE offered its expert advice to independent MPs on the evolution of Australia's energy mix and grid. The Explainer was widely reported on in media outlets.

Position Statement: Becoming a net zero nation
ATSE released an updated Net Zero Position Statement in September 2023, acknowledging that more ambitious targets are needed to galvanise action to limit global warming to 1.5 degrees Celsius. ATSE recommended the Federal Government commit to an ambitious target of net zero greenhouse gas emissions by 2035. The launch garnered national media coverage setting the news agenda for the day and has informed the Climate Change Authority in its recommendations regarding Australia's future targets.

"The science is unequivocal, the climate induced catastrophes are irrefutable. ATSE calls for leaders across every Australian sector to join us in making Australia a frontrunner amongst global peers, in setting an ambitious target of net zero greenhouse gas emissions by 2035."

Dr Katherine Woodthorpe AO FTSE FAICD
ATSE President

ATSE Fellows and CEO brief independent MPs on the Powering the Net Zero Transition explainer

ATSE President Katherine Woodthorpe AO FTSE FAICD and ATSE CEO Kylie Walker launching the Net Zero Position Statement at Parliament House.

Responsible AI: Your Questions Answered
ATSE embarked on a national project with the Australian Institute of Machine Learning (AIML) to analyse the potential for AI to augment, simplify and improve the way we live our lives and consider pathways to responsibly deployed and regulate it. ATSE supported 13 AI thought leaders to prepare essays which crystalised the urgent need to build social license and public understanding, as well as spearhead new AI research and development in order for Australia to claim it's AI opportunity. Launched in November 2023, the essay series generated national media coverage across broadcast, online and print media.

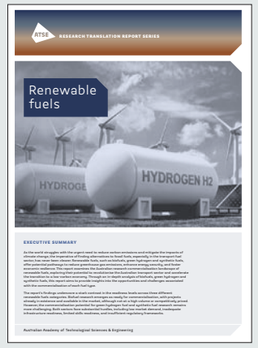
ATSE has since been invited to brief senior policymakers at the state and federal level, and to provide ongoing media commentary on AI technologies and their role in contemporary and future society.

A thriving Murray-Darling Basin in 50 years: Actions in the face of climate change
Launched in March 2024, The Thriving Murray-Darling Basin project explored what is needed in the Basin for a resilient, healthy and sustainable river system and a thriving, resilient community in the face of a changing climate over the next 50 years.

Invited through ATSE's Water Forum, eminent ATSE Fellows and other recognised scholars developed a science- and technology-informed perspective for the long-term future of the Murray-Darling Basin by contributing essays on various aspects of its ecosystem and economy with a 50-year horizon perspective. The launch resulted in extensive regional and national media coverage and requests to collaborate with the Murray-Darling Basin Authority.

Oil and gas decommissioning report
ATSE partnered with the Department of Industry, Science and Resources (DISR) to produce a comprehensive report outlining new and emerging technologies that could be used in the decommissioning of offshore oil and gas facilities. The report also explored potential future career paths for workers in this sector, leveraging their existing skill profiles. This report will be used by the Department to inform the development of a decommissioning offshore oil and gas roadmap.

Research translation and commercialisation report series
ATSE's series of deep-dive reports, in partnership with the Federal Department of Education, is exploring opportunities for commercialising existing research at Australian universities, to advise on applications for the Australian Economic Accelerator. Four reports were delivered over the past year, exploring artificial intelligence, quantum technology, renewable fuels, and agricultural technologies. These reports are also being used to inform development and implementation of a range of Government policies and programs relating to research translation and commercialisation in Australia, including: CSIRO's Main Sequence Ventures; Start-up Year loan program (SY-HELP); Industry-focused PhDs and fellowship programs; and Trailblazers Universities Program.

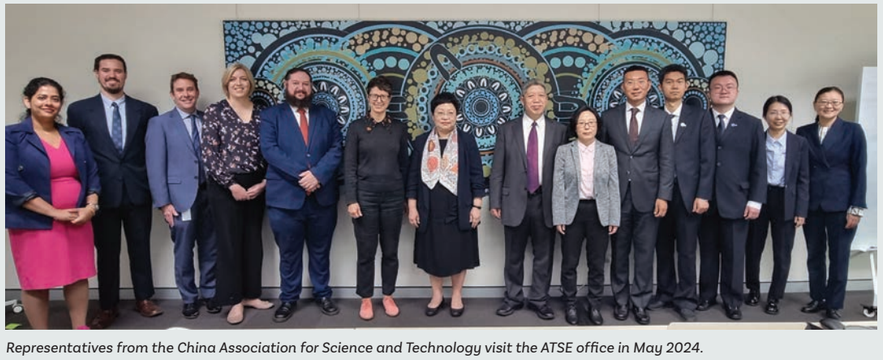


STRONG INTERNATIONAL COLLABORATIONS

Global Science and Technology Diplomacy Fund – Strategic Element
In March, Hon Ed Husic MP, Minister for Industry and Science, and Senator Penny Wong, Minister for Foreign Affairs and Trade announced the $40 million Global Science and Technology Diplomacy Fund. As part of the Fund, ATSE is leading a collaboration with the Australian Academy of Science to deliver $6 million in round-one grants to strengthen science and technology collaboration with regional neighbors in Indonesia, Malaysia, Singapore, Thailand, Vietnam, New Zealand, Japan, the Republic of Korea and Brazil. The grants focus on national priorities such as advanced manufacturing, AI, quantum computing, hydrogen production and RNA vaccines and aim to grow international collaboration in our region and drive innovation and commercialisation in priority areas. The demand for grants has been high with over 500 eligible expressions of interest submitted for the first round.

