



ATSE

28 June 2023

To the House of Representatives Standing Committee on Regional Development, Infrastructure and Transport,

Thank you again for inviting the Australian Academy of Technological Sciences and Engineering (ATSE) to provide evidence to the *Inquiry into the implications of severe weather events on the national regional, rural, and remote road network*.

As requested, we provide here answers to the questions on notice taken and have attached the reports that were requested during the hearing.

Attachments provided:

- [Waste and resource recovery report](#)
- [Probabilistic Assessment Explainer](#)
- [Transport industry tech readiness report](#)

ATSE is available to provide any further information the committee may require. We also look forward to engaging with the committee on future inquiries.

Yours Sincerely,



Kylie Walker  
Chief Executive Officer, Australian Academy of Technological Sciences & Engineering

## **Questions taken on notice during the hearing**

### [ATSE's philanthropic donors](#)

#### **Excerpt:**

Mr. Pasin: On notice, I would like to get a list of your philanthropic donors—if that's publicly available?

#### **ATSE's response:**

ATSE is Government-supported through the Higher Education Research Promotion (HERP) scheme administered by the Department of Education. ATSE receives payment for projects, usually for the Government, that are funded to meet our resourcing. ATSE is a DGR-status charity and also receives financial contributions via philanthropic donors, partnerships, and sponsorship.

ATSE's philanthropic donations are made to support one of the following categories:

- [STELR: Bringing STEM to life in schools | ATSE](#) – This is a school education program that is run by ATSE
- CS in schools – This is a school education program that was run by ATSE and now operates independently under ATSE's umbrella
- ATSE administration support

Philanthropic donations totalling A\$1.06m were made to ATSE during the period 1 July 2022 to 27 June 2023. The following table lists significant philanthropic donors during this period:

<b>Major Donors (A\$500,000 to A\$1,000,000)</b>	<b>Significant Donors (A\$100,000 up to A\$500,000)</b>	<b>Donors (A\$11,000 up to A\$100,000)</b>
TDM Foundation - Donation to support the CS in Schools Program	Orica Australia Pty Ltd – donation to support the STELR Program	Jasper Foundation - Donation to support the CS in Schools Program
		John and Myriam Wylie Foundation - Donation to support the CS in Schools Program

There are an additional 30 donors who have each given less than A\$11K. Total donations from these donors amounted to \$27K during the period. Some of these donors wish to remain anonymous; most of them are Fellows of the Academy.

## Breakdown of ATSE's Fellowship expertise

### Excerpt:

Mr. Pasin: So, of your 900 members—and I note that Dr Cleugh is an atmospheric scientist—how many come from the civil engineering disciplines? Would you know that?