Engaging on global challenges through international engineering academies conferences
The ATSE President, Fellow Keith Hampson and professional staff attended the annual conference of the international Council of Academies of Engineering and Technological Sciences (CAETS) in Helsinki, Finland, which focused on Carbon Neutral Technologies and Society. Dr Woodthorpe joined the Board of CAETS, with ATSE also taking leadership roles across many of its committees. The delegation promoted CAETS 2025, which ATSE will host in Brisbane, and prepared for the ATSE President's role as CAETS President in 2025. Bilateral meetings with key Academies (US, UK, NZ, Korea, India, Germany, Sweden) were effective in identifying shared priorities for collaboration, as well as promoting CAETS 2025 and the Global Science and Technology Diplomacy Fund.

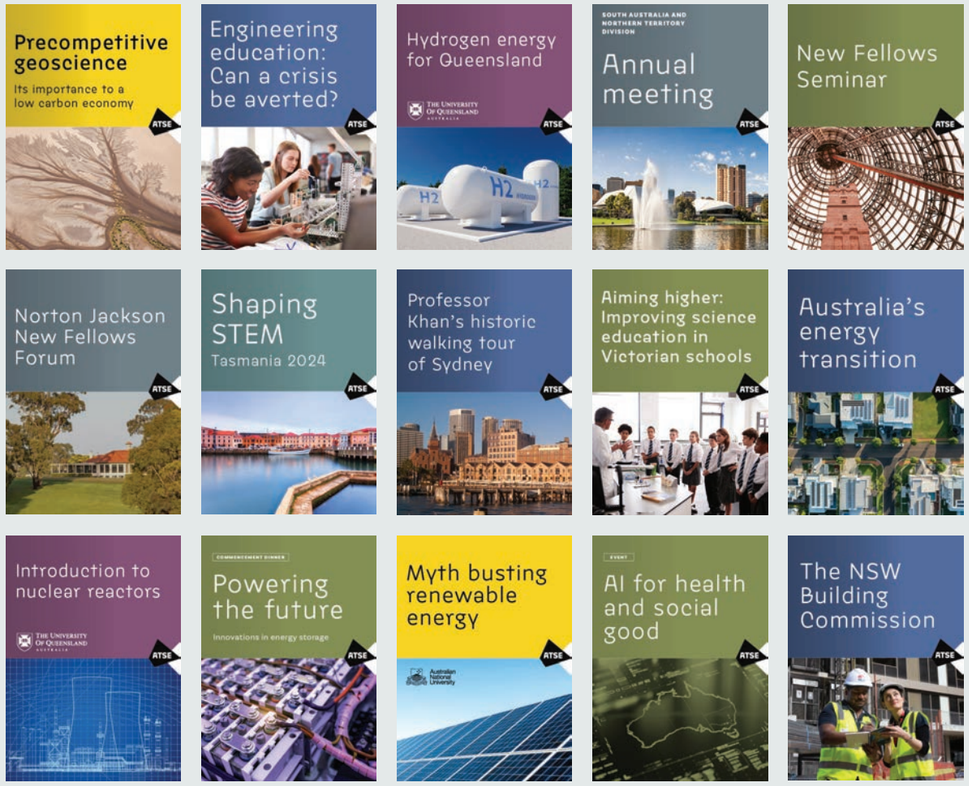
Design and Delivery of Large Engineering Projects Forum
On June 3-4, ATSE co-hosted an online forum on the Design and Delivery of Large Engineering Projects together with the Canadian Academy of Engineering (CAE), the Royal Academy of Engineering of the United Kingdom (RAEng), and the National Academy of Engineering of the United States (NAE). The two-day forum focused on challenges, solutions, and trends in delivering large engineering projects, aiming to provide insights based on participants' experience.



Representatives from the China Association for Science and Technology visit the ATSE office in May 2024.

EVENTS THAT INSPIRE AND INFORM

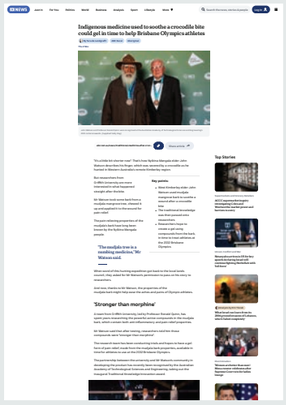
ATSE Forums, Divisions and STEM Career Programs held 59 high-impact events bringing together over 4,200 people and covering issues ranging from the future of higher education, renewable technologies through to water security and hydrogen technologies and precompetitive geoscience.

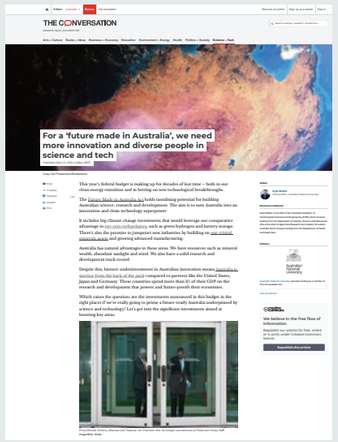


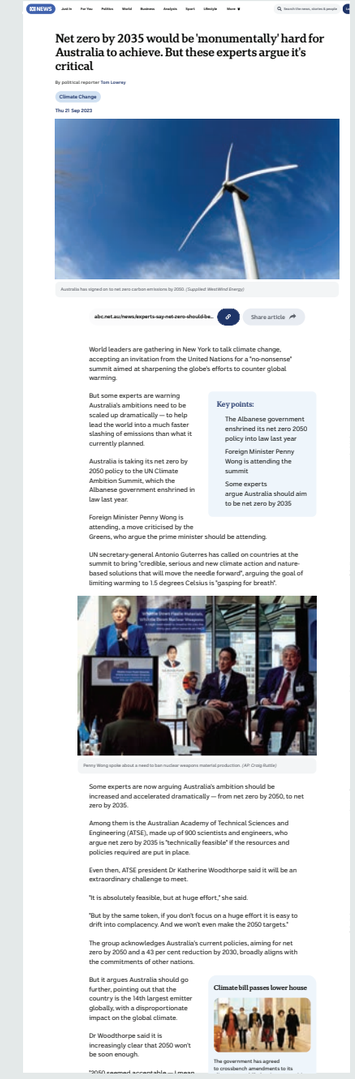
MEDIA ENGAGEMENT

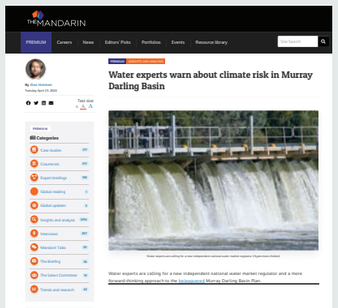
3011 media mentions
68 unsolicited journalist requests for interviews from ATSE and its Fellows
The Antimicrobial Resistance Report Launch reached **9 million** people.

ATSE and our Fellows were mentioned in stories from a range of local, national, and international news organisations such as The Guardian, the ABC (and local ABC broadcasters), The Sydney Morning Herald, Age, The Australian, COSMOS Magazine, the Australian Financial Review, The Conversation, The Herald Sun, Channel 10, 9, 7, Sky, SBS and many more. Noteworthy highlights include widespread national coverage for the launch of ATSE's Net Zero Position Statement, the inaugural Traditional Knowledge Innovation Award, our Responsible AI and Murray Darling Basin Essay Series, and ATSE's response to the Federal Budget.









Recognised for excellence

Excellence in applied science, engineering and technology is at the heart of ATSE. We attract diverse and outstanding talent to our Fellowship and programs. Our Fellows are highly engaged, mobilised and professionally supported to proactively and positively contribute to achieving a sustainable and prosperous Australia.

ELECTING AND ATTRACTING AN OUTSTANDING DIVERSITY OF TALENT

New Fellows 2023

Professor Joanna Batstone FTSE

Responsible AI champion

Dr Susannah Eliott FTSE

Science communicator and evidence advocate

Dr Therese Flapper FTSE

Water sustainability superpower

Professor Stephen Foster FTSE

Structural engineering specialist

Professor Yue Gao FTSE

Space and defence laser innovator

Professor Anna Giacomini FTSE

Rockfall mechanics maestro

Professor Bronwyn Gillanders FTSE

Oceans advocate

Professor David Grayden FTSE

Brain decoder and entrepreneurial mentor

NEW FELLOWS

Professor Zaiping Guo FTSE FAA

Cutting-edge battery innovator

Professor Susanne Hermesch FTSE

Livestock genetics expert

Dr Alistair Hobday FTSE

Marine sustainability steward

Mikaela Jade FTSE

Trailblazing edutech entrepreneur

Professor Baohua Jia FTSE

Photonics game-changer

Adjunct Professor Daniel Lambert FTSE

World water engineer

Professor Guillaume Lessene FTSE

Cancer therapy designer

Professor Yun Liu FTSE

Advanced materials chemist

Jane MacMaster FTSE

National engineering influencer

Professor Christopher Matthews FTSE

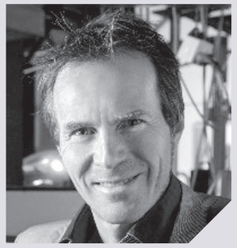
Indigenous education champion

Su McCluskey FTSE

Agriculture advocate

Professor Anna Moore FTSE

Astronomer, inventor and pioneer



Professor Graham Nathan FTSE

Decarbonisation developer

Professor Tuan Ngo FTSE

Sustainable building specialist

Lara Olsen FTSE

Sustainable technology leader

Dr Glenn Platt FTSE

Renewable energy changemaker

Professor Chamindie Punyadeera FTSE

Biomedical innovator

Distinguished Professor Brian Schmidt

AC FTSE FAA FRS

STEM research and education advocate

Dr Penny Stewart FTSE

Industrial data science entrepreneur

Distinguished Professor Vivian Tam FTSE

Green construction innovator

Professor David Taubman FTSE

Digital media expert

Daniel Westerman FTSE

Energy transition expert

Sally-Ann Williams FTSE

Innovation leader

HONORARY FELLOW

Professor Sandra Eades

AO FTSE FASSA FAHMS

Indigenous health trailblazer

FOREIGN FELLOW

Dr Sangeeta Bhatia FTSE

Tissue technologistand entrepreneur

2023-2024

Diversity & Inclusion

The Australian Academy of Technological Sciences and Engineering commits to working proactively for a more diverse and inclusive Academy and STEM sector.