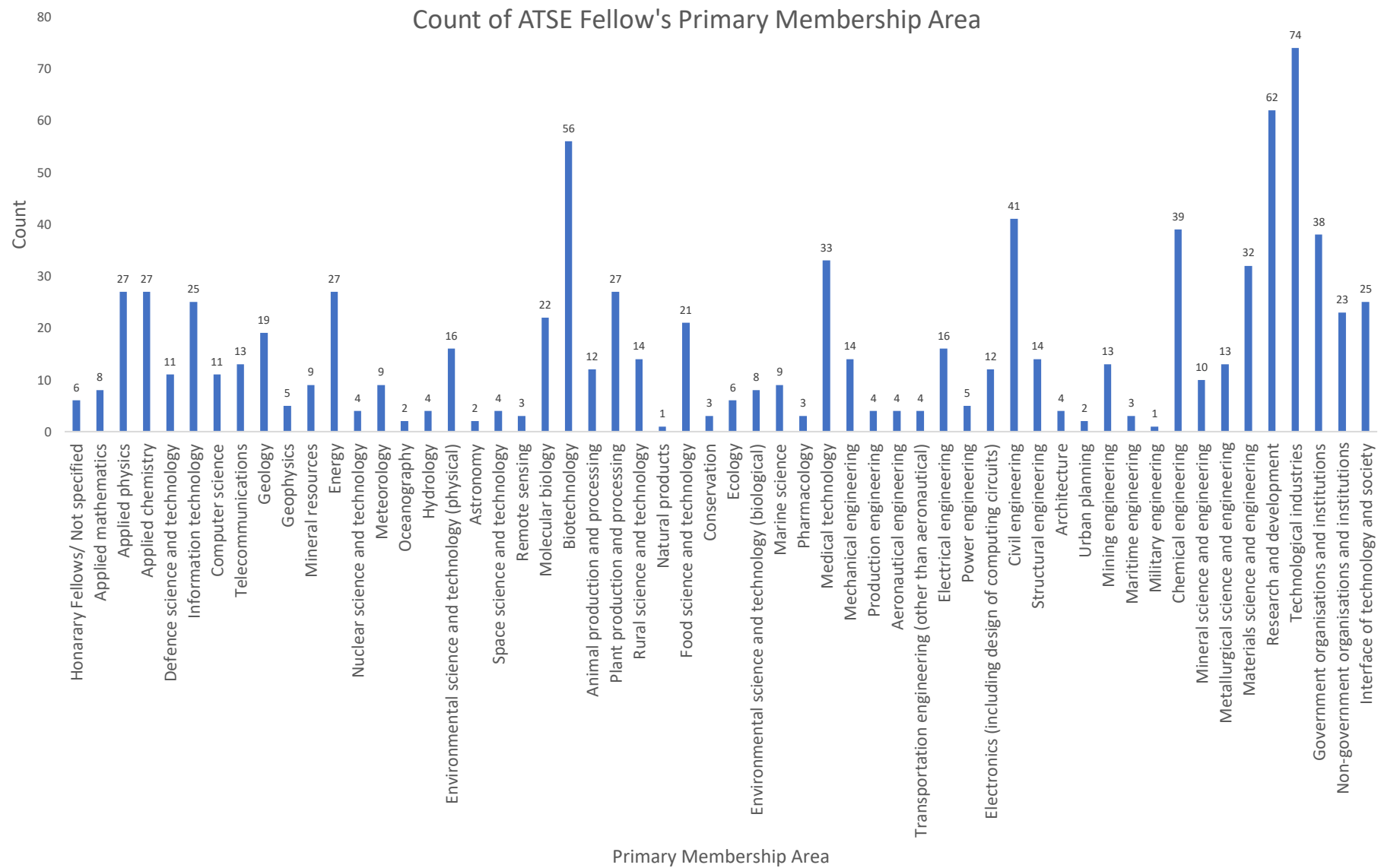
Ms Walker: I don't have the percentage off the top of my head, but we are quite weighted towards engineering; we have a majority of engineers, and then we also have applied scientists, and technologists that kind of cross over both.

Mr. Pasin: Sure. On notice, I'd love a breakdown—

### ATSE's response:

The Australian Academy of Technological Sciences & Engineering is an independent, non-government, not-for-profit organisation with a mission to help Australians understand and use technology to solve complex problems. We bring together Australia's leading experts in applied science, technology and engineering to provide impartial, practical and evidence-based advice on how to achieve sustainable solutions and advance prosperity. The Academy contributes robust and practical thinking to Australia's big debates. We are a Learned Academy made up of around 900 Fellows elected by their peers for significant impact and achievement in their field.

The fellowship includes 41 civil engineers. The complete breakdown of ATSE fellow's primary disciplinary affiliations is outlined in the figure below:



## Role of road engineers

### Excerpt:

Mr Zappia: Just this question, and I accept everything you've presented to the committee. Why is it that our professional road designers are not doing all of the things that you're suggesting we should be doing? As a professional, surely those things must cross their minds as well.

Ms Walker: I'm not sure I'm the right person to answer that.

### ATSE's response:

ATSE commends the work professional road designers have done to create road-resilient infrastructure throughout Australia. They have a challenging and complex job, and they are doing it well. For example, after the floods of 2010-11 that spread across Queensland, professional designers used a process called foamed bitumen stabilisation <sup>1</sup>. This injects small amounts of air and cold water into hot bitumen, the sticky dark substance typically used for road surfaces. The bitumen then expands and forms a water-resistant layer. The result is a stronger yet flexible road surface or pavement that is better able to withstand flooding.

However, there is room for improvement which requires systematic data collection, analytics, support and planning, to support road designers to plan for resilience to extreme weather events. This could be done with legislation around updating standards and design codes from current research and support for the adoption of new technologies and training for road designers.

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<sup>1</sup> Austroads (2017) [New foamed bitumen stabilisation test methods](#), accessed 28 June 2023.