Australian Academy of Technological Sciences & Engineering

ACADEMY GOVERNANCE & LEADERSHIP

BOARD

Total - 9
67% women - 6
33% men - 3
40/40/20 - no

COMMITTEES

Ex-officio positions have not been included in calculations. Where TORs permit or require non-Fellows, these persons have been included in calculations (Audit & Risk, Traditional Knowledge Innovation Award)

Membership - 50
54% women - 27
46% men - 23
40/40/20 - yes

Audit & Risk - 5
40% women - 2
60% men - 3
40/40/20 - yes

Awards - 35
43% women - 15
57% men - 20
40/40/20 - yes

Diversity & Inclusion - 9
56% women - 5
44% men - 4
40/40/20 - yes

Int. Strategy Group - 9
33% women - 3
67% men - 6
40/40/20 - no

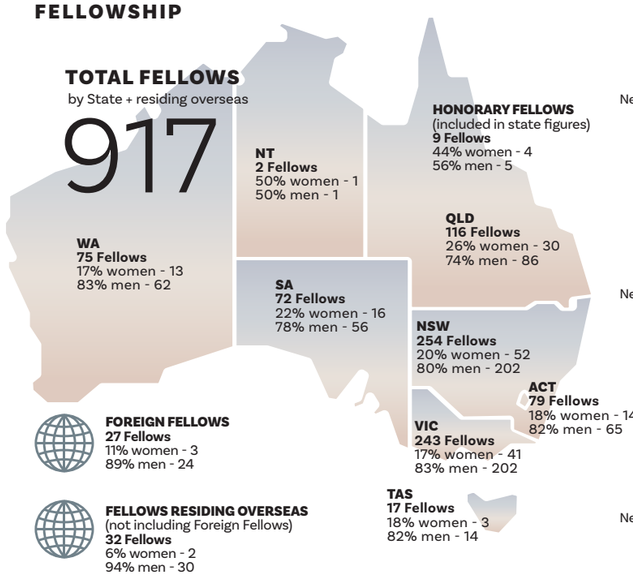
ASSEMBLY

Total - 34
47% women - 16
53% men - 18
40/40/20 - yes

DIVISION Committees	Total	Women	%	Men	%	40/40/20*
Total	**73**	**30**	**41%**	**43**	**59%**	**Yes**
ACT	7	2	29%	5	71%	No
NSW	18	7	39%	11	61%	No
QLD	15	8	53%	7	47%	Yes
SA/NT	12	6	50%	6	50%	Yes
TAS	2	0	0%	2	100%	No
VIC	6	3	50%	3	50%	Yes
WA	13	4	31%	9	69%	No

FORUM Committees	Total	Women	%	Men	%	40/40/20
Total	**50**	**24**	**48%**	**26**	**52%**	**Yes**
Agriculture & Food	3	1	33%	2	67%	No
Digital Futures	6	4	67%	2	33%	No
Education	6	4	67%	2	33%	No
Energy	5	2	40%	3	60%	Yes
Health	6	3	50%	3	50%	No
Industry & Innovation	6	5	83%	1	17%	No
Infrastructure	8	2	25%	6	75%	No
Mineral Resources	3	0	0%	3	100%	No
Water	7	3	43%	4	57%	Yes

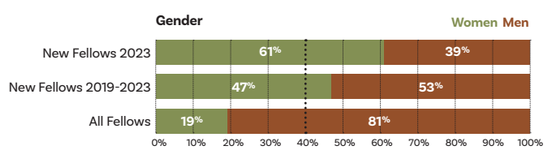
FELLOWSHIP



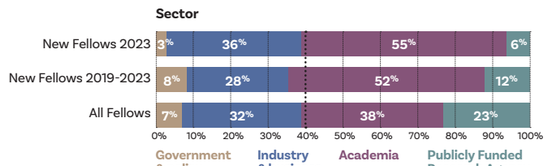
Financial Status / age	Total	Women	%	Men	%	Average Age	Median Age
All Fellows	917	175	19%	742	81%	72	73
Financial	637	159	25%	478	75%	67	68
Non-Financial	280	16	6%	264	94%	83	83

Financial fellows are those still working or fully retired. Non-financial fellows are those fee exempt, foreign or honorary fellows or those with lifetime membership, aged 80+.

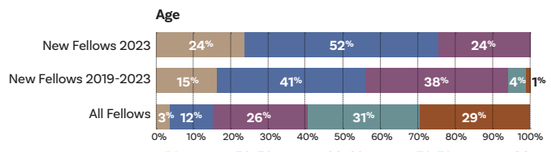
*40/40/20: ATSE commits to a contemporary and practical 40:40:20 approach to ensure a balanced gender representation, comprising 40% women, 40% men, and 20% of any gender across our leadership, representative and advisory bodies

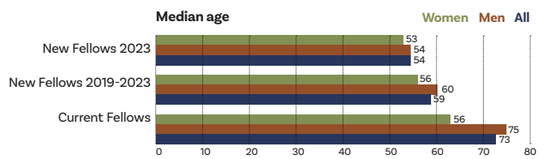


We aim to achieve 40% women for new Fellows



We aim to achieve 40% Govt/policy & Industry/business combined.

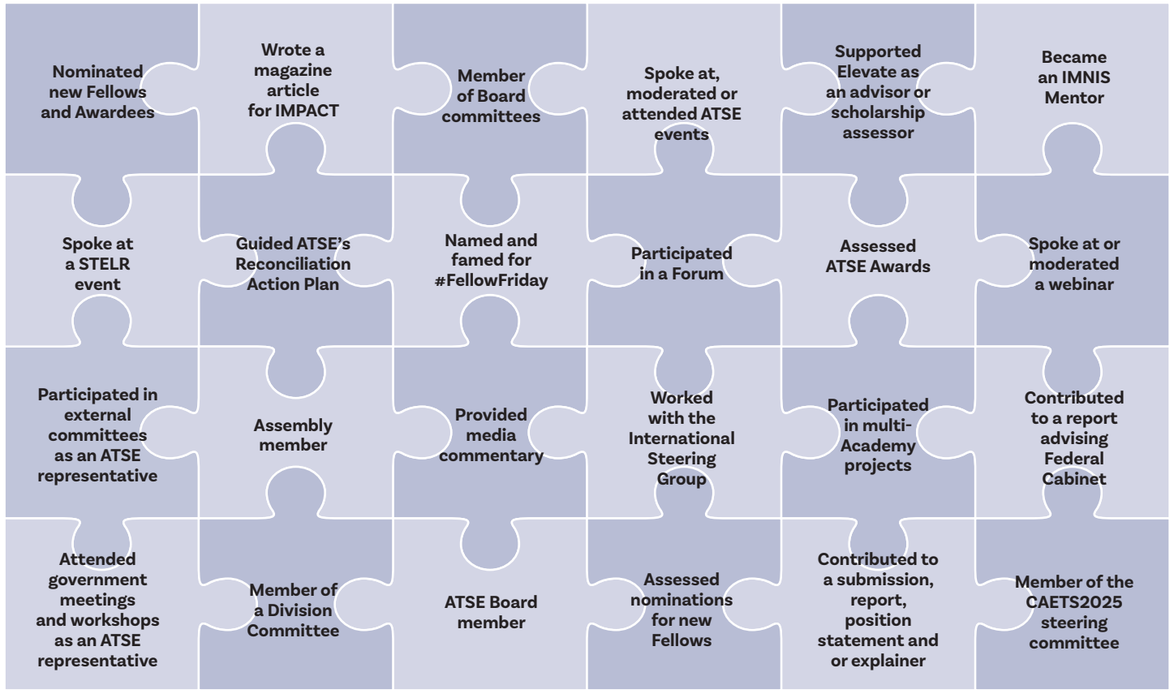




PROACTIVE ENGAGEMENT OF FELLOWS

ATSE Divisions, Forums and professional staff continued to work collaboratively to showcase the excellence of the Academy and its Fellows. Hundreds of ATSE Fellows give their time, energy, expertise and ingenuity across the year to deliver the Academy's mission. If Fellows' time was quantified in the same way as senior consultants, this work would be worth an estimated $2.5 million this year.

A snapshot of how ATSE Fellows engage



Vale

The ATSE community was saddened to lose treasured friends and collaborators through the year. We recognise and remember the following late Fellows:

Adjunct Professor Greg Tegart AM FTSE
(27/03/1929-07/07/2023)

Dr Hari Sinha AM FTSE
(01/07/1929-07/07/2023)

Harry Wragge AM FTSE
(23/11/1929-31/07/2023)

The Hon Michael Ahern AO FTSE
(06/02/1942-11/08/2023)

Dr Frank Lawson FTSE
(12/07/1930-10/04/2024)

Dr John Gladstones AM FTSE
(14/02/1932-24/04/2024)

Professor Dagan Feng FTSE
(21/07/1948-04/05/2024)

Dr John Christian AO FTSE
(26/03/1925-09/05/2024)

Dr Gordon Bell FTSE
(19/08/1934-17/05/2024)

SOCIAL MEDIA ENGAGEMENT

ATSE's #FellowFriday social media campaign shone a spotlight on one remarkable Fellow each week, celebrating their achievements and thought leadership. The campaign generated an estimated reach of 722,740 people, 70,180 impressions and 2,171 engagements across Instagram, Facebook, X and LinkedIn.

Social media followers
Up by 25.25% to 17,810 followers

Potential reach 13.54 million people, 93,820 impressions and 27,640 engagements

ATSE Awards 2023

STRONGLY CONTESTED AND HIGH-PROFILE NATIONAL AWARDS

Weaving Traditional Knowledge with western science for a new approach to pain relief, tapping into green energy using recycling byproducts, and a revolutionary new approach to sustainability for the beef and lamb industry, were all celebrated at the ATSE Annual Awards.

The winning engineers and technologists were recognised for their groundbreaking work on Australia's toughest issues, spanning climate change, mining, plastic waste, battery tech and food security among others, during a ceremony at the National Arboretum in Canberra.

ATSE President, Dr Katherine Woodthorpe AO FTSE FAICD, said the winners' innovation, drive, and impact were exemplars for the game-changing application of Australian research.

"The winners of the 2023 ATSE Awards are exemplary engineers, applied scientists, and leaders in technology; their shining example is an inspiration as we reflect on and celebrate the novel science and engineering endeavours that are bettering our world," Dr Woodthorpe said.

"Australian innovators are changing the world for the better. I am thrilled to see our national award winners' game-changing work forging new territory in medical technology, climate solutions, critical minerals, food technology, and waste reduction."

Left > right: Dr James Tickner, Professor Ronald Quinn AM FTSE, Bailey Richardson, John Watson, Dr Conrad Wasko, Laila Amanda Halim, Dr Natalie Morgan, Dr Marzi Barghamadi, Dr Benjamin Holman. Missing: Peter Laver AM FTSE. Photo: Salty Dingo

Fostering diversity and excellence in the next generation

ATSE's high-profile suite of STEM careers programs take a lifecycle approach to supporting skills development and successful careers by:

- Skilling, engaging and empowering secondary school students and their teachers
- Providing scholarships for studying STEM disciplines where the workforce need is greatest, at all levels of university
- Providing a launchpad for post-graduate students and early career researchers to grow collaborations and careers with and in industry
- Broadening capability for STEM students at all levels of university with essential skills and networks for professional careers.

IMNIS

Industry Mentoring Network in STEM

The IMNIS (Industry Mentoring Network in STEM) is our award-winning industry engagement initiative, which pairs motivated PhD student and early-career researchers (mentees) in science, technology, engineering and maths with industry professionals (mentors) in a one-year structured mentoring relationship. Both mentors and mentees are offered additional professional development and networking opportunities.

The Eureka Award-winning program proactively builds a cross-sector collaboration culture, growing connections, understanding, shared language and skills.

Participating organisations benefit from the professional relationships forged with mentees through the development of a warm talent pipeline, enabling them to secure some of the brightest, industry-ready talent. Organisations also benefit from investing in leadership development for staff (mentors), and opportunities to network across a broad cross-section of STEM-dependent sectors and people.

371
mentor-mentee pairs

98%
of mentees gain transferable skills relevant to industry

17
participating universities around Australia

2000+
Alumni and program ambassadors (Catalysts)

ELEVATE

Propelling women and diverse people into STEM careers

ATSE's Elevate: Boosting women in STEM program, seed funded by the Department of Industry, Science and Resources, is awarding hundreds of scholarships to women and non-binary people to study science, technology, engineering and maths at Australian universities.
The program is growing the STEM-skilled workforce and addressing gender inequity by supporting women and non-binary people to acquire the skills, networks, qualifications and opportunities to enter and thrive in STEM-dependent careers, propelling diverse people into leadership.

The program's unique wraparound approach to priming scholars for success includes:

- untied financial support
- access to events, networking and professional development
- mentoring and ongoing support during the scholars' studies including access to qualified counsellors to support wellbeing.

Elevate is a collaboratively designed, sector-leading program to support women and non-binary people in STEM – underpinned by robust processes, systems and evidence-based approaches – and a strong commitment to continuous improvement. It's been independently assessed as a leading program for women in STEM, and showcased in the federal government's Diversity in STEM Review as an exemplar nationally.

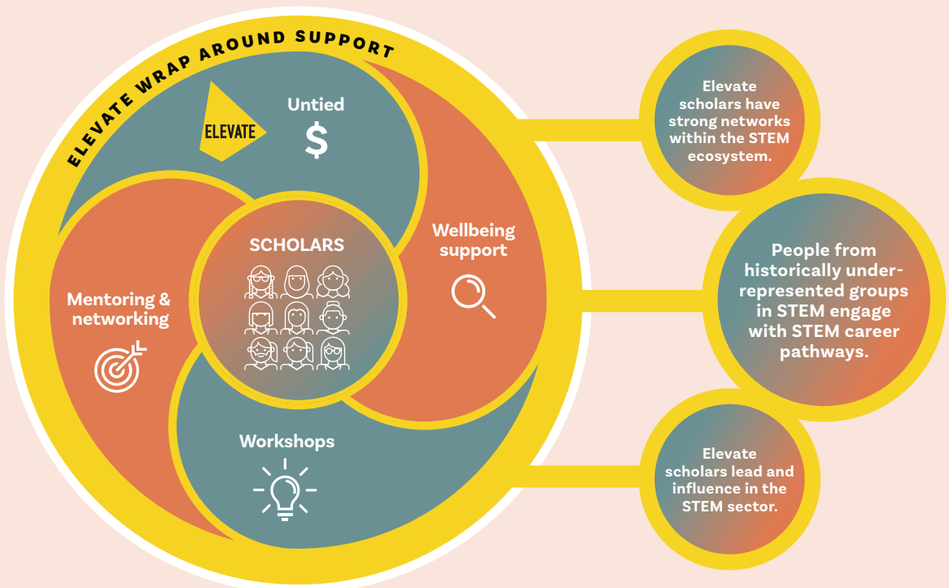
In 2023, Elevate welcomed the Defence Science and Technology Group as a new partner to grow more scholarships through our game-changing program.

The demographic profile of the 2024 scholar cohort exceeded all targets for diversity representation. Retention in the program is significantly higher than the national average: 98% of scholars have continued their studies after their first year, a drop-out rate five times lower than average.

2100+
applications submitted to date

10%
of scholars are Aboriginal and Torres Strait Islander

92%
of scholars say they have benefited from participating in the program



1000+
schools
Australia wide

100
Hands-on activities

280
Lessons

97%
of teachers surveyed credit STELR for higher student engagement in STEM

96%
of teachers surveyed credit STELR for increased academic achievement

Fostering a STEM-ready generation

Established in 2010 by ATSE Fellow and former Chief Scientist, Alan Finkel, STELR – or Science and Technology Education Leveraging Relevance – provides hands-on, curriculum- aligned resources for secondary schools with a focus on sustainability, and renewable energy.

Now in more than one-third of Australian secondary schools, STELR is aligned with the national science curriculum. It takes a hands-on enquiry approach to learning, tapping into students' curiosity and concerns about the impact of climate change, and teaching them to understand and use the technologies necessary to actively tackle it. STELR empowers teachers to grow their confidence in science, technology and engineering, with resources, professional development and connections with industry.

STELR's *Shape Your Future* series features live talks and Q&A sessions beamed directly into Australian classrooms, featuring diverse innovators across the STEM disciplines to celebrate the broad range of STEM career opportunities available to students, and the pathways to get them there.

STELR's new pilot program *STEM Beyond School* gives teachers from across Australia the opportunity to tour state-of-the-art science and industry spaces to understand what's up and coming, keeping teachers current with the STEM skill needs and career opportunities of tomorrow, to better support their students.

Emerging Leaders Network

The ATSE Emerging Leaders Network was established in August 2024 to provide an opportunity for motivated individuals with leadership potential to bring unique perspectives to many of the national and global challenges that society faces and will in turn bring new perspectives to ATSE's policy and advocacy work.

The network provides emerging leaders with an opportunity to develop their potential, work and learn alongside established and highly regarded researchers, innovators and professionals within the ATSE Fellowship, and contribute to robust and practical thinking to Australia's big debates. They are included in ATSE's policy work to help Australians understand and use technology to solve complex problems, bringing a crucial new perspective. The Network enables competitively selected participants the opportunity to:

- Enhance their leadership skills and capacities
- Work and learn alongside senior leaders within ATSE's Fellowship
- Be mentored by ATSE Fellows, and
- Contribute to robust and practical thinking to inform Australia's response to complex challenges.

All 15 of our Emerging Leaders can be found on the ATSE website.

Reconciliation Action Plan

ATSE's vision for reconciliation is that all Australians recognise and value Aboriginal and Torres Strait Islander custodianship as one of the oldest knowledge systems on the planet. Following the outcome of the referendum and divisions that have emerged through the public debate, ATSE reiterates our commitment to reconciliation, and to building awareness of and respect for Traditional Knowledge.

Across 2023-24, ATSE's Reflect RAP has guided strong foundations for embedding reconciliation within our activities. Almost all (89%) of our Reflect RAP actions have been achieved or are embedded. The intent of outstanding items with a long-term focus will be carried across as the RAP Working Group progresses development of an Innovate RAP in the coming year.

ATSE has focused on strengthening relationships within our sphere of influence, demonstrating respect through observation of cultural protocols and supporting cultural learning, and providing opportunities for engagement with and celebration of Aboriginal and Torres Strait Islanders in STEM.

The inaugural ATSE Traditional Knowledge Innovation Award was awarded in October 2023 to John Watson & Professor Ron Quinn AM FTSE. The award celebrates STEM research and development by Aboriginal and Torres Strait Islander peoples or communities which is based on, or significantly incorporates or builds on, Traditional Knowledge. Watson & Quinn's project combines thousands of years of Traditional Knowledge with western science to reveal a novel, natural remedy for the treatment of severe pain. The project is powerful not only for its outcomes, but also its approach in retaining traditional ownership and respect for the integrity of traditional knowledge.

ATSE continues discussion with other Australian learned Academies regarding the work on building respect for Traditional Knowledge, and articulating guidelines for research managers to support respectful and equitable application of Traditional Knowledge in the modern context.

Above: Detail from ATSE's Reconciliation Action Plan artwork: 'Knowledge Systems and Holders'. Artist: Lynnice Letty Church. Tribes: Ngunnawal, Wiradjuri and Kamilaroi (ACT and surrounding region / NSW)

Diversity

BUILDING A DIVERSE WORKFORCE FOR SMALL STEM BUSINESSES

The D&I Toolkit was recognised at the 2024 Tech Diversity Awards in the Business Category, which recognises businesses who have implemented diversity, equity, and inclusion initiatives.

Our D&I Toolkit was specifically designed to assist STEM-focused small and medium enterprises in creating diverse and inclusive workplaces. The Toolkit supports Australian STEM businesses to attract and retain the best talent, and to create vibrant, creative, high functioning and resilient workforces.

Accepting the Merit award, our Fellow, Emeritus Professor Doreen Thomas FTSE said, "*Over the four years of development of the D&I Toolkit for small and medium-sized businesses, a key driving force was contributing to increasing the diversity of the technology sector. The nominees within the Business category show just how much innovation there is in our sector.*"

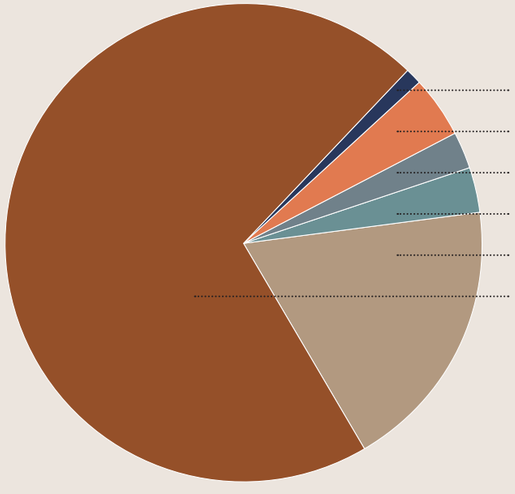
ANNUAL REVIEW 2023-2024 — Australian Academy of Technological Sciences and Engineering

Organisational excellence

ATSE Fellows work hand-in-hand with our professional staff to achieve our Mission to help Australians understand and use technology to solve complex problems. We work every day, and through our structures, policies and all activities, to apply our values of integrity and transparency, inclusion, collaboration, excellence and independence, sustainability and professional pride. ATSE strives to be an employer of choice and an attractor of outstanding talent to support our people-first approach to developing a high-performance culture.

FINANCIAL RESULTS

	FY24	FY23
Revenue	$8,263,495	$6,534,392
Expenses	$9,186,996	$8,685,975
Operating surplus/(deficit)	($923,500)	($2,151,583)
Revenue from operating activities (by source)		
Government	$5,851,459	$3,565,065
Contributions & donations	$73,682	$234,990
Membership fees	$347,750	$347,438
Sponsorships	$206,333	$500,318
Investment income	$255,373	$257,262
Sundry revenue	$1,528,899	$1,629,319
Total revenue	**$8,263,495**	**$6,534,392**



$73,682 Contributions & donations
$347,750 Membership fees
$206,333 Sponsorships
$255,373 Investment income
$1,528,899 Sundry revenue
$5,851,459 Government

TOTAL REVENUE
$8,263,495

ACKNOWLEDGEMENT OF DONORS

The Academy acknowledges and expresses its gratitude to the following individuals, organisations and long-term supporters for their extraordinary generosity. Their donations support our Academy to acquit our mission.

ATSE NSW Division
Peter Laver AM FTSE
ATSE SA & NT Division
Emeritus Professor Doreen Thomas AM FTSE
ATSE WA Division
Kylie Walker
ATSE Victorian Division
Emeritus Professor Annabelle Duncan PSM FTSE
Dr George Morstyn FTSE
Dr Elizabeth Woods OAM FTSE
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Dr Carrie Hillyard AM FTSE FAICD
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Gerald Moriarty AM FTSE
Dr Ian Poiner FTSE
Dr Russell Reichelt AO FTSE
Gary Zamel FTSE
Dr David Topping FTSE
Professor Anna Giacomini FTSE

We would also like to acknowledge all the generous donors past and present who wish to remain anonymous.

ATSE is registered with the Australian Charities and Not-for-profits Commission and is listed by name as a Deductible Gift Recipient (DGR).

ACKNOWLEDGEMENT OF FELLOWS AND MENTORS

The volunteer hours invested by our highly engaged Fellows and other senior industry mentors who bring their expertise and guidance to the Academy and our work, are the cornerstone of ATSE. We thank each and every one of you for your contribution to delivering the Academy's mission.

ACKNOWLEDGEMENT OF STAFF

ATSE's professional staff are committed, values-driven, and professional individuals who invest considerable time and energy into ensuring ATSE's work is highly professional, timely, aligned with our mission, and impactful. We're grateful to the team for a successful year.

MAJOR PARTNERS, SPONSORS AND COLLABORATORS

As a collaborative leader in Australian STEM, ATSE enjoys partnering with values-aligned organisations that recognise and value the critical role of helping Australians understand use technology to solve our greatest challenges.

ATSE is deeply grateful to our donors, sponsors and partners for their generous support and partnership, without which our evidence-based advice, reports, events, communication activities and STEM careers programs would not be possible.

Australian Government
Department of Industry, Science and Resources

Australian Government
Department of Education, Skills and Employment

Australian Government
Defence

CSIRO

grok academy

ORICA

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

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Australian Government
ANSTO
Science. Ingenuity. Sustainability.

HCLTech

QIMR Berghofer Medical Research Institute

NCI AUSTRALIA

Australian Government
IP Australia

challenger

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ASEAN Academy of Engineering and Technology
Australian Strategic Capabilities Accelerator
Australian School Canteens Association
Australian Space Agency
Australian Technology Network of Universities (ATN)
BHP
Champions of Change Coalition
Chief Executive Women
Cicada Innovations
Cooperative Research Australia
CSL
Deadly Science
DMTC Limited
Embassy of the Republic of Korea
Engineers Australia
Engineering Academy of Japan
gemaker
Indigitek
International Council of Academies of Engineering and Technological Sciences (CAETS)
KPMG
National Research Foundation of Korea
Office of the Women in STEM Ambassador
Royal Academy of Engineering
Science in Australia Gender Equity (SAGE)
Standards Australia
The National Academy of Engineering of Korea
UTS TechLab
Victorian Department of Education
Wolfpack Space Hub
Women in Leadership Development Program (WILD)
Women in STEMM Australia

KEY PEOPLE

As at 30 June 2024

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Vice President Financial Sustainability	Sue MacLeman FTSE FAICD
Vice President Membership	Professor Mark Hoffman FTSE
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Chair of Nominations Committee	Professor Paul Wood AO FTSE
Diversity & Inclusion Committee	Professor Elanor Huntington FTSE
Audit and Risk Committee	Professor Iven Mareels FTSE
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Director and Chief Executive Officer	Kylie Walker
Company Secretary	Rachel Portelli

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Assembly Chair	Distinguished Professor Saeid Nahavandi FTSE

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Director, Policy & International Affairs	Peter Derbyshire
Director, STEM Careers Strategy	Dr Alison Every
Director, Director, Business Strategy	Richard Hambly
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Where leading engineers and applied scientists collaborate for a better Australia and world.

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